



United States
Department of
Agriculture



Natural
Resources
Conservation
Service

In cooperation with
Cornell University
Agricultural Experiment
Station

Soil Survey of Saratoga County, New York



How To Use This Soil Survey

General Soil Map

The [general soil map](#), which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

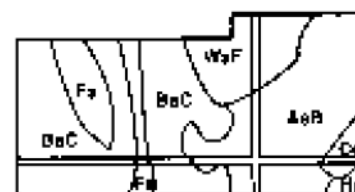
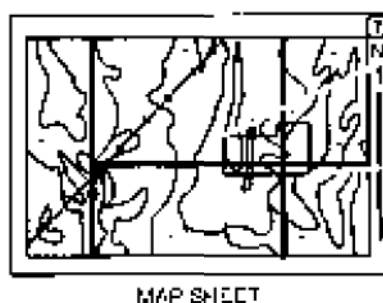
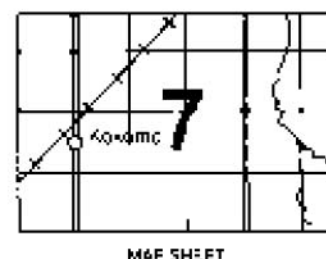
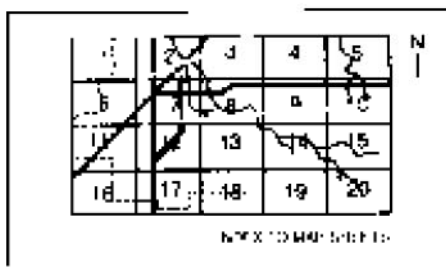
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the [Index to Map Sheets](#). Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE. Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication 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 agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1992. Soil names and descriptions were approved in 1993. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1993. This survey was made cooperatively by the Natural Resources Conservation Service and the Cornell University Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Saratoga County Soil and Water Conservation District. Additional funding for this survey was provided by the New York State Department of Agriculture and Markets.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover: Saratoga Battlefield represents the turning point of the American Revolution. The Hudson River, on the right, was a major transportation route from early colonial times, and control of it was crucial to victory of either side. Tioga and Teel soils, on the floodplain, are prime farmland soils. The cannon is on clayey Hudson soils.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is <http://www.nrcs.usda.gov>.

Depth to water table: greater than 6 feet
Depth to bedrock: greater than 60 inches
Flooding hazard: none

Soil Properties

Woodstock soil

Permeability: moderately rapid throughout the mineral soil
Available water capacity (average for 40-inch profile): low
Soil reaction: strongly acid to slightly acid throughout
Surface runoff: rapid
Erosion hazard: very severe
Depth to water table: greater than 6 feet
Depth to bedrock: 10 to 20 inches
Flooding hazard: none

Use and Suitability

Most areas of this map unit are forested. Some areas are used as pasture.

Cropland

This map unit is not suited to cultivated crops. On long slopes and especially on areas bare of plant cover, these soils erode easily. Use of cover crops or sod forming crops, and return of crop residues to the soil help to reduce erosion and promote good soil tilth.

Pasture

This map unit is poorly suited to pasture. Slope is a high erosion hazard, especially in heavily grazed areas. Proper stocking rates and timely deferment of grazing will help reduce erosion and increase forage yields.

Recreation

Many recreational uses are very limited because of slope and also very limited in the Woodstock part because of the depth to bedrock. Extensive grading and smoothing will be needed in most areas of this map unit for playgrounds, campsites, picnic areas and golf fairways. Less sloping and deep included or nearby soils should be considered for these uses. Water erosion is a management concern on heavily used paths and trails. Water control structures can be installed to divert flowing water away from these passages. Paths and trails should be routed along the contour of the slope or around this unit, where possible, to alleviate erosion.

Woodland

The potential productivity is high for eastern white pine. This map unit is poorly suited for log landings and natural road surfaces because of slope. This unit

is not suited to mechanical planting because of steep slope. Establishing log landings at a nearly level or gently sloping area will provide for a more efficient operation. Also, the hazard of erosion on roads and trails is severe because of steep slope. Roads should be routed around this unit, where possible. Water control structures may be installed to divert flowing water off and away from these passages. Trees to manage include white spruce and eastern white pine.

Dwellings with basements

This map unit is very limited for dwellings because of slope and very limited because of depth to bedrock in the Woodstock part. Intensive excavation, grading and smoothing will be necessary unless less sloping, deeper included areas can be utilized. Disturbed building sites should be graded and revegetated quickly to reduce soil erosion.

Septic Tank Absorption Fields

This map unit is very limited by slope and very limited by depth to bedrock in the Woodstock part. Conventional systems will not function properly in most areas of this unit, resulting in a possible pollution hazard. To increase the filtering capacity, absorption field tiles should be installed on lesser sloping areas of included or nearby soils.

The capability subclass is 7e.

BtB—Broadalbin silt loam, 3 to 8 percent slopes

This very deep, gently sloping, moderately well drained soil formed in glacial till with a dense lower subsoil and substratum. It is on the top of hills in glacially modified uplands. Individual areas range mainly from 5 to 50 acres and are oval or rectangular.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam

Subsoil:

9 to 23 inches, yellowish brown silt loam

23 to 30 inches, mottled grayish brown fine sandy loam

30 to 43 inches, mottled dark yellowish brown gravelly fine sandy loam

Substratum:

43 to 74 inches, olive yellow and dark yellowish brown channery fine sandy loam

74 to 88 inches, mottled olive channery fine sandy loam

Included in mapping are small areas of somewhat

poorly drained Mosherville soils and poorly drained or very poorly drained Sun soils in low areas and at the base of slopes. Also included are areas of Charlton and Sutton soils which have a friable substratum, and Manlius soils which are less than 40 inches deep to shale bedrock. Included areas are up to 5 acres and make up about 30 percent of the unit.

Soil Properties

Permeability: moderate in the surface and upper subsoil layers, slow in the lower subsoil and substratum

Available water capacity (average for 40-inch profile): moderate

Soil reaction: strongly acid to slightly acid in the surface layer and subsoil, moderately acid to slightly alkaline in the substratum

Surface runoff: medium

Erosion hazard: slight

Depth to water table: 1.5 to 3 feet at some time during March through May

Depth to bedrock: greater than 60 inches

Flooding hazard: none

Use and Suitability

Most areas of this prime farmland soil are used for agriculture. Some areas are in woodlots, orchards, or are being used as sites for residential development.

Cropland

This map unit is well suited to cultivated crops. It can be used to grow small grains, corn silage, hay, fruits and vegetables. On long slopes without vegetative cover, this soil may erode easily. Cross slope tillage, use of cover crops or sod-forming crops, and the return of crop residues to the soil help to reduce erosion and promote good soil tilth.

Pasture

This map unit is very well suited to pasture. Proper stocking rates, nutrient management, and weed control will help increase forage yields. Deferral of grazing during rainy periods can prevent erosion, compaction, and destruction of sod cover.

Recreation

This map unit is somewhat limited for many recreational uses because of the depth to saturated zone and cemented pan. It is also very limited for playground use by slope. The addition of fill material or subsurface drainage will improve conditions for these uses. Some additional grading and smoothing will be needed for playground use.

Woodland

The potential productivity is moderate for sugar maple. This map unit is moderately suited to log landings and natural road surfaces because of slope, low strength of the upper soil profile, and seepage over the dense lower subsoil in the spring. Additional fill material and grading may be necessary to efficiently stack and process logs. There is also a moderate erodibility concern on roads and trails. Water control structures can be installed to divert flowing water away from these passages. Trees to manage include red pine, Norway spruce, and European larch.

Dwellings with basements

This map unit is very limited for dwellings with basements because of the depth to a thin, saturated zone in the spring above the dense, lower subsoil. Placing tile drains around foundation footings and sloping the land away from buildings may help to reduce this limitation.

Septic Tank Absorption Fields

This map unit is very limited for septic systems because of the cemented pan or restricted permeability in the lower subsoil and substratum, and the depth to a thin, saturated zone during spring above the denser, lower subsoil. Conventional septic systems may not work properly, resulting in groundwater pollution. Alternative septic system designs that properly filter effluent above the lower subsoil should be considered.

The capability subclass is 2e.

BtC—Broadalbin silt loam, 8 to 15 percent slopes

This very deep, strongly sloping, moderately well drained soil formed in glacial till with a dense lower subsoil and substratum. It is on the sides of hills in glacially modified uplands. Individual areas range mainly from 5 to 50 acres and are rectangular or irregular shaped.

The typical sequence, depth and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam

Subsoil:

9 to 23 inches, yellowish brown silt loam

23 to 30 inches, mottled grayish brown fine sandy loam

30 to 43 inches, mottled dark yellowish brown gravelly fine sandy loam

substratum, and the depth to a thin, saturated zone during spring above the denser, lower subsoil. Conventional septic systems may not work properly, resulting in groundwater pollution. Less sloping areas and alternative septic system designs that properly filter effluent above the lower subsoil should be considered.

The capability subclass is 4e.

BvB—Broadalbin-Manlius-Nassau complex, undulating

This unit consists of very deep, moderately well drained Broadalbin soils, moderately deep, well drained Manlius soils, and shallow, somewhat excessively drained Nassau soils. Slopes range from 3 to 8 percent. The surface topography is often irregular and sloping in many directions because of the underlying folded and tilted shale or slate bedrock. Areas are mainly oval and range from 10 to 30 acres.

The soils in this unit are in such an intricate pattern that it was not practical to separate them in mapping. The unit consists of about 50 percent Broadalbin soils, 30 percent Manlius soils, 15 percent Nassau soils, and 5 percent other soils.

The typical sequence, depth, and composition of the layers of this map unit are as follows—

Broadalbin soils

Surface layer:

0 to 9 inches, dark grayish brown silt loam

Subsoil:

9 to 23 inches, yellowish brown silt loam

23 to 30 inches, mottled grayish brown fine sandy loam

30 to 43 inches, mottled dark yellowish brown gravelly fine sandy loam

Substratum:

43 to 74 inches, olive yellow and dark yellowish brown channery fine sandy loam

74 to 88 inches, mottled olive channery fine sandy loam

Manlius soils

Surface layer:

0 to 5 inches, dark brown channery silt loam

Subsoil:

5 to 18 inches, brown channery silt loam

18 to 21 inches, brown very channery silt loam

Substratum:

21 to 24 inches, yellowish brown extremely channery silt loam

24 inches, soft shale bedrock

Nassau soils

Surface layer:

0 to 3 inches, very dark grayish brown channery silt loam

Subsoil:

3 to 18 inches, yellowish brown very channery silt loam

18 inches, soft shale bedrock

Included with this unit in mapping are small areas of very deep, somewhat poorly drained Mosherville soils in depressions and on concave footslopes, and areas of soil less than 10 inches deep. Included areas are up to 5 acres and make up about 5 percent of the map unit.

Soil Properties

Broadalbin soils

Permeability: moderate in the surface and upper subsoil layers, slow in the lower subsoil and substratum

Available water capacity (average for 40-inch profile): moderate

Soil reaction: strongly acid to slightly acid in the surface layer and subsoil, moderately acid to slightly alkaline in the substratum

Surface runoff: medium

Erosion hazard: slight

Depth to water table: 1.5 to 3 feet at some time during March through May

Depth to bedrock: greater than 60 inches

Flooding hazard: none

Manlius

Permeability: moderate throughout the mineral soil

Available water capacity (average for 40-inch profile): low

Soil reaction: extremely acid to strongly acid in the surface and subsoil; very strongly acid to slightly acid in the substratum

Surface runoff: medium

Erosion hazard: slight

Depth to water table: more than 6 feet

Depth to bedrock: 20 to 40 inches

Flooding hazard: none

Soil Properties

Nassau

Permeability: moderate throughout the mineral soil

Available water capacity (average for 40-inch profile): very low

Soil reaction: very strongly acid or strongly acid throughout the soil

Surface runoff: medium

Erosion hazard: slight

Depth to water table: more than 6 feet

Depth to bedrock: 10 to 20 inches

Flooding hazard: none

Use and suitability

Many areas of this map unit are used for agriculture. Some areas are idle or wooded, orchards or are being used as residential building sites.

Cropland

The Broadalbin and Manlius parts of this unit are well suited to cultivated crops. These areas can be used to grow small grains, corn silage, hay, fruits and vegetables. Areas of Nassau soils tend to be droughty and channery. On long slopes without vegetative cover, this soil may erode easily. Cross slope tillage, use of cover crops or sod-forming crops, and return of crop residues to the soil help to reduce erosion and promote good soil tilth.

Pasture

The Broadalbin and Manlius parts of this unit are very well suited to pasture. Areas of Nassau soils tend to be droughty with poorer sod cover. Proper stocking rates, nutrient management, and weed control will help increase forage yields. Deferment of grazing during wet or very dry periods can prevent erosion, compaction, and destruction of sod cover.

Recreation

This map unit is very limited in the Nassau part for campsites, picnic areas, playgrounds and golf fairways because of the depth to bedrock. In the Manlius and Nassau parts of this unit, playgrounds are very limited by gravel content. Gravel-free fill material placed in recreation areas will improve conditions for these uses. A significant amount of quality fill material may be necessary to provide if the Manlius and Nassau parts of this unit are used for playgrounds.

Woodland

In this complex, the potential productivity is moderate for sugar maple. This map unit is only moderately suited to log landings and natural road surfaces because of slope, possible wetness, and relatively low strength in the Broadalbin part. Some grading may be necessary to efficiently stack and process logs. The Nassau part of this unit causes a severe limitation in road construction because of higher costs for excavating or blasting bedrock. Trees to manage include red pine, Norway spruce and European larch.

Dwellings with basements

This map unit is very limited for dwellings with basements because of the depth to bedrock in the Manlius and Nassau parts, and the depth to a thin, saturated zone above the dense lower subsoil of the Broadalbin soils. In the very deep areas of this unit, tile drains around foundation footings and sloping the land away from buildings may help to reduce seepage problems. Additional fill may be needed to landscape around basement walls in bedrock-controlled parts of this unit.

Septic Tank Absorption Fields

This map unit is very limited for septic systems because of the depth to cemented pan (or restricted permeability), and depth to a saturated zone during spring in the Broadalbin part, and depth to bedrock in the Manlius and Nassau parts. Selection of sites that have a deeper, more permeable soil, and in better-drained adjoining areas may reduce these limitations.

The capability subclass for Broadalbin and Manlius is 2e, and for Nassau is 3s.

BvC—Broadalbin-Manlius-Nassau complex, rolling

This unit consists of very deep, moderately well drained Broadalbin soils, moderately deep, well drained Manlius soils; and shallow, somewhat excessively drained Nassau soils. Slopes range from 8 to 15 percent. The surface topography is often irregular and slopes in many directions because of the underlying folded and tilted shale or slate bedrock. Areas are mainly oval and range from 10 to 30 acres.

The soils in this map unit are in such an intricate pattern that it was not practical to separate them in mapping. The unit consists of about 50 percent Broadalbin soils, 30 percent Manlius soils, 15 percent Nassau soils, and 5 percent other soils.

The typical sequence, depth, and composition of the layers of this map unit are as follows—

Broadalbin soils

Surface layer:

0 to 9 inches, dark grayish brown silt loam

Subsoil:

9 to 23 inches, yellowish brown silt loam

23 to 30 inches, mottled grayish brown fine sandy loam

30 to 43 inches, mottled dark yellowish brown gravelly fine sandy loam

Substratum:

43 to 74 inches, olive yellow and dark yellowish brown
channery fine sandy loam

74 to 88 inches, mottled olive channery fine sandy
loam

Manlius soils*Surface layer:*

0 to 5 inches, dark brown channery silt loam

Subsoil:

5 to 18 inches, brown channery silt loam

18 to 21 inches, brown very channery silt loam

Substratum:

21 to 24 inches, yellowish brown extremely channery
silt loam

24 inches, soft shale bedrock

Nassau soils*Surface layer:*

0 to 3 inches, very dark grayish brown channery silt
loam

Subsoil:

3 to 18 inches, yellowish brown very channery silt loam

18 inches, soft shale bedrock

Included in mapping are small areas of very deep, somewhat poorly drained Mosherville soils in depressions and on concave footslopes, and areas of soil less than 10 inches deep. Included areas are up to 5 acres and make up about 5 percent of the map unit.

Soil Properties**Broadalbin soils**

Permeability: moderate in the surface and upper
subsoil layers, slow in the lower subsoil and
substratum

Available water capacity (average for 40-inch profile):
moderate

Soil reaction: strongly acid to slightly acid in the
surface layer and subsoil, moderately acid to
slightly alkaline in the substratum

Surface runoff: rapid

Erosion hazard: moderate

Depth to water table: 1.5 to 3 feet

Depth to bedrock: greater than 60 inches

Flooding hazard: none

Soil Properties**Manlius soils**

Permeability: moderate throughout the mineral soil

Available water capacity (average for 40-inch profile):
low

Soil reaction: extremely acid to strongly acid in the
surface and subsoil; very strongly acid to slightly
acid in the substratum

Surface runoff: medium

Erosion hazard: moderate

Depth to water table: more than 6 feet at some time
during March through May

Depth to bedrock: 20 to 40 inches

Flooding hazard: none

Soil Properties**Nassau soils**

Permeability: moderate throughout the mineral soil

Available water capacity (average for 40-inch profile):
very low

Soil reaction: very strongly acid or strongly acid
throughout the soil

Surface runoff: medium

Erosion hazard: moderate

Depth to water table: more than 6 feet

Depth to bedrock: 10 to 20 inches

Flooding hazard: none

Use and suitability

Many areas of this map unit are used for agriculture. Some areas are idle, wooded, orchards or are being used as residential building sites.

Cropland

The Broadalbin and Manlius parts of this unit are moderately suited to cultivated crops. Nassau soils tend to be droughty and channery. This unit can be used to grow small grains, corn silage, hay, and some fruits and vegetables. On long slopes, and especially on areas bare of plant cover, this soil erodes easily. Cross slope tillage, the use of cover crops or sod-forming crops, and the return of crop residues help to reduce erosion and promote good soil tilth.

Pasture

The Broadalbin and Manlius parts of this unit are well suited to pasture. Nassau soils tend to be droughty with poorer forage. Proper stocking rates and timely deferment of grazing can protect the sod cover and reduce soil erosion, especially on sloping areas. Nutrient management and weed control will help increase forage yields.

Recreation

Because of slope, this map unit is very limited for playground use. It is also very limited in the Nassau part for campsites, picnic areas, playgrounds and golf fairways because of depth to bedrock. In the Manlius

and Nassau parts of this unit, playgrounds are very limited by high gravel content. Gravel-free fill material placed in areas of campsites and picnic areas will improve conditions for these uses. A significant amount of quality fill material may be necessary to provide if the Manlius and Nassau parts of this unit are used for playgrounds. Water erosion is a concern on heavily used paths and trails in the Broadalbin part of this unit. Water control structures can be installed to divert flowing water away from these passages.

Woodland

The potential productivity is moderate for sugar maple. This map unit is moderately suited to log landings and natural road surfaces because of slope, low soil strength of the upper soil profile, and seepage over the dense lower subsoil in the spring. Additional fill material and grading may be necessary to efficiently stack and process logs. There is also a moderate erodibility concern on roads and trails. Water control structures can be installed to divert flowing water away from these passages. Trees to manage include red pine, Norway spruce, and European larch.

Dwellings with basements

This map unit is very limited for dwellings with basements because of the depth to bedrock in the Manlius and Nassau parts, and the depth to a thin, saturated zone above the dense lower subsoil of Broadalbin soils. In the very deep areas of this unit, tile drains around foundation footings and sloping the land away from buildings may help to reduce seepage problems. Additional fill may be needed to landscape around basement walls in bedrock-controlled parts of this unit.

Septic Tank Absorption Fields

This map unit is very limited for septic systems because of the depth to cemented pan (or restricted permeability) and depth to a saturated zone during spring in the Broadalbin part, and depth to bedrock in the Manlius and Nassau parts. Selecting sites that have a deeper, more permeable soil, and in better-drained adjoining areas may reduce these limitations.

The capability subclass for Broadalbin and Manlius is 3e, and for Nassau is 4s.

BvD—Broadalbin-Manlius-Nassau complex, hilly

This unit consists of very deep, well drained and moderately well drained Broadalbin soils; moderately deep, well drained Manlius soils; and shallow,

somewhat excessively drained Nassau soils. Slopes range from 15 to 25 percent. The surface topography is often irregular and slopes in many directions because of the underlying folded and tilted shale or slate bedrock. Areas are mainly oval and range from 10 to 30 acres.

The soils in this unit are in such an intricate pattern that it was not practical to separate them in mapping. The unit consists of about 50 percent Broadalbin soils, 30 percent Manlius soils, 15 percent Nassau soils, and 5 percent other soils.

The typical sequence, depth, and composition of the layers of these soils are as follows—

Broadalbin soils

Surface layer:

0 to 9 inches, dark grayish brown silt loam

Subsoil:

9 to 23 inches, yellowish brown silt loam

23 to 30 inches, mottled grayish brown fine sandy loam

30 to 43 inches, mottled dark yellowish brown gravelly fine sandy loam

Substratum:

43 to 74 inches, olive yellow and dark yellowish brown channery fine sandy loam

74 to 88 inches, mottled olive channery fine sandy loam

Manlius soils

Surface layer:

0 to 5 inches, dark brown channery silt loam

Subsoil:

5 to 18 inches, brown channery silt loam

18 to 21 inches, brown very channery silt loam

Substratum:

21 to 24 inches, yellowish brown extremely channery silt loam

24 inches, soft shale bedrock

Nassau soils

Surface layer:

0 to 3 inches, very dark grayish brown channery silt loam

Subsoil:

3 to 18 inches, yellowish brown very channery silt loam

18 inches, soft shale bedrock

Included in mapping are small areas of very deep, somewhat poorly drained Mosherville soils in depressions and on concave footslopes, and areas of

Soil Properties

Permeability: moderate in the surface and upper subsoil layers, slow in the lower subsoil and substratum

Available water capacity (average for 40-inch profile): low

Soil reaction: strongly acid to slightly acid in the surface layer and upper subsoil, strongly acid to neutral in the lower subsoil, and moderately acid to slightly alkaline in the substratum

Surface runoff: slow

Erosion hazard: slight

Depth to water table: .5 to 1.5 feet at some time during November through May

Depth to bedrock: greater than 60 inches

Flooding hazard: none

Use and Suitability

Most areas of this map unit are used for agriculture. Some areas are in woodlots, or are idle and being allowed to revert to woodland.

Cropland

This soil is moderately suited to cultivated crops. It can be used to grow hay, small grains, corn silage, fruits and vegetables. The seasonal high water table may delay soil preparation and planting. Unless the soil is adequately drained, selection is limited to crops that are more tolerant to wetness. Adequate drainage outlets are sometimes difficult to locate. Reduced tillage practices, use of cover crops or sod-forming crops, and return of crop residues to the soil help to reduce compaction and erosion as well as promote good soil tilth.

Pasture

This map unit is well suited to pasture. However, the seasonal high water table may restrict the root growth of some legumes. Deferment of grazing in the spring and during other wet periods will help to maintain tilth and protect the sod cover. Proper stocking rates, nutrient management, and weed control will help increase forage yields and maintain sod cover.

Recreation

This map unit is very limited for camp areas and playgrounds because of the depth to the saturated zone. Campsites, picnic areas, playgrounds, and golf fairways are also very limited by depth to the cemented pan causing restricted permeability. The addition of fill material and improved drainage will be needed in most areas of this map unit to make these

uses functional. A higher, drier site should be considered for these uses.

Woodland

The potential productivity for sugar maple is moderate. This map unit is moderately suited for log landings and natural road surfaces because of wetness and the relatively low soil strength in the upper soil profile. Improved drainage or additional fill material may be needed in many areas of this unit. There is also a high potential for seedling mortality because of wetness. Only species that are wetness-tolerant should be selected for this site. Trees to manage include white spruce, Norway spruce, and European larch.

Dwellings with basements

This map unit is very limited for dwellings with basements because of the wetness of the soil or the depth to the saturated zone. Selecting sites in better drained, nearby areas may reduce this limitation. Tile drains around foundation footings, protective coatings on basement walls, and sloping the land away from buildings may help to reduce this limitation.

Septic Tank Absorption Fields

This map unit is very limited for septic systems because of the depth to cemented pan (or restricted permeability), and the depth to a saturated zone. Selecting sites that have a more permeable, well drained soil in nearby areas may reduce these limitations.

The capability subclass is 3w.

MvB—Mosherville silt loam, 3 to 8 percent slopes

This very deep, gently sloping, somewhat poorly drained soil formed in glacial till which has a dense lower subsoil and substratum. It is at the base of hills and on till plains in glaciated uplands. Individual areas range mainly from 5 to 30 acres and are oval or rectangular.

The typical sequence, depth, and composition of the layers of this map unit are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam

Subsoil:

9 to 16 inches, light olive brown loam

16 to 47 inches, mottled olive gravelly fine sandy loam

Substratum:

47 to 72 inches, olive brown gravelly fine sandy loam

Included with this soil in mapping are small areas of moderately well drained Broadalbin soils, and poorly drained or very poorly drained Sun soils in low areas and at the base of slopes. Also included are areas of Sutton soils which have a friable substratum, and Manlius soils which are 20 to 40 inches deep to shale bedrock. Included areas are up to 5 acres and make up about 25 percent of the unit.

Soil Properties

Permeability: moderate in the surface and upper subsoil layers, slow in the lower subsoil and substratum

Available water capacity (average for 40-inch profile): low

Soil reaction: strongly acid to slightly acid in the surface layer and upper subsoil, strongly acid to neutral in the lower subsoil and moderately acid to slightly alkaline in the substratum

Surface runoff: medium

Erosion hazard: slight

Depth to water table: .5 to 1.5 feet at some time during November through May

Depth to bedrock: greater than 60 inches

Flooding hazard: none

Use and Suitability

Most areas of this map unit are used for agriculture. Some areas are in woodlots, or are idle and reverting to woodland.

Cropland

This map unit is moderately suited to cultivated crops. It can be used to grow hay, small grains, corn silage, fruits and vegetables. The seasonal high water table may delay soil preparation and planting. Unless the soil is adequately drained, selection is limited to crops that are more tolerant to wetness. Adequate drainage outlets are sometimes difficult to locate. Reduced tillage practices, use of cover crops or sod-forming crops, and return of crop residues to the soil help to reduce compaction and erosion as well as promote good soil tilth.

Pasture

This map unit is well suited to pasture. However, the seasonal high water table may restrict the root growth of some legumes. Deferment of grazing in the spring and during other wet periods will help to maintain tilth and protect sod cover. Proper stocking rates, nutrient management, and weed control will help increase forage yields and maintain sod cover.

Recreation

This map unit is very limited for camp areas and playgrounds because of the depth to saturated zone. Playgrounds are very limited because of the slope. Campsites, picnic areas, playgrounds and golf fairways are also very limited because of the depth to the cemented pan causing restricted permeability. The addition of fill material and improved drainage will be needed in most areas if this map unit is used for recreational purposes. A higher, drier site should be considered for these uses.

Woodland

The potential productivity for sugar maple is moderate. This map unit is moderately suited for log landings and natural road surfaces because of wetness, the slope, and the relatively low soil strength in the upper soil profile. Improved drainage, leveling or additional fill material may be needed in some areas of this unit. There is a moderate erodibility concern on roads and trails. Water control structures can be installed to divert flowing water away from these passages. There is also a high potential for seedling mortality because of wetness. Only species that are wetness-tolerant should be selected for this site. Trees to manage include white spruce, Norway spruce, and European larch.

Dwellings with basements

This map unit is very limited for dwellings with basements because of wetness or the depth to the saturated zone. Selecting sites in better drained, nearby areas may reduce this limitation. Tile drains around foundation footings, protective coatings on basement walls, and sloping the land away from buildings may help to reduce this limitation.

Septic Tank Absorption Fields

This map unit is very limited for septic systems because of the depth to cemented pan (or restricted permeability), and depth to a saturated zone. Selecting sites that have a more permeable, well drained soil in nearby areas may reduce these limitations.

The capability subclass is 3w.

MxB—Mosherville-Hornell complex, undulating

This unit consists of very deep, somewhat poorly drained Mosherville soils and moderately deep, somewhat poorly drained Hornell soils. Slopes range

from 3 to 8 percent. The surface topography is often irregular and sloping in many directions because of the underlying folded and tilted shale or slate bedrock. Individual areas range mainly from 5 to 30 acres and are oval or irregular shaped.

The soils in this unit are in such an intricate pattern that it was not practical to separate them in mapping. The unit consists of about 50 percent Mosherville soils, 40 percent Hornell soils, and 10 percent other soils.

The typical sequence, depth, and composition of the layers of this map unit are as follows—

Mosherville soils

Surface layer:

0 to 9 inches, very dark grayish brown silt loam

Subsoil:

9 to 16 inches, light olive brown loam

16 to 47 inches, mottled olive gravelly fine sandy loam

Substratum:

47 to 72 inches, olive brown gravelly fine sandy loam

Hornell soils

Surface layer:

0 to 6 inches, dark grayish brown channery silt loam

Subsoil:

6 to 17 inches, mottled, strong brown channery silty clay loam

17 to 24 inches, mottled, strong brown very channery silty clay loam

Bedrock:

24 inches, dark gray shale bedrock

Included with this soil in mapping are small areas of moderately well drained Broadalbin soils, poorly drained Allis soils, and very poorly drained Sun soils. Also included are areas of Sutton soils, which have a friable substratum, and Manlius soils, which are well drained, and 20 to 40 inches deep to shale bedrock. Included areas are up to 5 acres and make up about 10 percent of the unit.

Soil Properties

Mosherville soils

Permeability: moderate in the surface and upper subsoil layers, slow in the lower subsoil and substratum

Available water capacity (average for 40-inch profile): low

Soil reaction: strongly acid to slightly acid in the surface layer and upper subsoil, strongly acid to

neutral in the lower subsoil, and moderately acid to slightly alkaline in the substratum

Surface runoff: medium

Erosion hazard: slight

Depth to water table: .5 to 1.5 feet at some time during November through May

Depth to bedrock: greater than 60 inches

Flooding hazard: none

Hornell soils

Permeability: moderate in the surface, and slow or very slow in the subsoil and substratum

Available water capacity (average for 40-inch profile): low to moderate

Soil reaction: extremely acid to strongly acid in the surface layer and very strongly acid or strongly acid in the subsoil and substratum

Surface runoff: rapid

Erosion hazard: moderate

Depth to water table: .5 to 1.5 feet at some time during November through May

Depth to bedrock: 20 to 40 inches

Flooding hazard: none

Use and Suitability

Most areas of this complex are used for agriculture. Some areas are in woodlots, or are idle and reverting to woodland.

Cropland

This map unit is moderately suited to cultivated crops. It can be used to grow hay, small grains, corn silage, fruits and vegetables. The seasonal high water table may delay soil preparation and planting. Unless the soil is adequately drained, crop selection is limited to crops that are more tolerant to wetness. Adequate drainage outlets are sometimes difficult to locate. Areas of Hornell soils may be more expensive to drain because of the depth to bedrock. Reduced tillage practices, use of cover crops or sod-forming crops, and return of crop residues to the soil help to reduce compaction and erosion as well as promote good soil tilth.

Pasture

This map unit is well suited to pasture. However, the seasonal high water table may restrict the root growth of some legumes. Deferment of grazing in the spring and during other wet periods will help to maintain tilth and protect sod cover. Proper stocking rates, nutrient management, and weed control will help increase forage yields and maintain sod cover.

Recreation

This map unit is very limited for most recreational uses because of the depth to the saturated zone. Campsites, picnic areas, playgrounds, and golf fairways are also very limited because of the depth to the cemented pan which causing restricted permeability. In the Hornell part of this unit, playground use is very limited by the amount of surface rock fragments. The addition of gravel-free fill material and improved drainage will be needed in most areas of this map unit to make these uses functional. A higher, drier site should be considered for these uses.

Woodland

The potential productivity for sugar maple is moderate. This map unit is moderately suited for log landings and natural road surfaces because of wetness, slope, and relatively low soil strength in the upper soil profile. Improved drainage, leveling or additional fill material may be needed in some areas of this unit. There is a moderate erodibility concern on roads and trails. Water control structures can be installed to divert flowing water away from these passages. There is also a high potential for seedling mortality because of wetness. Only species that are wetness-tolerant should be selected for this site. Trees to manage include white spruce, Norway spruce, and European larch.

Dwellings with basements

This map unit is very limited for dwellings with basements because of wetness or the depth to saturated zone. In the Hornell part of this unit, this use is also somewhat limited by depth to bedrock and the shrink-swell potential. Selecting sites in very deep, better drained, nearby areas may reduce this limitation. Tile drains around foundation footings, protective coatings on basement walls, and sloping the land away from buildings may help to reduce this limitation.

Septic Tank Absorption Fields

This map unit is very limited for septic systems because of the depth to cemented pan in the Mosherville part, depth to a saturated zone, and depth to bedrock in the Hornell part. Selecting sites that have a very deep, more permeable, well drained soil in nearby areas should be considered.

The capability subclass is 3w.

NaC—Nassau-Rock outcrop complex, rolling

This unit consists of shallow, somewhat excessively drained Nassau soils, and areas of rock outcrop. Slopes range from 8 to 15 percent. The surface topography is often irregular and sloping in many directions because of the underlying folded and tilted shale or slate bedrock. Areas are mainly rectangular and range from 10 to 50 acres.

The soils and rock outcrop in this unit are in such an intricate pattern that it was not practical to separate them in mapping. The unit consists of about 60 percent Nassau soils, 20 percent rock outcrop, and 20 percent other soils.

The typical sequence, depth, and composition of the layers of this map unit are as follows—

Nassau soils

Surface layer:

0 to 3 inches, very dark grayish brown channery silt loam

Subsoil:

3 to 18 inches, yellowish brown very channery silt loam

18 inches, soft shale bedrock

Rock outcrop:

Areas of exposed, folded and broken soft shale bedrock

Included with this unit in mapping are small areas of moderately deep, well drained Manlius soils, and areas of soil less than 10 inches deep. Included areas are up to 5 acres and make up about 20 percent of the map unit.

Soil Properties

Nassau soils

Permeability: moderate throughout the mineral soil

Available water capacity (average for 40-inch profile): very low

Soil reaction: very strongly acid or strongly acid throughout the soil

Surface runoff: rapid

Erosion hazard: severe

Depth to water table: more than 6 feet

Depth to bedrock: 10 to 20 inches

Flooding hazard: none

excess water will be needed in some parts of this unit, especially for campsites and playgrounds. Grading, smoothing, and stone clearing at camp, picnic, and playground sites will be needed in most areas of this map unit.

Woodland

The potential productivity for eastern white pine is very high. This map unit is moderately suited to log landings and natural road surfaces because of seasonal wetness. This unit is moderately suited for mechanical planting because large surface stones can interfere with logging operations. Additional fill material and grading may be necessary to efficiently stack and process logs. There is also a moderate erodibility concern on roads and trails. Water control structures can be installed to divert flowing water away from these passages. There is also a high potential for seedling mortality because of wetness in some areas of this unit. Only species that are wetness-tolerant should be selected for this site. Trees to manage include eastern white pine and white spruce.

Dwellings with basements

This map unit is very limited for dwellings with basements because of the depth to a saturated zone above the dense substratum. Tile drains around foundation footings, protective coatings on basement walls, and sloping the land away from buildings may help to reduce this limitation.

Septic Tank Absorption Fields

This map unit is very limited for septic systems because the depth to a saturated zone above the denser substratum, particularly in the spring. Well drained sites such as included Berkshire soils should be considered for this use. Alternative septic system designs that properly filter effluent above the substratum, and drainage to intercept seepage should be considered.

The capability subclass is 6s.

Sn—Sun silt loam

This very deep, nearly level, poorly drained soil formed in glacial till which has a dense substratum. It is at the base of hills, along drainageways and in slight depressions on till plains in uplands. Slopes range from 0 to 3 percent. Individual areas range mainly from 5 to 20 acres and are oval or serpentine.

The typical sequence, depth, and composition of the layers of this map unit are as follows—

Surface layer:

0 to 1 inch, very dark brown moderately decomposed grasses and forbs

1 to 13 inches, mottled, very dark gray silt loam

Subsoil:

13 to 27 inches, mottled, dark gray and dark grayish brown silt loam

27 to 34 inches, mottled, olive brown loam

Substratum:

34 to 50 inches, mottled, dark grayish brown cobbly fine sandy loam

50 to 72 inches, dark greenish gray and greenish gray cobbly loam

Included with this soil in mapping are small areas of somewhat poorly drained Mosherville soils. Also included are areas of Massena soils, which have a friable substratum; and Manlius soils, which are 20 to 40 inches deep to shale bedrock. Included areas are up to 5 acres and make up about 30 percent of the unit.

Soil Properties

Permeability: moderate in the mineral surface, moderate or moderately slow in the subsoil, and moderately slow or slow in the substratum

Available water capacity (average for 40-inch profile): moderate to high

Soil reaction: strongly acid to slightly acid in the surface layer; moderately acid to neutral in the subsoil; neutral to moderately alkaline in the substratum

Surface runoff: very slow to ponded

Erosion hazard: slight

Depth to water table: 1 foot above the surface to a depth of .5 feet during November through April

Depth to bedrock: greater than 60 inches

Flooding hazard: none

Use and Suitability

Most areas of this map unit are forested. Some areas are used as pasture.

Cropland

This map unit is not suited to cultivated crops. Unless the soil is drained, the seasonal high water table interferes with cultivation during much of the year. When outlets are available, surface or subsurface drainage systems may allow some areas to be cultivated. However, many areas of this map unit are considered to be valuable wetland habitat.

Pasture

This map unit is poorly suited to pasture, except in the driest years. Valuable wetland species may be displaced and palatable forage species are typically few. Proper stocking rates and timely deferment of grazing in the spring and after rainy periods will reduce compaction and the loss of seeding.

Recreation

This map unit is very limited for most recreational uses because of the depth to the saturated zone and ponding. Higher, better-drained areas should be considered for these uses. This unit may be a valuable wetland habitat.

Woodland

The potential productivity for red maple is moderate. This map unit is poorly suited for log landings and natural road surfaces because of wetness and ponding. A better-drained, higher position on the landscape should be considered for log landings as well as other harvesting operations. There is also a high potential for seedling mortality because of wetness. Only species that are wetness-tolerant should be selected for this site. Trees to manage include northern white cedar.

Dwellings with basements

This map unit is very limited for dwellings with basements because of wetness and ponding. A better-suited site should be selected. Selecting sites in higher, better drained, nearby areas is recommended to reduce these limitations.

Septic Tank Absorption Fields

This map unit is very limited for septic systems because of the restricted permeability in some areas of this unit, ponding, and the depth to a saturated zone. Conventional septic systems will fail to function properly in this unit. A nearby, well drained site should be considered for this use.

The capability subclass is 5w.

StA—Sutton loam, 0 to 3 percent slopes

This very deep, nearly level, moderately well drained soil formed in glacial till in uplands. It is on lower side slopes or in slight depressions. Individual areas range mainly from 5 to 30 acres and are rectangular and narrow, or oval.

The typical sequence, depth, and composition of the layers of this map unit are as follows—

Surface layer:

0 to 9 inches, dark brown loam

Subsoil:

9 to 17 inches, mottled, brown fine sandy loam

17 to 24 inches, mottled, dark yellowish brown sandy loam

24 to 30 inches, mottled, yellowish brown sandy loam

Substratum:

30 to 72 inches, mottled, olive brown sandy loam

Included with this soil in mapping are small areas of well drained Charlton soils and somewhat poorly drained Massena soils. Also included are areas of Woodbridge soils, which have a restrictive layer; and Chatfield soils, which are 20 to 40 inches deep to bedrock. Included areas are up to 5 acres and make up about 30 percent of the unit.

Soil Properties

Permeability: moderate or moderately rapid throughout the mineral soil

Available water capacity (average for 40-inch profile): moderate or high

Soil reaction: very strongly acid to moderately acid throughout

Surface runoff: slow or medium

Erosion hazard: slight

Depth to water table: 1.5 to 2.5 feet at some time during November through April

Depth to bedrock: greater than 60 inches

Flooding hazard: none

Use and Suitability

Most areas of this prime farmland soil are used for agriculture. Some areas are used as woodlots, orchards, or as sites for residential development.

Cropland

This map unit is well suited to cultivated crops. It can be used to grow small grains, corn silage, hay, fruits and vegetables. The seasonal high water table can cause soft ground conditions under heavy farm equipment. Subsurface drainage can improve soil conditions for planting. The use of cover crops or sod-forming crops, and return of crop residues to the soil help to reduce erosion and promote good soil tilth.

Pasture

This map unit is very well suited to pasture. Proper stocking rates, nutrient management, and weed control will help increase forage yields. Deferment of grazing in the spring and during other wet periods will protect soil tilth and maintain sod cover.