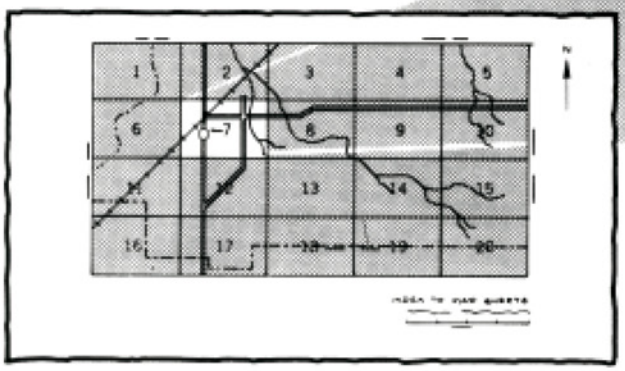
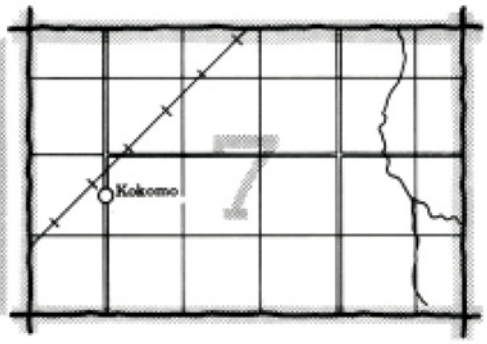
Soil survey of
HILLSBOROUGH COUNTY
NEW HAMPSHIRE
EASTERN PART

United States Department of Agriculture
Soil Conservation Service
In cooperation with
New Hampshire Agricultural Experiment Station

HOW TO USE

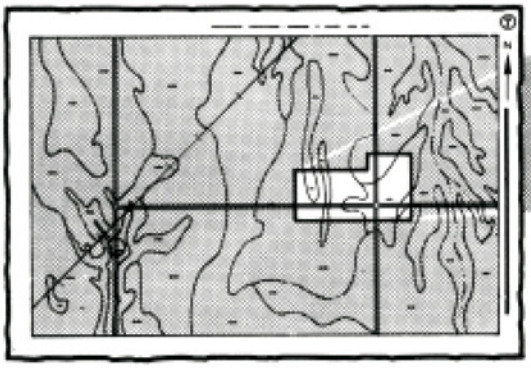
1. Locate your area of interest on the "Index to Map Sheets"

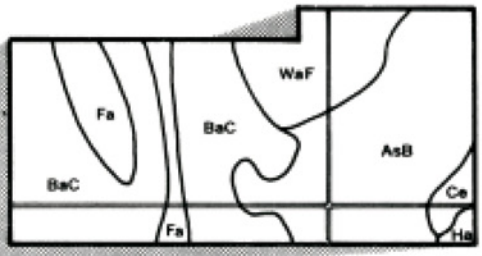




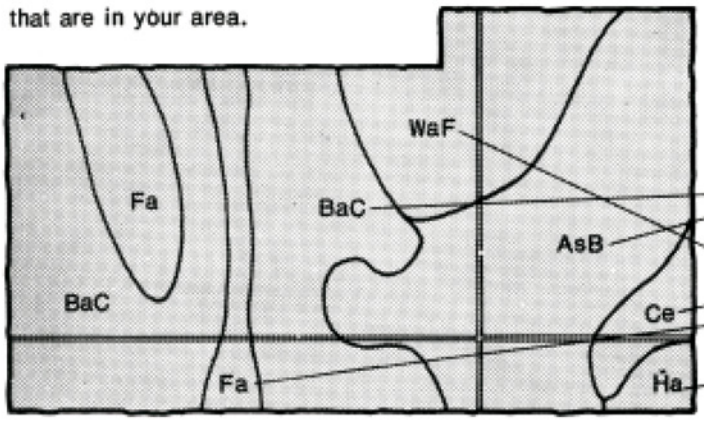
2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.





4. List the map unit symbols that are in your area.

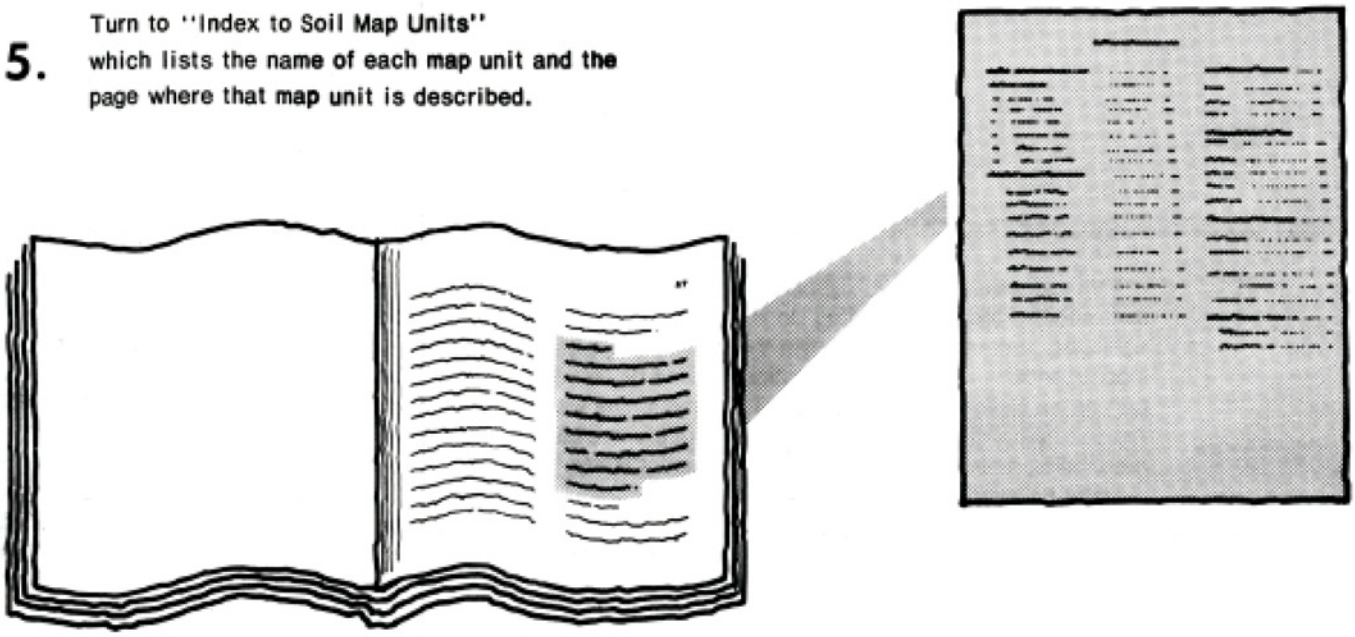


Symbols

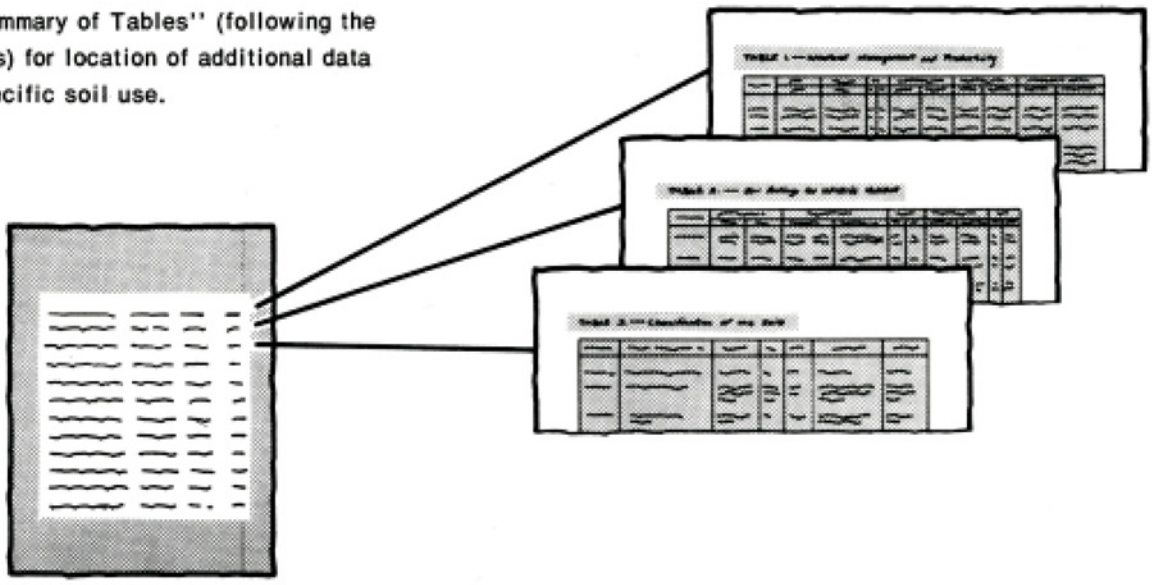
- AsB
- BaC
- Ce
- Fa
- Ha
- WaF

THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

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 Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1970-79. Soil names and descriptions were approved in 1979. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1979. This survey was made cooperatively by the Soil Conservation Service and the New Hampshire Agricultural Experiment Station. It is part of the technical assistance furnished to the Hillsborough County Conservation District.

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.

Cover: This part of the Souhegan River valley has areas of Canton fine sandy loam, 0 to 8 percent slopes, used for farming and Scituate stony fine sandy loam, 3 to 8 percent slopes, used for residential development.

contents

soil series

Issued October 1981

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foreword

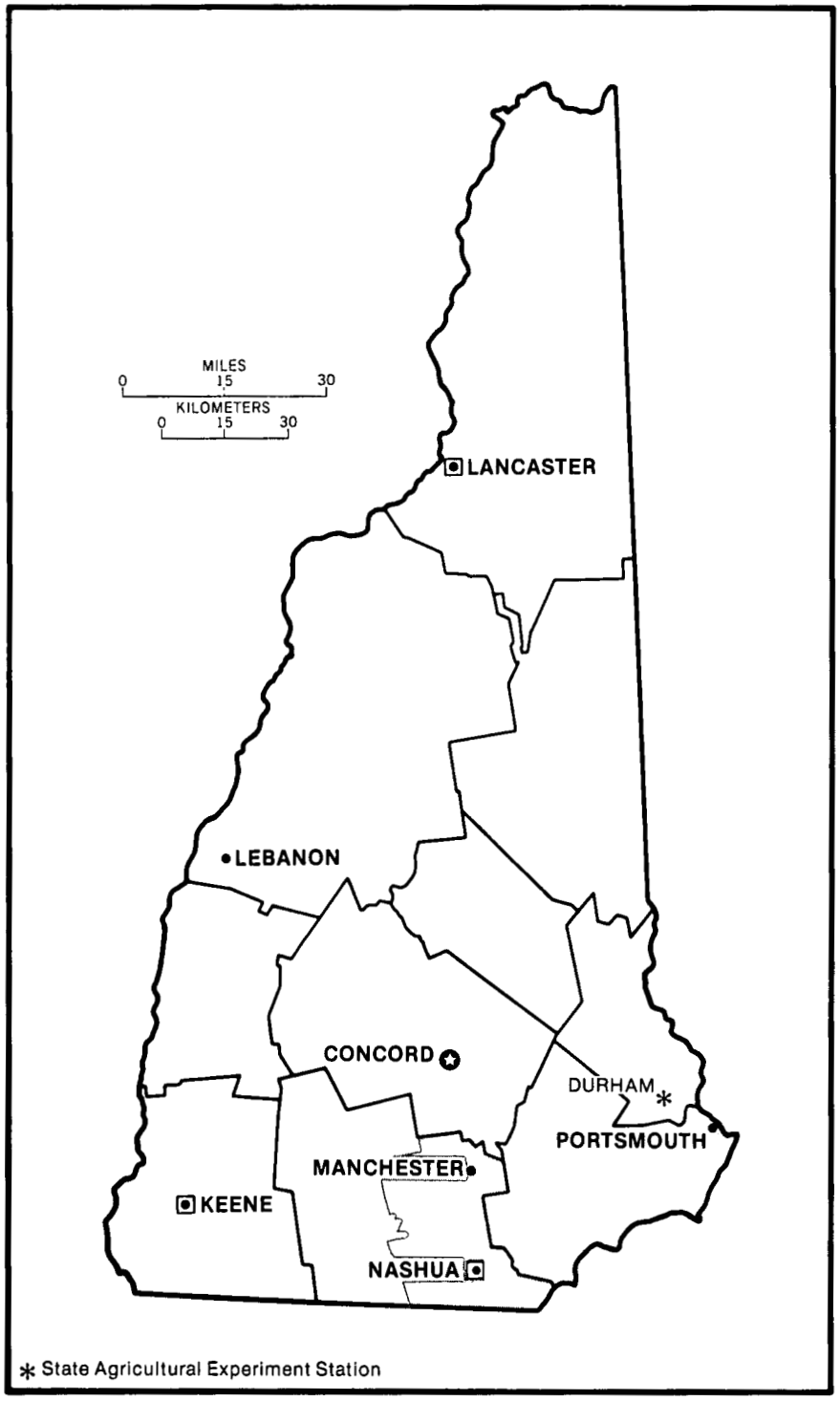
This soil survey contains information that can be used in land-planning programs in Hillsborough County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. 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.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Richard L. Porter
State Conservationist
Soil Conservation Service



Location of Hillsborough County, Eastern Part, in New Hampshire.

soil survey of
Hillsborough County, New Hampshire, Eastern Part

By Richard W. Bond and John F. Handler, Soil Conservation Service

Fieldwork by Richard W. Bond, John F. Handler, Gary S. Domain, Edward R. Hutchinson, and Russell J. Kelsea, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
in cooperation with
the New Hampshire Agricultural Experiment Station

HILLSBOROUGH COUNTY is in the south-central part of New Hampshire. The part of the county covered in this survey has a total area of about 265,000 acres, or 414 square miles. This survey updates information in a soil survey of Hillsborough County that was published in 1953. This survey shows the soils in greater detail.

The landscape of the survey area is nearly level to hilly and is characterized by large areas of sandy and gravelly soils. Relief is gradual; elevation rises on an average of about 400 feet per mile. The highest elevation is 1,324 feet above sea level at the summit of North Uncanoonuc Mountain in Goffstown, and the lowest elevation is less than 100 feet above sea level where the Merrimack River crosses from the county into Massachusetts.

Light industry is the main source of employment in the survey area. The major products include computer components, shoes, and machine tools. Farming has decreased in recent years because of economic conditions and the increasing pressure of urban and suburban development. The population of the county was 243,608 in 1976.

A network of State, Federal, and local highways serves the survey area. Rail freight service is available in the major river valleys. Two airports are in the survey area, Manchester Municipal Airport and Boire Field, and both have regularly scheduled service.

Between 1960 and 1976, the population of Hillsborough County increased by 51 percent, to a total of 243,608. Most of the growth took place in the communities of Merrimack, Nashua, Litchfield, Hudson, Pelham, and Amherst.

general nature of the survey area

This section describes some of the chief natural and cultural factors that affect soil use in the survey area.

climate

Prepared by the National Climatic Center, Asheville, North Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Nashua, New Hampshire, in the period 1951 to 1976. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 25 degrees F, and the average daily minimum temperature is 14 degrees. The lowest temperature on record, which occurred at Nashua on January 18, 1957, is -29 degrees. In summer the average temperature is 67 degrees, and the average daily maximum temperature is 80 degrees. The highest recorded temperature, which occurred at Nashua on July 24, 1952, is 100 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 43 inches. Of this, 20

inches, or 50 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 16 inches. The heaviest 1-day rainfall during the period of record was 5.43 inches at Nashua on September 12, 1954. Thunderstorms occur on about 20 days each year, and most occur in summer.

Average seasonal snowfall is 72 inches. The greatest snow depth at any one time during the period of record was 42 inches. On an average of 36 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 60 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the northwest. Average windspeed is highest, 8 miles per hour, in March.

geology

The soils of the survey area are underlain by metamorphic and igneous rocks. The metamorphic rocks are of the Littleton Formation, which is composed of gray mica schist, and of the Merrimac Group, which is composed of pinkish brown granulite and gray phyllite.

Several areas of granite, quartz monzonite, and granodiorite in the central and southeastern parts of the survey area have been forcibly injected up through the metamorphic rocks. The largest area of these granitelike rocks is the Fitchburg pluton, which is about 7 miles wide and 25 miles long. It extends from Brookline through Milford, Amherst, and Bedford and to beyond Manchester (*3*).

The soils of the survey area formed in glacial deposits which rest on bedrock. About 14,000 years ago, a glacier covered all of Hillsborough County. The ice sheet started forming in southern Canada, and as the climate grew cooler, it advanced southward. At its peak, the ice sheet was up to 1 mile thick. The ice sheet scraped the surface of the ground and picked up, crushed, and mixed stones and boulders. In many places the glacier rounded off the tops of hills and mountains.

When the climate started warming, the glacier started melting and dropped the debris that it was carrying over the landscape. This debris, called glacial till, now forms a blanket of soil about 30 feet thick over most of the upland parts of the survey area. In places, the bedrock is exposed. In river valleys, the water from the melting glaciers picked up sand or gravel and carried it along in streams. The sand and gravel was deposited in the form of terraces as the glacier melted. The glacier completely melted about 12,000 years ago (*5*).

physiography

The survey area is in two physiographic regions. The western half is in the New England Upland, and the eastern half is in the New England Seaboard.

The New England Upland consists of hills and low mountains underlain by schist, granite, and gneiss. Between some of the hills are lakes and ponds, such as Baboosic Lake in Amherst and Joe English Pond in New Boston. The Souhegan and Piscataquog Rivers flow through the New England Upland. Elevation in the New England Upland ranges from about 500 feet above sea level to 1,324 feet above sea level on the summit of North Uncanoonuc Mountain in Goffstown.

The New England Seaboard is in the eastern part of the survey area, east of Hollis, Amherst, Bedford, and Goffstown. It is at elevations of about 400 to 500 feet above sea level, and it slopes southeasterly toward the Atlantic Ocean. The bedrock underlying this part of the survey area is mostly schist, phyllite, and granite. The Merrimack River valley is in a depression in the Seaboard physiographic region.

drainage and water supplies

All of the survey area drains into the Merrimack River, which originates north of the survey area in the White Mountains and flows south through New Hampshire and Massachusetts to the Atlantic Ocean. Several rivers and streams flow into the Merrimack River, including the Piscataquog, Souhegan, and Nashua Rivers and Baboosic and Beaver Brooks.

Surface and ground-water sources provide water to the communities in the survey area. In Manchester and Nashua, water supplies are obtained from a system consisting of a series of lakes and ponds surrounded by several thousand acres of protective forests. In Merrimack, Milford, Amherst, and Hudson, water is obtained from wells in saturated sand and gravel deposits.

farming

Because statistics on farming are available only on a countywide basis, the data in this section apply to all of Hillsborough County.

Farms cover about 12 percent of the land in the county, and the average-size farm is 218 acres. The common types are dairy farms, poultry farms, apple orchards, and vegetable farms. According to the 1974 U.S. Census of Agriculture, there were 353 farms in the county, 89 fewer than were recorded in the census of 1969. Between 1969 and 1974, about 11,000 acres of farmland in the county was converted to nonfarm uses.

Of the 353 farms in the county in 1974, 61 were dairy farms, 130 were unclassified, 30 were livestock farms other than poultry or dairy, 28 were poultry farms, 28 were farms for field crops, 20 were apple orchards, and 16 were vegetable farms.

Hay is the leading crop in the county, followed by apples, vegetables, and corn silage. About 10,240 acres was used for hay in 1974. Alfalfa and clover are the commonly grown legumes.

There are an estimated 99,000 apple trees in Hillsborough County. The number of orchards has been decreasing, but the number of apple trees has increased by more than 8 percent in recent years. Nearly half of the apple trees in the county are on semidwarf rootstalks. MacIntosh, Delicious, and Cortland are the commonly grown varieties. Most of the orchards in the county are in the towns of Hollis, Lyndeborough, and Wilton.

Vegetables covered about 2,088 acres in the county in 1974. Sweet corn, squash, tomatoes, and cabbage are the commonly grown vegetables. The larger vegetable farms in the county are in the Merrimack River valley, mainly in the towns of Litchfield, Hudson, and Hollis.

Corn silage covered about 1,950 acres in the county in 1974. Most of this silage is on the flood plains in major river valleys.

how this survey was made

Soil scientists made this survey to learn what soils are in the survey area, where they are, and how they can be used. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; and the kinds of rock. They dug many holes to study soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by leaching or by plant roots.

The soil scientists recorded the characteristics of the profiles they studied and compared those profiles with others in nearby counties and in more distant places. They classified and named the soils according to nationwide uniform procedures. They drew the boundaries of the soils on aerial photographs. These photographs show trees, buildings, fields, roads, and other details that help in drawing boundaries accurately. The soil maps at the back of this publication were prepared from aerial photographs.

The areas shown on a soil map are called map units. Most map units are made up of one kind of soil. Some are made up of two or more kinds. The map units in this survey area are described under "General soil map units" and "Detailed soil map units."

While a soil survey is in progress, samples of some soils are taken for laboratory measurements and for engineering tests. All soils are field tested to determine their characteristics. Interpretations of those characteristics may be modified during the survey. Data are assembled from other sources, such as test results, records, field experience, and state and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, woodland managers, engineers, planners, developers and builders, home buyers, and others.

general soil map units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

soil descriptions

1. Occum-Pootatuck-Suncook

Deep, nearly level, well drained, moderately well drained, and excessively drained, loamy and sandy soils; on flood plains

This unit is in two locations in the survey area. One area is along the Merrimack River between Bedford and Nashua, and the other is along the Souhegan River in Milford and Amherst.

This unit makes up about 2 percent of the survey area. Occum soils make up about 50 percent of the unit, Pootatuck soils about 15 percent, Suncook soils about 15 percent, and minor soils about 20 percent.

The Occum soils are well drained and loamy. The Pootatuck soils are moderately well drained and loamy and have a seasonal high water table. The Suncook soils are sandy and excessively drained and droughty.

The minor soils in this unit are poorly drained, loamy Rippowam soils and very poorly drained Chocorua soils. Both are in depressions.

Most of this unit is used for farmland. In the Merrimack River valley this group of soils is widely used for vegetables. The areas in the Souhegan River valley in Milford and Amherst are used for silage corn and hay crops for dairy farms. The unit is well suited to farming, but drainage is necessary in the Pootatuck soils.

2. Hinckley-Windsor

Deep, nearly level to steep, excessively drained, gravelly and sandy soils; on terraces

This unit is in major river valleys. The largest areas are in the Merrimack, Souhegan, Piscataquog, and Nashua River valleys.

The unit makes up about 29 percent of the survey area. Hinckley soils make up about 35 percent of the unit, Windsor soils about 25 percent, and minor soils about 40 percent.

The Hinckley soils are gravelly, and the Windsor soils are sandy. Both are excessively drained.

The minor soils in this association are poorly drained Pipestone soils, moderately well drained Deerfield soils, and somewhat excessively drained Hollis soils. The Pipestone and Deerfield soils are in depressions and drainageways, and the Hollis soils are on the higher parts of the landscape.

Most of this unit is used for urban or suburban development. Several of the larger towns in the county, including Milford, Goffstown, and Pelham and parts of the cities of Manchester and Nashua, are in this unit.

The Hinckley and Windsor soils are well suited to community development but are only fairly suited to farming because of the poor moisture holding capacity. The Hinckley soils are a major source of gravel, and the Windsor soils are a good source of sand.

3. Pipestone-Windsor-Deerfield

Deep, nearly level to gently sloping, poorly drained, excessively drained, and moderately well drained, sandy soils mostly in depressions; on stream terraces

This unit is in the Merrimack River valley in the towns of Litchfield and Hudson.

This unit makes up about 2 percent of the survey area. Pipestone soils make up about 45 percent of the unit, Windsor soils about 30 percent, Deerfield soils about 15 percent, and minor soils about 10 percent.

The Pipestone soils are poorly drained and have a high water table. The Windsor soils are excessively drained and are on higher parts of the landscape. The Deerfield soils are moderately well drained and have a seasonal high water table.

The Ninigret soils are the dominant minor soils in this unit. They are loamy, have a seasonal high water table, and are in slight depressions.

Most of this unit is wooded. Poorly drained soils that have a high water table or moderately well drained soils that have a seasonal high water table make up 60 percent of the unit. Because of their low position in the landscape, Pipestone soils are sometimes difficult to drain.

The Pipestone and Deerfield soils have poor suitability for most uses because of a high or seasonal high water table. The Windsor soils are well suited to community development and commonly are a good source of sand for construction purposes.

4. Canton-Chatfield

Deep and moderately deep, nearly level to moderately steep, well drained, loamy soils; on hilly uplands

This unit is on uplands throughout the survey area. Some of the major areas are in and near Brookline, the western part of Hollis, and the northern part of Amherst.

The unit makes up about 44 percent of the survey area. Canton soils make up about 65 percent of the unit, Chatfield soils about 10 percent, and the minor soils about 25 percent.

The Canton soils are deep to bedrock, and the Chatfield soils are moderately deep to bedrock.

The minor soils in this unit are well drained Paxton soils and somewhat excessively drained Hollis soils. The Paxton soils have a dense hardpan at a depth of about 2 feet, and the Hollis soils have bedrock at a depth of about 1 foot.

Most areas of this unit are wooded. Mixed hardwoods and softwoods are the common tree types. Some of the less sloping areas of Canton soils have been cleared and are used for hay and pasture.

The unit is well suited to trees. The gently sloping areas that have been cleared of stones are moderately well suited to hay or pasture. Steep slopes and stones on the surface limit many types of community development and recreational use.

5. Paxton-Woodbridge

Deep, nearly level to moderately steep, well drained and moderately well drained, loamy soils on smooth-sided, oval hills; on uplands

This unit is in areas throughout the northern half of the survey area. It is on smooth-sided, oval hills, such as Shirley Hill in Goffstown, McCollom Hill in New Boston, and Chestnut Hill in Amherst.

The unit makes up about 8 percent of the survey area. Paxton soils make up about 80 percent of the unit, Woodbridge soils about 10 percent, and minor soils about 10 percent.

The Paxton and Woodbridge soils have a dense hardpan at a depth of about 2 feet. The Paxton soils are well drained and mostly sloping to moderately steep. The Woodbridge soils have a seasonal high water table and are in slight depressions.

The minor soils in this association are well drained, loamy, sloping Canton soils and poorly drained, loamy Ridgebury soils in depressions. The Ridgebury soils have a dense hardpan about 1 to 1-1/2 feet below the surface, and they have a high water table.

Most of this unit is wooded, but some areas have been cleared and are used for hay or pasture. Some areas in New Boston, Milford, and Goffstown are used for apple orchards. Steep slopes and stones on the surface are major limitations for most other uses.

The gently sloping areas of this unit that have been cleared of stones and trees are well suited to hay or pasture; some areas on hillcrests are suited to apple orchards. The slow permeability of the hardpan, seasonal wetness, and slope are major limitations for community development.

6. Bernardston Variant-Pennichuck-Canton

Deep and moderately deep, nearly level to sloping, well drained, loamy soils; on rolling uplands

This unit is in Hollis, Nashua, and Merrimack. The largest area is in the central part of Hollis.

This unit makes up about 3 percent of the survey area. Bernardston Variant soils make up about 25 percent of the unit, Pennichuck soils about 25 percent, Canton soils about 20 percent, and minor soils about 30 percent.

The Bernardston Variant soils are deep to bedrock and gently sloping. The Pennichuck soils are gently sloping to sloping and moderately deep to bedrock. The Canton soils are deep to bedrock and gently sloping.

Loamy, moderately well drained Pittstown Variant soils are the dominant minor soils in this unit. They are in depressions.

The gently sloping areas of this unit are used for dairy farming, orchards, truck farming, or residential development.

The Bernardston Variant and Pennichuck soils in this unit are well suited to farming because of their good moisture holding capacity, high level of fertility, and gentle slopes. The Canton soils have fair suitability for some types of farming, such as hay or pasture. The dense hardpan in the Bernardston Variant soils and the moderate depth to bedrock in the Pennichuck soils are major limitations for community development.

7. Hollis-Chatfield-Canton

Nearly level to steep, somewhat excessively drained and well drained, loamy soils that are shallow, moderately deep, and deep; on hills and low mountains

This association commonly is on mountaintops throughout the northern and western parts of the survey area. A smaller, hilly area of this unit is in Mont Vernon.

This unit makes up about 2 percent of the survey area. Hollis soils make up about 45 percent of the unit, Chatfield soils about 30 percent, Canton soils about 15 percent, and minor soils about 10 percent.

The Hollis soils are shallow to bedrock, somewhat excessively drained, and steep. The Chatfield soils are moderately deep to bedrock, well drained, and moderately steep to steep. The Canton soils are deep, well drained, and moderately steep.

Paxton soils are the dominant minor soils in this unit. They are deep, well drained, and steep and have a dense hardpan about 2 feet below the surface.

Most of this unit is wooded and is used for recreational activities such as hiking or skiing or for timber. Steep slopes and a rocky surface limit logging operations and most other land uses.

8. Urban land-Windsor-Canton

Urbanized areas and deep, nearly level to sloping, excessively drained and well drained, sandy and loamy soils; on terraces and uplands

This unit is in and near Nashua, Manchester, and Goffstown in the Merrimack River and Piscataquog River valleys.

This unit makes up about 10 percent of the survey area. Urbanized areas make up about 30 percent of the unit, Windsor soils about 17 percent, Canton soils about 9 percent, and minor soils about 44 percent.

Buildings, asphalt, and concrete cover more than 85 percent of the urbanized areas. The Windsor soils are excessively drained and sandy; the Canton soils are well drained and loamy.

The Hinckley and Hollis soils are the dominant minor soils in this unit. The Hinckley soils are excessively drained and gravelly and are nearly level to sloping. The Hollis soils are somewhat excessively drained and shallow to bedrock.

Nearly all of this unit has been used for community development.

detailed soil map units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, 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 or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, 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, *Paxton fine sandy loam, 3 to 8 percent slopes,* is one of several phases in the *Paxton* series.

Some map units are made up of two or more major soils. These map units are called soil complexes.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. *Chatfield-Hollis-Canton complex, 3 to 8 percent slopes,* is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. *Pits, gravel,* is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

soil descriptions

AgA—Agawam fine sandy loam, 0 to 3 percent slopes. This soil is well drained and nearly level. It is on outwash plains and stream terraces in the Merrimack River valley. The areas are irregularly shaped and range from 10 to 150 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam about 6 inches thick. The subsoil is yellowish brown fine sandy loam 18 inches thick. The substratum is light yellowish brown fine sand and sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Windsor and Ninigret soils that make up 10 to 15 percent of the unit.

The permeability of this Agawam soil is moderately rapid in the surface layer and subsoil and rapid in the underlying material. Available water capacity is moderate. The depth to bedrock is more than 5 feet.

Most areas of this soil are wooded, but some areas are used for hay or pasture.

The soil is well suited to truck crops, field crops, and hay and pasture crops. The organic matter content of the soil can be maintained by using green-manure crops.

This soil is suited to most tree species; productivity is moderate. There are few or no limitations for forest management or logging operations, and the soil has few limitations for recreational uses.

The capability class is I.

AgB—Agawam fine sandy loam, 3 to 8 percent slopes. This soil is well drained and gently sloping. It is on outwash plains and stream terraces in the Merrimack River valley. The areas are irregular in shape and range from 10 to 50 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam about 6 inches thick. The subsoil is yellowish brown fine sandy loam 18 inches thick. The substratum is light yellowish brown fine sand and sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Windsor and Ninigret soils and small areas of well drained, silty soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Agawam soil is moderately rapid in the surface layer and subsoil and rapid in the underlying material. Available water capacity is moderate. The depth to bedrock is more than 5 feet.

Most areas of this soil are wooded, but some areas are used for hay or pasture.

This soil is well suited to truck crops, field crops, and hay or pasture. Using diversions, contour farming, or stripcropping and growing cover crops and grasses and legumes help to control erosion in cultivated areas. Mixing crop residue and manure into the plow layer improves the tilth and organic matter content of the soil.

This soil is suited to most tree species; productivity is moderate. There are few or no limitations for forest management or logging operations. Constructing logging roads on the contour helps to control erosion. The soil has few limitations for most recreational uses.

The capability subclass is IIe.

BaA—Belgrade silt loam, 0 to 3 percent slopes. This soil is nearly level and moderately well drained. It is in slight depressions near the junction of McQuade, Riddle, and Baboosic Brooks in the towns of Bedford and Merrimack. The areas are irregularly shaped and range from 3 to 10 acres.

Typically, the surface layer is very dark grayish brown silt loam about 3 inches thick. The subsoil is dark brown, light olive brown, and light brownish gray silt loam 29 inches thick. The substratum is mottled and varved silt and very fine sand to a depth of 60 inches or more. The upper part of the substratum is pale olive and olive gray, and the lower part is olive and light yellowish brown.

Included with this soil in mapping are areas of Binghamville, Deerfield, Windsor, and Agawam soils that make up 15 to 20 percent of the unit.

The permeability of this Belgrade soil is moderate in the surface layer and subsoil and slow in the underlying material. Available water capacity is high. The depth to bedrock is more than 5 feet. A seasonal high water table is at a depth of 1-1/2 to 3-1/2 feet from November to April. The frost-action potential of the soil is high.

Most areas of this soil are used for hay or pasture. Some areas in the town of Merrimack are used for residential development.

This soil is suited to corn, small grains, and grasses and legumes. The soil can be cultivated continuously if it is drained and protected from erosion. The use of field ditches, tile drains, and diversions helps to control excess water. Drainage allows earlier tillage in the spring and a wider choice of crops. Mixing crop residue and manure into the plow layer improves the tilth and organic matter content of the soil.

This soil is well suited to most tree species; productivity is moderately high. There are few limitations for most types of forest management or logging operations.

The high water table limits the soil for most types of community development, such as dwellings and septic tank absorption fields, and for some recreational uses. The high frost-action potential is a limitation for local streets and roads.

The capability subclass is IIw.

BaB—Belgrade silt loam, 3 to 8 percent slopes. This soil is gently sloping and moderately well drained. It is in slight depressions near the junction of McQuade, Riddle, and Baboosic Brooks in the towns of Bedford and Merrimack. The areas are irregularly shaped and range from 10 to 30 acres.

Typically, the surface layer is very dark grayish brown silt loam about 3 inches thick. The subsoil is dark brown, light olive brown, and light brownish gray silt loam 29 inches thick. The substratum is mottled and varved silt and very fine sand to a depth of 60 inches or more. The upper part of the substratum is pale olive and olive gray, and the lower part is olive and light yellowish brown.

Included with this soil in mapping are areas of Binghamville, Deerfield, Windsor, and Agawam soils that make up 10 to 15 percent of the unit.

The permeability of this Belgrade soil is moderate in the surface layer and subsoil and slow in the underlying material. Available water capacity is high. The depth to bedrock is more than 5 feet. A seasonal high water table is at a depth of 1-1/2 to 3-1/2 feet from November to April. The frost-action potential of the soil is high.

Most areas of this soil are used for hay or pasture. Some areas in the towns of Merrimack and Bedford are used for residential development.

This soil is suited to corn, small grains, and grasses and legumes. The soil can be cultivated continuously if it is drained and protected from erosion. The use of field ditches, tile drains, and diversions helps to control excess water. Drainage allows earlier tillage in the spring and a wider choice of crops. Mixing crop residue and manure into the plow layer improves the tilth and organic matter content of the soil.

This soil is well suited to most tree species; productivity is moderately high. There are few limitations for most types of forest management or logging operations.

The high water table limits the soil for some types of community development, such as dwellings or septic tank absorption fields, and for some recreational uses. The high frost-action potential is a limitation for local streets and roads.

The capability subclass is IIe.

BdA—Bernardston Variant very fine sandy loam, 0 to 3 percent slopes. This soil is nearly level and well drained. It is on uplands in the southern part of the survey area, mainly in the town of Hollis. The areas are irregularly shaped and range from 5 to 20 acres.

Typically, the surface layer is dark brown very fine sandy loam about 11 inches thick. The subsoil is light olive brown and light yellowish brown very fine sandy loam 11 inches thick. The substratum is a dense hardpan of olive fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are areas of Pennichuck soils on the tops of knolls and Pittstown Variant soils in slight depressions. Included soils make up 10 to 15 percent of the unit.

The permeability of this Bernardston Variant soil is moderate in the surface layer and subsoil and slow in the hardpan. The available water capacity is moderate. The hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A high water table is perched on the hardpan from February to April. The depth to bedrock is generally more than 5 feet. The frost-action potential of the soil is moderate.

Most areas of this soil is used for crops, mainly apples and vegetables. Some areas in Hollis and Nashua are used for residential development.

This soil is well suited to truck crops, field crops, and hay and pasture (fig. 1). The organic matter content can be maintained by using green-manure crops.

This soil is suited to most tree species; productivity is moderate. There are few or no limitations for most types of forestry management or logging operations.

The seasonal perched water table limits the soil as a site for dwellings with basements, for local streets or roads, and for some recreational uses. The slow

Figure 1.—Strawberries on an area of Bernardston Variant very fine sandy loam, 0 to 3 percent slopes.

permeability of the hardpan is a major limitation for septic tank absorption fields.

The capability class is I.

BdB—Bernardston Variant very fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and well drained. It is on uplands in the southern part of the survey area, mainly in the town of Hollis. The areas are irregularly shaped and range from 5 to 20 acres.

Typically, the surface layer is dark brown very fine sandy loam about 11 inches thick. The subsoil is light olive brown and light yellowish brown very fine sandy loam 11 inches thick. The substratum is a dense hardpan of olive fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are areas of Pennichuck and Canton soils on the higher parts of the landscape and Pittstown Variant soils in slight depressions. Included soils make up 10 to 15 percent of the unit.

The permeability of this Bernardston Variant soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A high water table is perched on the hardpan from February to April. The depth to bedrock is generally more than 5 feet. The frost-action potential of the soil is moderate.

Most areas of this soil are used for crops, mainly hay, apples, and vegetables (fig. 2). Some areas in the communities of Hollis and Nashua are used for residential development.

This soil is well suited to truck crops, field crops, and hay and pasture. Using diversions, contour farming, and stripcropping and growing cover crops and grasses and legumes help to control erosion. Mixing crop residue and manure into the plow layer improves the tilth and organic matter content of the soil.

This soil is suited to most tree species; productivity is moderate. Operating logging equipment during wet periods increases the erosion hazard, but constructing logging roads on the contour helps to control erosion.

The seasonal perched water table limits the soil as a site for dwellings with basements, for local streets and

Figure 2.—Alfalfa on an area of Bernardston Variant very fine sandy loam, 3 to 8 percent slopes.

roads, and for some types of recreational use. The slow permeability of the hardpan is a major limitation for septic tank absorption fields.

The capability subclass is IIe.

BdC—Bernardston Variant very fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on rolling uplands in the southern part of the survey area, mainly in the town of Hollis. The areas are irregularly shaped and range from 5 to 20 acres.

Typically, the surface layer is dark brown very fine sandy loam about 11 inches thick. The subsoil is light olive brown and light yellowish brown very fine sandy loam 11 inches thick. The substratum is a dense hardpan of olive fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are areas of Pennichuck and Canton soils on the higher parts of the landscape and Pittstown Variant soils in slight depressions. Also included are small areas of moderately steep soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Bernardston Variant soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A perched high water table is on the hardpan from February to April. The depth to bedrock is generally more than 5 feet. The frost-action potential of the soil is moderate.

The areas of this soil in the communities of Hollis and Nashua are commonly used for residential development. Most other areas are used for hay.

An erosion hazard limits the use of this soil for row crops. Using grasses and legumes in the cropping system, contour farming, stripcropping, and using diversions will help to control erosion in cultivated areas. Adding manure and mixing crop residue into the soil provide additional organic matter to help maintain tilth and conserve moisture. A few stones and cobblestones in the soil interfere with tillage in places. Subsurface drainage and tile drainage are needed in some orchards to eliminate isolated seep spots and improve access throughout the year.

This soil is suited to most tree species; productivity is moderate. Operating logging equipment during wet periods increases the erosion hazard, but constructing logging roads on the contour helps to control erosion.

The water table and slope limit the soil for most types of community development or recreational use. The slow permeability of the hardpan is a major limitation for septic tank absorption fields.

The capability subclass is IIIe.

BeC—Bernardston Variant stony very fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on uplands in the southern part of the survey area, mainly in the town of Hollis. The areas are irregularly shaped and range from 5 to 20 acres. Stones that are 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface of this soil.

Typically, the surface layer is dark brown very fine sandy loam about 11 inches thick. The subsoil is light olive brown and light yellowish brown very fine sandy loam 11 inches thick. The substratum is a dense hardpan of olive fine sandy loam to a depth of 60 inches or more.

Included with this soil in the mapping are areas of sloping Pennichuck and Canton soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Bernardston Variant soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A high water table is perched on the hardpan from February to April. The depth to bedrock is generally more than 5 feet. The frost-action potential of the soil is moderate.

Most areas of this soil are in woodland. The areas in the communities of Hollis and Nashua are used for residential development.

The stones on the surface make this soil unsuitable for row crops and limit its use for pasture or hay.

The soil is suited to most tree species; productivity is moderate. The stones limit logging operations, and the hazard of erosion is severe if logging equipment is used during wet periods. Constructing logging roads on the contour helps to control erosion.

The seasonal perched water table and slope limit the soil for most types of community development and recreational use. The slow permeability of the hardpan is an additional limitation for septic tank absorption fields.

The capability subclass is VIs.

BeD—Bernardston Variant stony very fine sandy loam, 15 to 35 percent slopes. This soil is moderately steep to steep and is well drained. It is on hillsides on uplands in the southern part of the survey area, mainly in the town of Hollis. The areas are irregularly shaped and range from 5 to 20 acres. Stones that are 1 to 1-1/2 feet in diameter and 5 to 50 feet apart cover the surface of this soil.

Typically, the surface layer is dark brown very fine sandy loam about 11 inches thick. The subsoil is light olive brown and light yellowish brown very fine sandy loam 11 inches thick. The substratum is a dense hardpan of olive fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are areas of moderately steep to steep Pennichuck and Canton soils that make up 10 to 15 percent of the unit.

The permeability of this Bernardston Variant soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A high water table is

perched on the hardpan from February to April. The depth to bedrock is generally more than 5 feet. The frost-action potential of the soil is moderate.

Most areas of this soil are in woodland. Some areas in the communities of Hollis and Nashua are used for residential development.

The stones on the surface and the slope make this soil unsuitable for farm crops.

The soil is suited to trees; productivity is moderate. The stones and slope are major limitations for logging operations. The hazard of erosion is severe if equipment is used during wet periods, but erosion can be controlled by using diversion ditches to control runoff.

Slope is a major limitation of the soil for most types of community development and recreational use. The slow permeability of the hardpan is an additional limitation for septic tank absorption fields.

The capability subclass is VIIs.

Bg—Binghamville silt loam. This soil is nearly level and poorly drained. It is in depressions near the junction of McQuade, Riddle, and Baboosic Brooks in the towns of Bedford and Merrimack. The areas are irregularly shaped and range from 10 to 30 acres.

Typically, the surface layer is very dark gray silt loam about 5 inches thick. The subsoil is mottled and is 14 inches thick. The upper part of the subsoil is grayish brown silt loam, and the lower part is light brownish gray very fine sandy loam. The substratum is mottled and extends to a depth of 60 inches or more. It is light brownish gray very fine sandy loam in the upper part and olive gray silt loam in the lower part.

Included with this soil in mapping are areas of Belgrade soils and areas of poorly drained soils that have fine sand or sand in the substratum. Included soils make up 10 to 15 percent of the unit.

The permeability of this Binghamville soil is moderate in the surface layer and subsoil and slow in the substratum. Available water capacity is high. The depth to bedrock is more than 5 feet. A high water table is at a depth of 6 to 18 inches from November to June. The frost-action potential of the soil is high.

Most of the acreage of this soil is in woodland. A few areas in the town of Merrimack are used for residential development.

The high water table limits the choice of crops and delays cultivation in the spring, making this soil unsuited to row crops. With adequate drainage, using tile or ditches, this soil is suitable for moisture-tolerant grasses and legumes.

This soil is suited to some tree species, but it is best suited to water-tolerant species such as red maple. Productivity is moderate. The seasonal high water table is the main limitation for forest management and logging operations.

The water table and the high frost-action potential limit the soil for most types of community development and recreational use.

The capability subclass is IVw.

BoA—Borohemists, nearly level. These soils are very poorly drained and are in depressions on terraces, uplands, and outwash plains. The soils consist of decayed organic deposits 16 inches to more than 51 inches thick. The areas are irregularly shaped and range from 3 to 150 acres.

Included with these soils in mapping are areas of Greenwood and Chocorua soils and Borohemists, ponded. Included soils make up 10 to 15 percent of the unit.

The permeability of these Borohemists is moderate, and available water capacity is high. The depth to bedrock is more than 5 feet. The water table is between the surface and a depth of 6 inches throughout the year. The frost-action potential of the soils is high.

Most areas of these soils are in sparsely wooded bogs. Some areas are densely wooded. The high water table and organic material make these soils unsuitable for farming, woodland, or most other uses unless fill material is used.

This unit is not assigned to a capability subclass.

BpA—Borohemists, ponded. These soils are nearly level and very poorly drained. The soils consist of moderately decayed organic material 16 inches to more than 51 inches thick. They are in marshes that are commonly around the edges of lakes and ponds or in depressions. The marshes are covered by shallow water most of the time. The areas are irregularly shaped and range from 5 to 60 acres.

Included with these soils in mapping are small areas of Greenwood soils and Borohemists, nearly level, that make up 10 to 15 percent of the unit.

The permeability of these Borohemists is moderate, and available water capacity is high. The depth to bedrock is more than 5 feet. A water table is between the surface and a depth of 6 inches throughout the year, and some areas have water ponded on the surface. The frost-action potential of the soils is high.

Most of the acreage of these soils is covered by grasses, reeds, cattails, and sedges and a few red maple trees and cranberry bushes.

Ponding and the high water table make these soils unsuitable for most uses other than wetland wildlife habitat.

This unit is not assigned to a capability subclass.

CaB—Canton fine sandy loam, 0 to 8 percent slopes. This soil is nearly level to gently sloping and is well drained. It is on hilltops and at the base of slopes of hilly uplands. The areas are irregularly shaped and range from 5 to 100 acres.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. The subsoil is yellowish brown fine sandy loam 12 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of nearly level and gently sloping Scituate soils, stony Canton soils, and other well drained soils. Included soils make up 15 to 20 percent of the unit.

The permeability of this Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is low.

Most areas of this soil are used for hay or pasture. A few areas are used for cultivated crops or orchards, and some areas in the cities and suburbs are used for residential development.

This soil is well suited to silage corn, grasses and legumes, and hay and pasture. The soil can be used for row crops continuously if it is tilled on the contour or stripcropped to control erosion and if cover crops and grasses and legumes are used in the cropping system. Droughtiness during the growing season is a limitation for hay and pasture in some years.

This soil is poorly suited to most tree species, and productivity is low.

The soil has few limitations for most types of community development and recreational use, but subsurface stones in some areas interfere with the construction of playgrounds.

The capability subclass is IIe.

CaC—Canton fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on side slopes of hilly uplands. The areas are irregularly shaped and range from 5 to 25 acres.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. The subsoil is yellowish brown fine sandy loam 12 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Scituate soils, Chatfield soils, stony Canton soils, and soils with a weak hardpan below a depth of 40 inches. Included soils make up 10 to 15 percent of the unit.

The permeability of this Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is low.

Most areas of this soil are used for pasture or hay. A few areas are used for cultivated crops or orchards, and areas in the cities and suburbs are used for residential development.

An erosion hazard limits this soil for row crops. Using grasses and legumes in the cropping system, contour farming, stripcropping, and using diversions will help to control erosion in cultivated areas. Adding manure and mixing crop residue into the soil provide additional organic matter to help maintain tilth and conserve moisture. A few stones and cobblestones in some areas interfere with tillage.

This soil is poorly suited to most tree species; productivity is low. Constructing logging roads on the contour helps to control erosion.

Slope is the main limitation of this soil for most types of community development and recreational use.

The capability subclass is IIIe.

CaD—Canton fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep and well drained. It is on side slopes of hilly uplands. The areas are long and narrow and range from 5 to 10 acres.

Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown fine sandy loam 14 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of sloping Chatfield soils, Canton soils that have slopes of more than 25 percent or less than 15 percent, stony Canton soils, and other well drained soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is low.

Most areas of this soil are used for pasture, hay, or apple orchards. Some areas are wooded.

Slope and an erosion hazard limit this soil for row crops, but the soil is suited to hay and pasture. The hazard of erosion makes the use of grasses and legumes necessary in the crop rotation in cultivated areas. Reseeding of hay crops in strips also helps to control erosion. If sodded, the soil is suited to apple orchards, but spot drainage is necessary in places. Subsurface stones in some areas of this soil interfere with tillage.

This soil is poorly suited to most tree species; productivity is low. Slope limits the use of equipment, and the use of logging equipment during wet periods increases the hazard of erosion. Constructing logging roads on the contour helps to control this hazard.

Slope is the main limitation of this soil for most types of community development and recreational use.

The capability subclass is IVe.

CmB—Canton stony fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and well drained. It is on hilltops and side slopes of wooded uplands. The areas are irregularly shaped and range from 5 to 15 acres. Stones that are 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Scituate soils, Chatfield and Hinckley soils, and other well

drained, stony soils. Included soils make up 10 to 20 percent of the unit.

The permeability of this Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is low.

Most areas of this soil are wooded. A few areas are used for unimproved pasture. Some areas in the cities and suburbs are used for residential development.

The stones on the surface make this soil unsuited to row crops and limit use for pasture or hay. Areas that are cleared of stones and trees have fair potential for hay and pasture and for apple orchards.

This soil is poorly suited to most tree species; productivity is low.

The stones on the surface are the main limitation of the soil for most types of community development and recreational use.

The capability subclass is VIs.

CmC—Canton stony fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on side slopes and hills of wooded uplands. The areas are irregularly shaped and range from 5 to 150 acres. Stones that are 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of gently sloping Scituate soils, areas of Chatfield soils, and areas of soils with a weak hardpan at a depth of more than 40 inches. Included soils make up 10 to 15 percent of the unit.

The permeability of this Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is low.

Most areas of this soil are wooded (fig. 3). A few areas are used for unimproved pasture. Some areas in the cities and suburbs are used for residential development.

The stones on the surface make this soil unsuited to row crops and limited for hay or pasture. Areas that are cleared of stones and trees have fair potential for hay and pasture and for apple orchards.

This soil is poorly suited to most tree species; productivity is low.

The stones on the surface and slope are the main limitations of the soil for most types of community development and recreational use.

The capability subclass is VIs.

CmD—Canton stony fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep and well drained. It is on hillsides of wooded uplands. The areas are long and narrow and range from 5 to 35 acres. Stones that are 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Figure 3.—Northern hardwoods on Canton stony fine sandy loam, 8 to 15 percent slopes.

Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Chatfield soils and small areas of sloping and steep, very stony Canton soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is low.

Most of the acreage of this soil is wooded. A few areas are used for unimproved pasture.

Slope and the stones on the surface make this soil unsuited to row crops and limited for hay or pasture.

The soil is poorly suited to most tree species; productivity is low. Slope limits equipment operation. Erosion is a hazard if logging equipment is used during

wet periods, but this hazard can be controlled by constructing logging roads on the contour.

Slope is the main limitation of the soil for most types of community development and recreational uses.

The capability subclass is VIs.

CmE—Canton stony fine sandy loam, 25 to 35 percent slopes. This soil is steep and well drained. It is on hillsides of wooded uplands. The areas are long and narrow and range from 5 to 35 acres. Stones that are 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Chatfield soils and small areas of moderately steep, very stony Canton soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is low.

Slope and the stones on the surface make this soil unsuited to farming. Most areas are wooded, but the soil is poorly suited to most tree species and productivity is low. Slope limits equipment operation. Erosion is a hazard if logging equipment is used during wet periods, but this hazard can be reduced by constructing logging roads on the contour and using diversions and grass cover.

Slope is the major limitation of the soil for most types of community development and recreational use.

The capability subclass is VIIs.

CnC—Canton very stony fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on hills and low mountains. The areas are irregularly shaped and range from 25 to 150 acres. Stones and boulders less than 5 feet apart cover the surface.

Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of very stony soils with slopes of 3 to 8 percent and areas of stony Scituate soils in slight depressions and sloping Chatfield soils. Included soils make up 10 to 20 percent of the unit.

The permeability of this Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. The frost-action potential is low.

Most of the acreage of this soil is wooded. A few areas are used for unimproved pasture.

The stones and boulders on the surface make this soil unsuited to farming. The soil is poorly suited to most tree species, and productivity is low. The stones and boulders limit logging operations. Erosion is a hazard if logging equipment is used during wet periods, but this hazard can be controlled by constructing logging roads on the contour.

The stones and boulders on the surface limit the soil for most types of community development and recreational use.

The capability subclass is VIIs.

CnD—Canton very stony fine sandy loam, 15 to 35 percent slopes. This soil is moderately steep to steep and is well drained. It is on hills and low mountains. The areas are irregularly shaped and range from 25 to 150 acres. Stones and boulders are less than 5 feet apart on the surface.

Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of sloping Scituate soils, moderately steep Chatfield soils, and soils with slopes of more than 35 percent. Included soils make up 10 to 20 percent of the unit.

The permeability of this Canton soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is low.

The stones and boulders on the surface and the slope make this soil unsuitable for farming. Most areas are wooded, but the soil is poorly suited to most tree species and productivity is low. The stones and boulders and slope are limitations for logging operations. Erosion is a hazard if logging equipment is used during wet periods, but this hazard can be reduced by constructing logging roads on the contour.

The stones and boulders and slope also limit the soil for most types of community development and recreational use.

The capability subclass is VIIs.

CoC—Canton-Urban land complex, 3 to 15 percent slopes. This complex consists of gently sloping to sloping Canton soils and urbanized areas. It is in upland areas on the west side of Nashua and on both sides of the Merrimack River valley in Manchester and Goffstown. The areas are irregularly shaped and range from 25 to 300 acres. They are about 50 percent Canton soils, 35 percent urbanized, and 15 percent included soils. The Canton soils and urbanized areas are so intermingled that it was not practical to map them separately.

Typically, the Canton soils have a surface layer of dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and brownish gray gravelly loamy sand to a depth of 60 inches or more.

The urbanized areas are nearly level to sloping, and more than 85 percent of the surface is covered by buildings, asphalt, or concrete. Examples are industrial parks, shopping centers, and parking lots. Some of these areas have been covered by more than 20 inches of fill material or have had most or all of the original soil removed during grading operations. The fill material is commonly from adjacent areas of Canton soils that have been cut and graded.

Included with this complex in mapping are areas of Scituate soils and sloping, stony Canton soils.

The Canton soils in this complex have moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Available water capacity is moderate. The depth to bedrock is generally more than 5 feet.

Onsite investigation is needed to determine the suitability of this unit for most uses.

This unit is not assigned to a capability subclass.

CpB—Chatfield-Hollis-Canton complex, 3 to 8 percent slopes. This complex consists of gently sloping soils in such an intricate pattern that it was not practical to map them separately. The complex is about 35 percent well drained, moderately deep Chatfield soils; 30 percent somewhat excessively drained, shallow Hollis soils; 25 percent well drained, deep Canton soils; and 10 percent other soils. The complex is generally on the tops of hills and ridges. The areas are irregularly shaped and range from 10 to 50 acres.

Typically, the surface layer of the Chatfield soils is dominantly very dark grayish brown fine sandy loam 4 inches thick. The subsoil is yellowish brown sandy loam 20 inches thick. Slightly weathered granite bedrock is at a depth of 24 inches.

Typically, the surface layer of the Hollis soils is dark brown fine sandy loam 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. Unweathered granite bedrock is at a depth of 19 inches.

Typically, the surface layer of the Canton soils is dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this complex in mapping are small areas of Paxton soils on the higher, sloping parts of the landscape. Also included are isolated wet spots in slight depressions and areas of very shallow soils.

These Chatfield soils have moderate or moderately rapid permeability and low available water capacity. The depth to bedrock is 20 to 40 inches.

These Hollis soils have moderate or moderately rapid permeability and very low available water capacity. The depth to bedrock is 10 to 20 inches.

The Canton soils have moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Available water capacity is moderate. The depth to bedrock is generally more than 5 feet.

Most areas of this complex are in woodland, but some small areas are in pasture or crops.

The depth to bedrock makes this complex better suited to grasses and legumes than to row crops. Using stripcropping, minimum tillage, and contour farming helps to control erosion in cultivated areas.

The complex is suitable for a variety of trees, and productivity is moderate. There are few limitations for most types of forest management or logging operations.

The depth to bedrock in the Chatfield and Hollis soils is a limitation of the complex for most types of community development and for playgrounds.

The capability subclass is IIIe.

CpC—Chatfield-Hollis-Canton complex, 8 to 15 percent slopes. This complex consists of sloping soils in such an intricate pattern that it was not practical to map them separately. The complex is about 35 percent well drained, moderately deep Chatfield soils; 30 percent somewhat excessively drained, shallow Hollis soils; 25 percent well drained, deep Canton soils; and 10 percent other soils. The complex is generally on the tops and sides of hills and ridges. The areas are irregularly shaped and range from 10 to 50 acres.

Typically, the surface layer of the Chatfield soils is dominantly very dark grayish brown fine sandy loam 4 inches thick. The subsoil is yellowish brown sandy loam 20 inches thick. Slightly weathered granite bedrock is at a depth of 24 inches.

Typically, the surface layer of the Hollis soils is dark brown fine sandy loam 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. Unweathered granite bedrock is at a depth of 19 inches.

Typically, the surface layer of the Canton soils is dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this complex in mapping are small areas of Paxton soils on the higher parts of the landscape. Also included are isolated wet spots in slight depressions and areas of very shallow soils.

These Chatfield soils have moderate or moderately rapid permeability and low available water capacity. The depth to bedrock is 20 to 40 inches.

The Hollis soils have moderate or moderately rapid permeability and very low available water capacity. The depth to bedrock is 10 to 20 inches.

The Canton soils have moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Available water capacity is moderate. The depth to bedrock is generally more than 5 feet.

Most of this complex is in woodland, but some small areas are used for pasture or hay.

The depth to bedrock makes the soils in this complex better suited to grasses and legumes than to row crops. Irrigation helps to increase the suitability for crops. The hazard of erosion can be lessened by using diversions and by controlling runoff with stripcropping or contour farming.

This complex is suitable for a variety of trees, and productivity is moderate. There are few limitations for most types of forest management or logging operations. Constructing logging roads on the contour helps to control erosion.

The depth to bedrock in the Chatfield and Hollis soils and the slope are the main limitations of the complex for most types of community development and for some recreational uses.

The capability subclass is IVe.

CpD—Chatfield-Hollis-Canton complex, 15 to 25 percent slopes. This complex consists of moderately steep soils in such an intricate pattern that it was not practical to map them separately. The complex is about 35 percent well drained, moderately deep Chatfield soils; 30 percent somewhat excessively drained, shallow Hollis soils; 25 percent well drained, deep Canton soils; and 10 percent other soils. The complex is generally on the sides of hills and ridges. The areas are irregularly shaped and range from 10 to 50 acres.

Typically, the surface layer of the Chatfield soils is dominantly very dark grayish brown fine sandy loam 4 inches thick. The subsoil is yellowish brown sandy loam 20 inches thick. Slightly weathered granite bedrock is at a depth of 24 inches.

Typically, the surface layer of the Hollis soils is dark brown fine sandy loam 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. Unweathered granite bedrock is at a depth of 19 inches.

Typically, the surface layer of the Canton soils is dark brown fine sandy loam about 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. The substratum is pale brown and light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Included with this complex in mapping are small areas of moderately steep Paxton soils; exposed bedrock; and moderately steep, very shallow soils.

These Chatfield soils have moderate or moderately rapid permeability and low available water capacity. The depth to bedrock is 20 to 40 inches.

The Hollis soils have moderate or moderately rapid permeability and very low available water capacity. The depth to bedrock is 10 to 20 inches.

The Canton soils have moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Available water capacity is moderate. The depth to bedrock is generally more than 5 feet.

Slope and the depth to bedrock make the soils of this complex unsuitable for cultivated crops and limited for hay and pasture.

Most areas are wooded, and the complex is suitable for a variety of trees. Productivity is moderate. Slope limits equipment operation. Constructing logging roads on the contour helps to control erosion.

The depth to bedrock in the Chatfield and Hollis soils and slope limit this complex for most types of community development and some recreational uses.

The capability subclass is VIe.

CsB—Chatfield-Hollis complex, 3 to 8 percent slopes. This complex consists of gently sloping soils in such an intricate pattern that it was not practical to map them separately. The complex is about 45 percent well drained, moderately deep Chatfield soils; 40 percent somewhat excessively drained, shallow Hollis soils; and 15 percent other soils. The complex is generally on the tops of hills and ridges. The areas are irregularly shaped and range from 10 to 50 acres.

Typically, the surface layer of the Chatfield soils is dominantly very dark grayish brown fine sandy loam 4 inches thick. The subsoil is yellowish brown sandy loam 20 inches thick. Slightly weathered granite bedrock is at a depth of 24 inches.

Typically, the surface layer of the Hollis soils is dark brown fine sandy loam 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. Unweathered granite bedrock is at a depth of 19 inches.

Included with this complex in mapping are small areas of gently sloping Canton and Paxton soils, isolated spots of wet soils in depressions, spots of exposed bedrock, and small areas of soils that are very shallow to bedrock.

These Chatfield and Hollis soils have moderate or moderately rapid permeability. Available water capacity is low in the Chatfield soils and very low in the Hollis soils. The depth to bedrock is 20 to 40 inches in the Chatfield soils and 10 to 20 inches in the Hollis soils.

The depth to bedrock and low available water capacity make these soils unsuitable for farming. Most areas are wooded, and the complex is suitable for a variety of trees. Productivity is moderate. A high rate of seedling mortality and a hazard of uprooting during windy periods are the main woodland management concerns.

The depth to bedrock is the main limitation of these soils for most types of community development.

The capability subclass is IIIe.

CsC—Chatfield-Hollis complex, 8 to 15 percent slopes. This complex consists of sloping soils in such an intricate pattern that it was not practical to map them separately. The complex is about 45 percent well drained, moderately deep Chatfield soils; 40 percent somewhat excessively drained, shallow Hollis soils; and 15 percent other soils. The complex is generally on the tops and sides of hills and ridges. The areas are irregularly shaped and range from 10 to 50 acres.

Typically, the surface layer of the Chatfield soils is dominantly very dark grayish brown fine sandy loam 4 inches thick. The subsoil is yellowish brown sandy loam 20 inches thick. Slightly weathered granite bedrock is at a depth of 24 inches.

Typically, the surface layer of the Hollis soils is dark brown fine sandy loam 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. Unweathered granite bedrock is at a depth of 19 inches.

Included with this complex in mapping are small areas of gently sloping Canton and Paxton soils, isolated spots of wet soils in depressions, spots of exposed bedrock, and small areas of very shallow soils.

These Chatfield and Hollis soils have moderate or moderately rapid permeability. Available water capacity is low in the Chatfield soils and very low in the Hollis soils. The depth to bedrock is 20 to 40 inches in the Chatfield soils and 10 to 20 inches in the Hollis soils.

The depth to bedrock and low available water capacity make these soils unsuitable for farming. Most areas are wooded, and the soils are suitable for a variety of trees. Productivity is moderate. Constructing logging roads on the contour helps to control erosion. A high rate of seedling mortality and a hazard of uprooting during windy periods are the main woodland management concerns.

The depth to bedrock and the slope limit these soils for most types of community development and recreational use.

The capability subclass is IVe.

CtD—Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes. This complex consists of moderately steep to steep soils and areas of exposed bedrock in such an intricate pattern that it was not practical to map them separately. The complex is about 35 percent well drained, moderately deep Chatfield soils; 30 percent somewhat excessively drained, shallow Hollis soils; 20 percent exposed bedrock; and 15 percent other soils. The complex is generally on the sides of hills and ridges. The areas are irregularly shaped and range from 10 to 50 acres.

Typically, the surface layer of the Chatfield soils is dominantly very dark grayish brown fine sandy loam 4 inches thick. The subsoil is yellowish brown sandy loam 20 inches thick. Slightly weathered granite bedrock is at a depth of 24 inches.

Typically, the surface layer of the Hollis soils is dark brown fine sandy loam 4 inches thick. The subsoil is yellowish brown fine sandy loam 15 inches thick. Unweathered granite bedrock is at a depth of 19 inches.

Included with this complex in mapping are small areas of moderately steep Canton and Paxton soils, isolated spots of wet soils in depressions, and areas of very shallow soils.

These Chatfield and Hollis soils have moderate or moderately rapid permeabilty. Available water capacity is low in the Chatfield soils and very low in the Hollis soils. The depth to bedrock is 20 to 40 inches in the Chatfield soils and 10 to 20 inches in the Hollis soils.

The areas of exposed rock and the slope make this complex unsuitable for farming. Most areas are wooded, but the complex is poorly suited to most tree species. Productivity is low. Slope and the areas of exposed rock limit the use of equipment.

Slope, the depth to bedrock, and the areas of exposed bedrock limit the complex for most types or community development and recreational use.

The capability subclass is VIIs.

Cu—Chocorua mucky peat. This soil is nearly level and very poorly drained. It is in depressions on terraces, plains, uplands, and flood plains. The areas are irregularly shaped and range from 10 to 50 acres.

Typically, this soil consists of black, partly decayed organic material to a depth of 22 inches. Between depths of 22 and 33 inches, the soil is dark yellowish brown and olive gray gravelly loamy sand and gravelly sandy loam. From 33 inches to a depth of 60 inches or more, the soil is light brownish gray coarse sand and loamy sand.

Included with this soil in mapping are areas of very poorly drained Scarboro and Greenwood soils and areas of Borohemists, nearly level, and Borohemists, ponded. Also included are a few areas where the soil underlying the organic deposits is loam or sandy loam. Included soils make up 10 to 15 percent of the unit.

The permeability of this Chocorua soil is moderate in the organic material and rapid in the mineral layers. Available water capacity is high. The depth to bedrock is more than 5 feet. The water table is between the surface and a depth of 6 inches year-around, and water is ponded on the surface of some areas. The frost-action potential of the soil is high.

Most areas of this soil are in open bogs or are wooded. Red maple and small shrubs such as highbush blueberries are the common types of vegetation. The water table and poor stability make the soil unsuitable for most uses other than as wetland wildlife habitat.

The capability subclass is VIIIw.

DeA—Deerfield loamy fine sand, 0 to 3 percent slopes. This soil is nearly level and moderately well drained. It is in slight depressions on terraces and outwash plains. The areas are irregularly shaped and range from 10 to 100 acres.

Typically, the surface layer is very dark grayish brown loamy fine sand 9 inches thick. The subsoil is yellowish brown loamy fine sand 11 inches thick. The substratum is mottled and extends to a depth of 60 inches or more. The upper part of the subsoil is yellowish brown loamy sand, and the lower part is pale brown and light brownish gray sand.

Included with this soil in mapping are areas of soil with gravel in the substratum and small areas of Pipestone and Saugatuck soils in depressions. Included soils make up 10 to 15 percent of the unit.

The permeability of this Deerfield soil is rapid in the surface layer and subsoil and very rapid in the substratum. Available water capacity is low. The depth to bedrock is more than 5 feet. A seasonal high water table is at a depth of 1-1/2 to 3 feet from December to April. The frost-action potential of the soil is moderate.

Most areas of this soil are in woodland. A few areas are used for hay or residential development.

Seasonal wetness in undrained areas restricts the choice of crops on this soil and delays cultivation in the spring. Drained areas can be used for row crops continuously, but irrigation is needed during dry periods. Adding manure and mixing crop residue into the soil help to maintain the organic matter content.

This soil is suited to some tree species, and productivity is moderate. There are few limitations for most types of forest management and logging operations.

The seasonal high water table is the main limitation of the soil for community development and recreational use.

The capability subclass is IIIw.

DeB—Deerfield loamy fine sand, 3 to 8 percent slopes. This soil is gently sloping and moderately well drained. It is in slight depressions on terraces and outwash plains. The areas are irregularly shaped and range from 10 to 30 acres.

Typically, the surface layer is very dark grayish brown loamy fine sand 9 inches thick. The subsoil is yellowish brown loamy fine sand 11 inches thick. The substratum is mottled and extends to a depth of 60 inches or more. The upper part of the substratum is yellowish brown loamy sand, and the lower part is pale brown and light brownish gray sand.

Included with this soil in mapping are areas of soil with gravel in the substratum and small areas of Pipestone and Saugatuck soils in depressions. Included soils make up 10 to 15 percent of the unit.

The permeability of this Deerfield soil is rapid in the surface layer and subsoil and very rapid in the substratum. Available water capacity is low. The depth to bedrock is more than 5 feet. A seasonal high water table is at a depth of 1-1/2 to 3 feet from December to April. The frost-action potential of the soil is moderate.

Most of the acreage of this soil is in woodland. A few areas are used for hay or residential development.

Seasonal wetness in undrained areas restricts the choice of crops on this soil and delays cultivation in the spring. Drained areas can be used for row crops continuously, but irrigation is needed during dry periods. Adding manure and mixing crop residue into the soil help to maintain the organic matter content.

This soil is suited to some tree species, and productivity is moderate. There are few limitations for most types of forest management or logging operations.

The seasonal high water table is the main limitation of this soil for community development and recreational use.

The capability subclass is IIIw.

Dp—Dumps. These areas are or have been used for residential and industrial waste disposal. The areas are irregular in shape and range from 3 to 35 acres.

Included with this unit in mapping are small areas of Udipsamments, nearly level, and Hinckley and Windsor soils. Also included are small gravel pits. Included areas make up 5 to 10 percent of the unit.

Some areas of this unit have been reclaimed and used for parks, playgrounds, or building sites. However, the variable properties of the unit make onsite investigation necessary to determine the potentials and limitations of these areas for most uses.

This unit is not assigned to a capability subclass.

Gw—Greenwood mucky peat. This soil is nearly level and very poorly drained. It is in depressions on outwash terraces, outwash plains, and uplands. The areas are irregularly shaped and range from 10 to 400 acres.

Typically, this soil is very dusky red or dark reddish brown, partly decayed organic material to a depth of 60 inches or more.

Included with this soil in mapping are areas of very poorly drained Chocorua soils; Borohemists, ponded; and Borohemists, nearly level. Included soils make up 5 to 10 percent of the unit.

The permeability of this Greenwood soil is moderate, and available water capacity is high. The depth to bedrock is more than 5 feet. A high water table is between the surface and a depth of 1 foot most of the time between September and June, and water is ponded on some areas during that period. The frost-action potential of the soil is high.

Most of the acreage of this soil is wooded. Some areas are in open bogs. Unless fill material is used, the high water table and instability make the soil unsuitable for most uses other than as wetland wildlife habitat.

The capability subclass is VIIIw.

HsA—Hinckley loamy sand, 0 to 3 percent slopes. This soil is nearly level and excessively drained. It is on terraces and outwash plains. The areas are irregularly shaped and range from 10 to 150 acres.

Typically, the surface layer is very dark brown loamy sand 3 inches thick. The subsoil is yellowish brown gravelly loamy sand 18 inches thick. The substratum extends to a depth of 60 inches or more. The upper part of the substratum is pale brown gravelly coarse sand, and the lower part is brownish yellow very gravelly coarse sand.

Included with this soil in mapping are areas of Deerfield soils, Windsor soils, and soils with stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart on the surface. Included soils make up 10 to 15 percent of the unit.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Available water capacity is very low. The depth to bedrock is more than 5 feet.

Most areas of this soil are wooded. Some areas in the cities and suburbs are used for residential and industrial development.

This soil has limited suitability for farming; irrigation and heavy applications of fertilizer are needed for most crops. Adding manure and mixing crop residue into the soil help to maintain the organic matter content.

This soil is suited to drought-tolerant tree species, but productivity is low. Droughtiness causes a high rate of seedling mortality.

The rapid permeability is the main limitation of the soil for community development. It causes a hazard of ground-water contamination in areas used for septic tank absorption fields. Droughtiness limits the soil as a site for lawns. Some areas of this Hinckley soil are a good source of gravel.

The capability subclass is IIIs.

HsB—Hinckley loamy sand, 3 to 8 percent slopes. This soil is gently sloping and excessively drained. It is on terraces and outwash plains. The areas are irregularly shaped and range from 10 to 150 acres.

Typically, the surface layer is very dark brown loamy sand 3 inches thick. The subsoil is yellowish brown gravelly loamy sand 18 inches thick. The substratum extends to a depth of 60 inches or more. The upper part of the substratum is pale brown gravelly coarse sand, and the lower part is brownish yellow very gravelly coarse sand.

Included with this soil in mapping are areas of Deerfield soils, Windsor soils, and soils with stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart on the surface. Included soils make up 10 to 15 percent of the unit.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Available water capacity is very low. The depth to bedrock is more than 5 feet.

Most areas of this soil are wooded. Some areas in the cities and suburbs are used for residential or industrial development.

This soil has limited suitability for farming; irrigation and heavy applications of fertilizer are needed for most crops. Adding manure and mixing crop residue into the soil help to maintain the organic matter content.

This soil is suited to drought-tolerant tree species, but productivity is low. Droughtiness causes a high rate of seedling mortality.

The rapid permeability is the main limitation of the soil for community development. It causes a hazard of ground-water contamination in areas used for septic tank absorption fields. Droughtiness limits the soil as a site for lawns. Some areas of this Hinckley soil are a good source of gravel.

The capability subclass is IIIs.

HsC—Hinckley loamy sand, 8 to 15 percent slopes. This soil is sloping and excessively drained. It is on terraces and outwash plains. The areas are irregularly shaped and range from 5 to 75 acres.

Typically, the surface layer is very dark brown loamy sand 3 inches thick. The subsoil is yellowish brown gravelly loamy sand 18 inches thick. The substratum extends to a depth of 60 inches or more. The upper part of the substratum is pale brown gravelly coarse sand, and the lower part is brownish yellow very gravelly coarse sand.

Included with this soil in mapping are areas of sloping Windsor soils and small areas with stones on the surface. Included soils make up 10 to 15 percent of the unit.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Available water capacity is very low. The depth to bedrock is more than 5 feet.

Most areas of this soil are wooded. Some areas in the cities and suburbs are used for residential development.

This soil is better suited to drought-resistant grasses and legumes than to row crops. Irrigation is needed for most row crops and for the establishment and maintenance of a grass cover. The hazard of erosion is moderate. Using grasses and legumes, stripcropping, and using cover crops keep soil losses to a minimum. Fertilizer is quickly leached through this soil and needs to be reapplied frequently.

This soil is best suited to drought-tolerant tree species, but productivity is low; droughtiness causes a high rate of seedling mortality. There are few limitations for most types of forest management or logging operations.

Slope limits this soil for some types of community development and recreational use. The rapid permeability causes a hazard of ground-water contamination in areas used for septic tank absorption fields. Establishing lawn grasses is difficult because of droughtiness. This soil is a good source of gravel.

Slope is a limitation for most recreational uses.

Capability class IVs.

HsD—Hinckley loamy sand, 15 to 35 percent slopes. This soil is moderately steep to steep and is excessively drained. It is on terrace escarpments, eskers, and kames. The areas are long and narrow or irregularly shaped and range from 10 to 40 acres.

Typically, the surface layer is very dark brown loamy sand 3 inches thick. The subsoil is yellowish brown gravelly loamy sand 18 inches thick. The substratum extends to a depth of 60 inches or more. The upper part of the substratum is pale brown gravelly coarse sand, and the lower part is brownish yellow very gravelly coarse sand.

Included with this soil in mapping are areas of moderately steep to steep Windsor soils and small areas that have stones on the surface. Included soils make up 10 to 15 percent of the unit.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Available water capacity is very low. The depth to bedrock is more than 5 feet.

Droughtiness and slope make this soil unsuitable for farming. Nearly all areas of this soil are wooded, and the

soil is suited to drought-tolerant trees. However, logging operations are limited by slope, droughtiness causes a high rate of seedling mortality, and productivity is low.

Slope limits this soil for most types of community development and recreational use. Some areas are a good source of gravel.

The capability subclass is VIIs.

LeA—Leicester Variant loam, 0 to 3 percent slopes. This soil is nearly level and poorly drained. It is in depressions and drainageways on uplands in the southern part of the survey area, mainly in the town of Hollis. The areas are irregularly shaped or long and narrow and range from 2 to 5 acres.

Typically, the surface layer is very dark gray loam about 8 inches thick. The subsoil is mottled and olive gray and is 26 inches thick. It is very fine sandy loam in the upper part and loam in the lower part. The substratum extends to a depth of 60 inches or more. It is olive channery fine sandy loam in the upper part and olive very channery fine sandy loam in the lower part.

Included with this soil in mapping are small areas of Pittstown Variant soils and areas of very poorly drained soils. Included soils make up about 10 percent of the unit.

The permeability of this Leicester Variant soil is moderate or moderately rapid in the surface layer and subsoil and moderate to rapid in the substratum. Available water capacity is moderate. The depth to bedrock is generally more than 5 feet. A high water table is between the surface and a depth of 1 foot from November to May. The frost-action potential of the soil is high.

Most areas of this soil are used for hay or are wooded.

Undrained areas of this soil are suitable only for moisture-tolerant hay and pasture plants. Drainage by use of open ditches, tile, or diversions makes the soil suitable for some row crops.

This soil is suited to a variety of trees, and productivity is moderate. The seasonal high water table is a limitation for some forest management practices and logging operations.

The high water table and frost-action potential are the major limitations of the soil for community development and recreational use.

The capability subclass is IIIw.

LsA—Leicester Variant stony loam, 0 to 3 percent slopes. This soil is nearly level and poorly drained. It is in depressions and drainageways on uplands in the southern part of the survey area, mainly in the town of Hollis. The areas are long and narrow and range from 2 to 10 acres. Stones that are 1 to 1-1/2 feet in diameter and 5 to 30 feet apart are on the surface of this soil.

Typically, the surface layer is very dark gray loam about 8 inches thick. The subsoil is mottled and olive gray and is 26 inches thick. It is very fine sandy loam in the upper part and loam in the lower part. The substratum extends to a depth of 60 inches or more. It is olive channery fine sandy loam in the upper part and olive very channery fine sandy loam in the lower part.

Included with this soil in mapping are small areas of stony Pittstown Variant soils and stony, very poorly drained soils. Included soils make up about 10 percent of the unit.

The permeability of this Leicester Variant soil is moderate or moderately rapid in the surface layer and subsoil and moderate to rapid in the substratum. Available water capacity is moderate. The depth to bedrock is generally more than 5 feet. A high water table is between the surface and depth of 1 foot from November to May. The frost-action potential of the soil is high.

Stones on the surface and the seasonal high water table make this soil unsuitable for farming. Most areas are wooded, and the soil is suited to a variety of trees. Productivity is moderate. The high water table limits some forest management practices and logging operations.

The high water table and frost-action potential limit this soil for community development and recreational use.

The capability subclass is VIIs.

LtA—Leicester-Walpole complex, 0 to 3 percent slopes. This complex consists of nearly level, poorly drained soils in such an intricate pattern that it was not practical to map them separately. The complex is about 40 percent drained Leicester soils, 35 percent Walpole soils, and 25 percent other soils. It is generally in depressions on hilly uplands. The areas are irregularly shaped or long and narrow and range from 3 to 10 acres.

Typically, the surface layer of the Leicester soils is very dark grayish brown loam about 9 inches thick. The subsoil is mottled, grayish brown fine sandy loam 13 inches thick. The substratum extends to a depth of 60 inches or more. It is mottled, light brownish gray sandy loam in the upper part and light gray gravelly sandy loam in the lower part.

Typically, the surface layer of the Walpole soils is very dark gray sandy loam about 5 inches thick. The subsoil is mottled, dark grayish brown sandy loam 13 inches thick. The substratum is mottled and extends to a depth of 60 inches or more. It is pale brown sand in the upper part and light yellowish brown gravelly sand in the lower part.

Included with this complex in mapping are areas of Ridgebury, Pipestone, and Saugatuck soils and stony Scarboro soils.

These Leicester soils have moderate or moderately rapid permeability and moderate available water capacity. The depth to bedrock is more than 5 feet. A seasonal high water table is between the surface and a depth of 1-1/2 feet from November to May. The frost-action potential of the Leicester soils is high.

These Walpole soils have moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. A seasonal high water table is between the surface and a depth of 1 foot from November to April. The frost-action potential of the Walpole soils is high.

Most areas of this complex are used for pasture. The seasonal high water table in the soils makes them unsuitable for row crops; the choice of crops is restricted, and cultivation is delayed in the spring. Using tile drains or open ditches makes the soils suitable for moisture-tolerant varieties of grasses and legumes.

The soils are suited to a variety of trees, mainly water-tolerant species such as red maple. Productivity is moderate. The seasonal high water table limits some forest management practices and logging operations.

The high water table and frost-action potential limit these soils for community development and recreational use.

The capability subclass is IVw.

LtB—Leicester-Walpole complex, 3 to 8 percent slopes. This complex consists of gently sloping, poorly drained soils in such an intricate pattern that it was not practical to map them separately. The complex is about 40 percent Leicester soils, 35 percent Walpole soils, and 25 percent other soils. The complex is generally in depressions in hilly uplands. The areas are irregularly shaped or long and narrow and range from 3 to 10 acres.

Typically, the surface layer of the Leicester soils is very dark grayish brown loam about 9 inches thick. The subsoil is mottled, grayish brown fine sandy loam 13 inches thick. The substratum extends to a depth of 60 inches or more. It is mottled, light brownish gray sandy loam in the upper part and light gray gravelly sandy loam in the lower part.

Typically, the surface layer of the Walpole soils is very dark gray sandy loam about 5 inches thick. The subsoil is mottled, dark grayish brown sandy loam 13 inches thick. The substratum is mottled and extends to a depth of 60 inches or more. The upper part of the substratum is pale brown sand, and the lower part is light yellowish brown gravelly sand.

Included with this complex in the mapping are areas of Ridgebury, Pipestone, and Saugatuck soils and stony Scarboro soils.

These Leicester soils have moderate or moderately rapid permeability and moderate available water capacity. The depth to bedrock is more than 5 feet. A seasonal high water table is between the surface and a depth of 1-1/2 feet from November to May. The frost-action potential of the Leicester soils is high.

These Walpole soils have moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. A seasonal high water table is between the surface and a depth of 1 foot from November to April. The frost-action potential of the Walpole soils is high.

Most of this complex is used for pasture. The seasonal high water table in the soils makes them unsuitable for row crops; the choice of crops is restricted, and cultivation is delayed in the spring. Tile drains or open ditches make the soils suitable for moisture-tolerant varieties of grasses and legumes.

The soils are suited to a variety of trees, mainly water-tolerant species such as red maple. Productivity is moderate. The high water table limits some forest management practices and logging operations.

The high water table and frost-action potential limit the soils for community development and recreational use.

The capability subclass is IVw.

LvA—Leicester-Walpole complex stony, 0 to 3 percent slopes. This complex consists of nearly level, poorly drained soils in such an intricate pattern that it was not practical to map them separately. The complex is about 40 percent Leicester soils, 35 percent Walpole soils, and 25 percent other soils. The complex is generally in depressions in hilly uplands. The areas are irregularly shaped or long and narrow and range from 3 to 10 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer of the Leicester soils is very dark grayish brown loam about 6 inches thick. The subsoil is mottled, grayish brown fine sandy loam 16 inches thick. The substratum extends to a depth of 60 inches or more. It is mottled, light brownish gray sandy loam in the upper part and light gray gravelly sandy loam in the lower part.

Typically, the surface of the Walpole soils is very dark gray sandy loam about 5 inches thick. The subsoil is mottled, dark grayish brown sandy loam 13 inches thick. The substratum is mottled and extends to a depth of 60 inches or more. The upper part of the substratum is pale brown sand, and the lower part is light yellowish brown gravelly sand.

Included with this complex in mapping are areas of Ridgebury, Pipestone, and Saugatuck soils and stony Scarboro soils.

These Leicester soils have moderate or moderately rapid permeability and moderate available water capacity. The depth to bedrock is more than 5 feet. A seasonal high water table is between the surface and a depth of 1-1/2 feet from November to May. The frost-action potential of the Leicester soils is high.

These Walpole soils have moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. A seasonal high water table is between the surface and a depth of 1 foot from November to April. The frost-action potential of the Walpole soils is high.

Most areas of these soils are in woodland. A few areas are used for unimproved pasture.

The seasonal high water table and stones on the surface make these soils unsuitable for farming. The soils are suited to a variety of trees, mostly water-tolerant species such as red maple. Productivity is moderate. The high water table limits some forest management practices and logging operations.

The high water table and frost-action potential limit the soils for community development and recreational use.

The capability subclass is VIIs.

LvB—Leicester-Walpole complex stony, 3 to 8 percent slopes. This complex consists of gently sloping, poorly drained soils in such an intricate pattern that it was not practical to map them separately. The complex is about 40 percent Leicester soils, 35 percent Walpole soils, and 25 percent other soils. The complex is generally in depressions on hilly uplands. The areas are irregularly shaped or long and narrow and range from 3 to 10 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer of the Leicester soils is very dark grayish brown loam about 6 inches thick. The subsoil is mottled, grayish brown fine sandy loam 16 inches thick. The substratum extends to a depth of 60 inches or more. It is mottled, light brownish gray sandy loam in the upper part and light gray gravelly sandy loam in the lower part.

Typically, the surface layer of the Walpole soils is very dark gray sandy loam about 5 inches thick. The subsoil is mottled, dark grayish brown sandy loam 13 inches thick. The substratum is mottled and extends to a depth of 60 inches or more. The upper part of the substratum is pale brown sand, and the lower part is light yellowish brown gravelly sand.

Included with this complex in the mapping are areas of Ridgebury, Pipestone, and Saugatuck soils and stony Scarboro soils.

These Leicester soils have moderate or moderately rapid permeability and moderate available water capacity. The depth to bedrock is more than 5 feet. A seasonal high water table is between the surface and a depth of 1-1/2 feet from September to June. The frost-action potential of the Leicester soils is high.

These Walpole soils have moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. A seasonal high water table is between the surface and a depth of 1 foot from November to April. The frost-action potential of the Walpole soils is high.

Most areas of these soils are in woodland. A few areas are used for unimproved pasture.

The seasonal high water table and stones on the surface make the soils in this complex unsuitable for farming. The soils are suited to a variety of trees, mainly water-tolerant species such as red maple. Productivity is moderate. The high water table limits some forest management practices and logging operations.

The high water table and frost-action potential limit these soils for community development and recreational use.

The capability subclass is VIIs.

MoB—Montauk fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and well drained. It is on hillcrests and at the base of slopes of hilly uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 10 to 30 acres.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. The subsoil is yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan that extends to a depth of 60 inches or more. The upper part of the substratum is olive gray gravelly sandy loam, and the lower part is light olive gray gravelly loamy sand.

Included with this soil in mapping are areas of gently sloping Paxton soils and nearly level to gently sloping Woodbridge and Scituate soils. Included soils make up 15 to 20 percent of the unit.

The permeability of this Montauk soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of 18 to 36 inches and limits the rooting depth of plants. In some areas a seasonal high water table is perched on the hardpan from February to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is moderate.

Most areas of this soil are used for pasture, orchards, or hay. Some areas near Manchester and Nashua are used for residential development.

A hazard of erosion makes this soil better suited to hay and pasture or apples than to row crops. Stripcropping, contour farming, and using grasses and legumes in the cropping system help to control erosion. Tile drains are needed in some orchards to eliminate isolated seep spots and improve access throughout the year.

This soil is well suited to most tree species, and productivity is moderately high. Operating logging equipment during wet periods increases the hazard of erosion. Constructing logging roads on the contour helps to control erosion.

The seasonal perched water table and the slow permeability in the hardpan limit the soil for some types of recreational use and some types of community development, especially septic tank absorption fields.

The capability subclass is IIe.

MoC—Montauk fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on hilltops and side slopes of uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 10 to 30 acres.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. The subsoil is yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan that extends to a depth of 60 inches or more. The upper part of the substratum is olive gray gravelly sandy loam, and the lower part is light olive gray gravelly loamy sand.

Included with this soil in mapping are areas of Scituate and Woodbridge soils in slight depressions and Paxton and Chatfield soils on slopes. Included soils make up 15 to 20 percent of the unit.

The permeability of this Montauk soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 18 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to May, and some areas have seep spots. The depth to bedrock is greater than 5 feet. The frost-action potential of the soil is moderate.

Most of the acreage of this soil is used for pasture, orchards, or hay. Some areas near Manchester and Nashua are used for residential development.

A hazard of erosion makes this soil better suited to hay and pasture or apples than to row crops. Stripcropping, contour farming, and using grasses and legumes in the cropping system help to control erosion. Tile drains are needed in some orchards to eliminate isolated seep spots and improve access throughout the year.

This soil is well suited to most tree species, and productivity is moderately high. Operating logging equipment during wet periods increases the erosion hazard, but erosion can be controlled by constructing logging roads on the contour.

Slope, the slow permeability in the hardpan, and the seasonal perched water table limit this soil for most types of recreational use and for most types of community development, especially septic tank absorption fields.

The capability subclass is IIIe.

MoD—Montauk fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep and well drained. It is on side slopes of hilly uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 10 to 30 acres.

Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown fine sandy loam 21 inches thick. The substratum is a dense hardpan that extends to a depth of 60 inches or more. The upper part of the substratum is olive gray gravelly sandy loam, and the lower part is light olive gray gravelly loamy sand.

Included with this soil in mapping are areas of moderately steep Paxton and Chatfield soils and Montauk soils with slopes of more than 25 percent. Included soils make up 15 to 20 percent of the unit.

The permeability of this Montauk soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 18 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to May, and some areas have seep spots. The depth to bedrock is greater than 5 feet. The frost-action potential of the soil is moderate.

Most of the acreage of this soil is used for pasture or hay. Some areas are in woodland.

This soil is suited to hay and pasture crops, but the slope and hazard of erosion limit the use of farm equipment and the suitability for row crops. Using a crop rotation that includes grasses and legumes and reseeding of hay crops in strips help to control erosion. The soil is suited to apple orchards, but spot drainage is sometimes necessary.

This soil is well suited to most tree species, and productivity is moderately high. Slope limits equipment operation. Operating logging equipment during wet periods increases the hazard of erosion, but erosion can be controlled by constructing logging roads on the contour.

Slope is a limitation for most types of community development and recreational use. The slow permeability in the hardpan is an additional limitation for septic tank absorption fields.

The capability subclass is IVe.

MtB—Montauk stony fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and well drained. It is on hillcrests, on ridges, and at the base of slopes of uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 5 to 50 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart are on the surface.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. The subsoil is yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan that extends to a depth of 60 inches or more. The upper part of the substratum is olive gray gravelly sandy loam, and the lower part is light olive gray gravelly loamy sand.

Included with this soil in mapping are areas of Woodbridge, Ridgebury, and Scituate soils in depressions and gently sloping Chatfield soils. Also included are areas of very stony soils. Included soils make up 20 to 25 percent of the unit.

The permeability of this Montauk soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 18 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is moderate.

Most of the acreage of this soil is in woodland. Some areas are used as unimproved pasture, and some areas near Manchester and Nashua are used for residential development.

The stones on the surface make this soil unsuitable for row crops and limited for hay and pasture.

This soil is well suited to most tree species, and productivity is moderately high. The hazard of erosion is increased if logging equipment is used during wet periods, but erosion can be controlled by constructing logging roads on the contour.

The stones on the surface and the seasonal perched water table limit this soil for community development and recreational use. The slow permeability of the hardpan is an additional limitation for septic tank absorption fields.

The capability subclass is VIs.

MtC—Montauk stony fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on hilltops and side slopes of uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 5 to 50 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart are on the surface.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. The subsoil is yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan that extends to a depth of 60 inches or more. The upper part of the substratum is olive gray gravelly sandy loam, and the lower part is light olive gray gravelly loamy sand.

Included with this soil in mapping are areas of Scituate, Woodbridge, and Ridgebury soils in depressions; sloping Chatfield soils; and very stony soils. Included soils make up 20 to 25 percent of the unit.

The permeability of this Montauk soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 18 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is moderate.

Most of the acreage of this soil is wooded. A few areas are used for unimproved pasture, and a few areas near Manchester and Nashua are used for residential development.

The stones on the surface make this soil unsuitable for row crops and limited for hay and pasture.

The soil is well suited to most tree species, and productivity is moderately high. The hazard of erosion is increased if logging equipment is used during wet periods, but erosion can be controlled by constructing logging roads on the contour.

Slope, the stones on the surface, and seasonal wetness limit the soil for community development and recreational use. The slow permeability of the hardpan is an additional limitation for septic tank absorption fields.

The capability subclass is VIs.

MtD—Montauk stony fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep and well drained. It is on side slopes of hilly uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 5 to 35 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. The subsoil is yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan that extends to a depth of 60 inches or more. The upper part of the substratum is olive gray gravelly sandy loam, and the lower part is light olive gray gravelly loamy sand.

Included with this soil in mapping are areas of moderately steep Chatfield soils. Also included are areas of very stony soils and steep Montauk soils. Included soils make up 20 to 25 percent of the unit.

The permeability of this Montauk soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 18 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is moderate.

Most areas of this soil are in woodland. Some areas are used for unimproved pasture.

The stones on the surface and the slope make this soil unsuitable for row crops and limited for hay and pasture.

The soil is well suited to most tree species, and productivity is moderately high. Slope limits equipment operation. The hazard of erosion is increased if logging equipment is used during wet periods, but erosion can be controlled by constructing logging roads on the contour.

Slope is the main limitation of the soil for community development and recreational use. The slow permeability of the hardpan is an additional limitation for septic tank absorption fields.

The capability subclass is VIs.

NnA—Ninigret very fine sandy loam, 0 to 3 percent slopes. This soil is nearly level and moderately well drained. It is in slight depressions in the Merrimack River Valley. The areas are irregularly shaped and range from 10 to 80 acres.

Typically, the surface layer is very dark grayish brown very fine sandy loam 9 inches thick. The subsoil is mottled, yellowish brown very fine sandy loam 14 inches thick. The substratum extends to a depth of 60 inches or more. The upper part of the substratum is mottled, olive and light olive brown fine sand, and the lower part is olive sand.

Included with this soil in mapping are areas of Windsor, Agawam, and Deerfield soils that make up 10 to 15 percent of the unit.

The permeability of this Ninigret soil is moderately rapid, and available water capacity is moderate. The depth to bedrock is more than 5 feet. A seasonal high water table is at a depth of 1-1/2 to 3 feet from November to April. The frost-action potential of the soil is moderate.

This soil is suited to corn, small grains, and grasses and legumes, but few areas are farmed. The gently sloping areas of this soil can be cropped continuously if open ditches, tile drains, or diversions are used and if the soil is protected from erosion. Drainage allows earlier tillage in the spring and an increased choice of crops. Mixing crop residue and manure into the plow layer improves the tilth and organic matter content.

This soil is well suited to most tree species, and most areas are wooded. Productivity is moderately high.

The seasonal high water table is the main limitation of the soil for community development and recreational use.

The capability subclass is IIw.

NnB—Ninigret very fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and moderately well drained. It is in slight depressions in the Merrimack River valley. The areas are irregularly shaped and range from 10 to 30 acres.

Typically, the surface layer is very dark grayish brown very fine sandy loam 9 inches thick. The subsoil is mottled, yellowish brown very fine sandy loam 14 inches thick. The substratum extends to a depth of 60 inches or more. The upper part of the substratum is mottled, olive and light olive brown fine sand, and the lower part is olive sand.

Included with this soil in mapping are areas of Windsor, Agawam, and Deerfield soils that make up 10 to 15 percent of the unit.

The permeability of this Ninigret soil is moderately rapid, and available water capacity is moderate. The depth to bedrock is more than 5 feet. A seasonal high water table is at a depth of 1-1/2 to 3 feet from November to April. The frost-action potential of the soil is moderate.

This soil is suited to corn, small grains, and grasses and legumes, but few areas are farmed. The soil can be cropped continuously if open ditches, tile drains, or diversions are used and if the soil is protected from erosion. Drainage allows earlier tillage in the spring and an increased choice of crops. Mixing crop residue and manure into the plow layer improves the tilth and organic matter content of the soil.

This soil is well suited to most tree species, and most areas are wooded. Productivity is moderately high.

The seasonal high water table is the main limitation of the soil for community development and recreational use.

The capability subclass is IIw.

Oc—Occum fine sandy loam. This soil is nearly level and well drained. It is on flood plains. The areas are irregularly shaped and range from 5 to 80 acres.

Typically, the surface layer is dark brown fine sandy loam about 9 inches thick. The subsoil is yellowish brown fine sandy loam 16 inches thick. The substratum is yellowish brown loamy fine sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Occum fine sandy loam, high bottom, and areas of Pootatuck soils in slight depressions. Included soils make up 10 to 15 percent of the unit.

The permeability of this Occum soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is high. The depth to bedrock is more than 5 feet. This soil is subject to frequent flooding from November to April.

Most areas of this soil are farmed. Silage corn, vegetables, and hay are the common crops.

This soil can be cropped continuously if it is protected from flooding. Unprotected areas are better suited to hay and pasture than to row crops. Legumes that withstand flooding and winterkill are needed. A permanent strip of sod or trees along streams reduces the hazard of streambank erosion.

This soil is suited to most tree species. Productivity is moderate.

Flooding is the main limitation for most types of community development and recreational use.

The capability subclass is IIw.

Om—Occum fine sandy loam, high bottom. This soil is nearly level and well drained. It is on flood plains. The areas are irregularly shaped and range from 5 to 100 acres.

Typically, the surface layer is dark brown fine sandy loam about 9 inches thick. The subsoil is yellowish brown fine sandy loam 16 inches thick. The substratum is yellowish brown loamy fine sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Occum fine sandy loam and Pootatuck soils in slight depressions. Included soils make up about 15 percent of the unit.

The permeability of this Occum soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is high. The depth to bedrock is more than 5 feet. This soil is subject to rare flooding from November to April.

Most of the acreage of this soil is farmed. Silage corn, vegetables, and hay are the common crops.

This soil is well suited to truck crops, field crops, and hay and pasture. The organic matter content of the soil can be maintained by using green-manure crops. Erosion along streambanks can be controlled by leaving a strip of sod along the stream.

This soil is well suited to most tree species, and productivity is moderate. There are few or no limitations for forest management or logging operations.

Flooding is the main limitation of the soil for most types of community development and recreational use.

The capability class is I.

PbB—Paxton fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and well drained. It is on hillcrests and at the base of slopes of uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow or irregular in shape and range from 10 to 30 acres.

Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown and light yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan of olive fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of nearly level to gently sloping Woodbridge soils and gently sloping Montauk soils. Included soils make up 15 to 20 percent of the unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to March, and some areas have seep spots. The depth to bedrock is generally more than 5 feet. The frost-action potential of the soil is moderate.

Most areas of this soil are used for hay and pasture or orchards. Some areas near Manchester and Nashua are used for residential development.

This soil is suited to hay and pasture crops or apple orchards. Erosion limits the use of this soil for row crops. Stripcropping, contour farming, and using grasses and legumes in the cropping system help to control erosion. Tile drains are needed in some orchards to eliminate isolated seep spots and improve access throughout the year.

The soil is well suited to most tree species, and productivity is moderately high. Operating logging equipment during wet periods increases the hazard of erosion. Constructing logging roads on the contour helps to control erosion.

The moderate frost-action potential and the seasonal perched water table limit this soil for most types of community development. The slow permeability in the hardpan is an additional limitation for septic tank absorption fields and limits some types of recreational use.

The capability subclass is IIe.

PbC—Paxton fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on hilltops and side slopes of uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 10 to 30 acres.

Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown and light yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan of olive fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are areas of Woodbridge, Montauk, and Chatfield soils that make up 15 to 20 percent of the unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to March, and some areas have seep spots. The depth to bedrock is generally more than 5 feet. The frost-action potential of the soil is moderate.

Most of the acreage of this soil is used for hay, pasture, or orchards. Some areas near Manchester and Nashua are used for residential development.

Slope and an erosion hazard limit this soil for hay and pasture and for apples and row crops. Stripcropping, contour farming, and using grasses and legumes in the cropping system help to control erosion. Tile is needed in some orchards to eliminate isolated seep spots and improve access throughout the year.

This soil is well suited to most tree species, and productivity is moderately high. Operating logging equipment during wet periods increases the erosion hazard. Constructing logging roads on the contour helps to control erosion.

The moderate frost-action potential, slope, and seasonal wetness limit the soil for community development. The slow permeability in the hardpan is an additional limitation for septic tank absorption fields. Slope and the slow permeability are the main limitations for most recreational uses.

The capability subclass is IIIe.

PbD—Paxton fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep and well drained. It is on side slopes of hilly uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 10 to 50 acres.

Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown and light yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan of olive fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of Paxton soils with slopes of more than 25 percent and areas of Montauk and Chatfield soils. Included soils make up 15 to 20 percent of the unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to March, and some areas have seep spots. The depth to bedrock is generally more than 5 feet. The frost-action potential of the soil is moderate.

Most of the acreage of this soil is used for pasture or hay. Some areas are in woodland.

Slope and a severe erosion hazard make this soil poorly suited to row crops and limited for hay and pasture. Stripcropping and using grasses and legumes in the cropping system help to control erosion.

This soil is well suited to most tree species, and productivity is high, but slope limits equipment operation. Operating logging equipment during wet periods increases the hazard of erosion. Constructing logging roads on the contour helps to control erosion.

Slope is the major limitation of the soil for community development and recreational use.

The capability subclass is IVe.

PfB—Paxton stony fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and well drained. It is on hillcrests and at the base of slopes of hilly uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 5 to 50 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown and light yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan of olive fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of nearly level to gently sloping Woodbridge and Ridgebury soils and gently sloping Chatfield soils. Also included are areas of very stony soils. Included soils make up 20 to 25 percent of the unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to March, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is moderate.

Most of the acreage of this soil is in woodland. A few areas are used as unimproved pasture, and some areas near Manchester and Nashua are used for residential development.

The stones on the surface make this soil unsuitable for row crops and limited for hay and pasture. The stones especially interfere with cultivation.

This soil is well suited to most tree species, and productivity is moderately high. The hazard of erosion is increased if logging equipment is used during wet periods, but erosion can be controlled by constructing logging roads on the contour.

The stones on the surface, the moderate frost-action potential, and seasonal wetness limit the soil for most types of community development. The slow permeability of the hardpan is an additional limitation for septic tank absorption fields. The stones and slow permeability also limit most types of recreational use.

The capability subclass is VIs.

PfC—Paxton stony fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on hilltops and side slopes of uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 5 to 30 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown and light yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan of olive fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of Woodbridge, Montauk, and Chatfield soils. Also included are small areas of very stony Paxton soils. Included soils make up 20 to 25 percent of the unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to March, and some areas have seep spots. The depth to bedrock is greater than 5 feet. The frost-action potential of the soil is moderate.

Most of the acreage of this soil is in woodland. A few areas are used as unimproved pasture, and some areas near Manchester and Nashua are used for residential development.

The stones on the surface make this soil unsuitable for row crops and limited for pasture and hay. The stones especially interfere with cultivation.

This soil is well suited to most tree species, and productivity is moderately high. The hazard of erosion is increased if logging equipment is used during wet periods, but erosion can be controlled by constructing logging roads on the contour.

The stones on the surface, the moderate frost-action potential, slope, and seasonal wetness limit the soil for most types of community development. The slow permeability of the hardpan is an additional limitation for septic tank absorption fields. The stones and slope limit most types of recreational use.

The capability subclass is VIs.

PfD—Paxton stony fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep and well drained. It is on side slopes of hilly uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 5 to 50 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown and light yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan of olive fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of Chatfield and Montauk soils and small areas of very stony Paxton soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of about 24 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to March, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is moderate.

Most areas of this soil are in woodland. A few areas are used as unimproved pasture.

Slope and the stones on the surface make this soil unsuited to row crops and limited for pasture and hay.

This soil is well suited to most tree species, and productivity is moderately high, but slope limits equipment operation. The hazard of erosion is increased if equipment is used during wet periods, but this hazard can be controlled by constructing logging roads on the contour.

Slope is the main limitation for most types of community development and recreational use.

The capability subclass is VIs.

PfE—Paxton stony fine sandy loam, 25 to 35 percent slopes. This soil is steep and well drained. It is on side slopes of hilly uplands. Many of the hills, called drumlins, are smooth sided and oval. The areas of the soil are long and narrow and range from 5 to 20 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is dark brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown and light yellowish brown fine sandy loam 19 inches thick. The substratum is a dense hardpan of olive fine sandy loam that extends to depth of 60 inches or more.

Included with this soil in mapping are areas of very stony Paxton soils, Paxton soils with slopes of more than 35 percent, and moderately steep Montauk and Chatfield soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The dense hardpan is at a depth of 15 to 36 inches and limits the rooting depth of plants. A seasonal high water table is perched on the hardpan from February to March, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is moderate.

Slope and the stones on the surface make this soil unsuited to farming.

This soil is well suited to most tree species, and most areas are wooded. Productivity is moderately high, but slope limits equipment operation. The hazard of erosion is increased if equipment is used during wet periods, but this erosion can be controlled by constructing logging roads on the contour and using diversions to control runoff.

Slope is the main limitation of the soil for community development and recreational use.

The capability subclass is VIIs.

PhB—Pennichuck channery fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and well drained. It is on rolling uplands in the southern part of the survey area, mainly in Hollis and Nashua. The areas are irregularly shaped and range from 5 to 10 acres.

Typically, the surface layer is dark brown channery fine sandy loam about 9 inches thick. The subsoil is yellowish brown channery fine sandy loam 15 inches thick. The substratum is yellowish brown very channery fine sandy loam 12 inches thick and is up to 80 percent flat rock fragments. Unweathered bedrock is at a depth of 36 inches.

Included with this soil in mapping are areas of Bernardston Variant and Hollis soils on the higher parts of the landscape and areas of Pittstown Variant and Leicester Variant soils in slight depressions. Included soils make up 10 to 15 percent of the unit.

The permeability of this Pennichuck soil is moderate, and the available water capacity is moderate. The depth to bedrock is 20 to 40 inches.

Most areas of this soil are in silage corn or hay. Alfalfa and grass mixtures are the common hay crops. Some areas are used for apple orchards, and some areas in Nashua and Hollis are used for residential development (fig. 4).

This soil is suited to row crops and to hay and pasture. Stripcropping, contour plowing, and using grasses and legumes in the cropping system help to control erosion in cultivated areas. Variations in the depth to bedrock cause some crops to mature unevenly. Mixing crop residue and manure into the plow layer improves tilth and increases the organic matter content of the soil.

This soil is well suited to most tree species and has few or no limitations for most types of forestry management and logging operations.

The depth to bedrock limits this soil for most types of community development, such as septic tank absorption

Figure 4.—A young apple orchard on Pennichuck channery fine sandy loam, 3 to 8 percent slopes.

fields and dwellings with basements. Slope limits some types of recreation.

The capability subclass is IIe.

PhC—Pennichuck channery fine sandy loam, 8 to 15 percent slopes. This soil is sloping and well drained. It is on side slopes of rolling uplands in the southern part of the survey area, mainly in Hollis and Nashua. The areas are irregularly shaped and range from 5 to 10 acres.

Typically, the surface layer is dark brown channery fine sandy loam about 9 inches thick. The subsoil is yellowish brown channery fine sandy loam 15 inches thick. The substratum is yellowish brown very channery fine sandy loam 12 inches thick and is up to 80 percent flat rock fragments. Unweathered bedrock is at a depth of 36 inches.

Included with this soil in the mapping are areas of Bernardston Variant and Hollis soils on the higher parts of the landscape and areas of Pittstown Variant and Leicester Variant soils in slight depressions. Included soils make up 10 to 15 percent of the unit.

The permeability of this Pennichuck soil is moderate, and available water capacity is moderate. The depth to bedrock is 20 to 40 inches.

Most areas of this soil are in woodland or crops. Many of the areas in Hollis and Nashua are used for residential development.

Slope and the depth to bedrock make this soil better suited to grasses and legumes than to silage corn. Variations in the depth to bedrock cause crops to mature unevenly. Stripcropping, minimum tillage, and using hay and pasture crops help to control erosion and conserve moisture.

This soil is well suited to most tree species. There are few or no limitations for most types of forestry management and logging operations.

The depth to bedrock is the main limitation of this soil for most types of community development, especially as a site for septic tank absorption fields and dwellings with basements. Slope limits some types of recreational use.

The capability subclass is IIIe.

PhD—Pennichuck channery fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep and well drained. It is on hillsides of rolling uplands, mainly in Hollis, Merrimack, and Nashua. The areas are irregularly shaped and range from 5 to 10 acres.

Typically, the surface layer is dark brown channery fine sandy loam about 9 inches thick. The subsoil is yellowish

brown channery fine sandy loam 15 inches thick. The substratum is yellowish brown very channery fine sandy loam 12 inches thick and is up to 80 percent flat rock fragments. Unweathered bedrock is at a depth of 36 inches.

Included with this soil in mapping are areas of moderately steep Bernardston Variant, Hollis, and Canton soils. Also included are spots of steep soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Pennichuck soil is moderate, and available water capacity is moderate. The depth to bedrock is 20 to 40 inches.

Most areas of this soil are in woodland. A few areas are used for residential development.

Slope makes this soil unsuited to row crops; the soil is better suited to grasses and legumes. Erosion is a hazard that can be reduced by using stripcropping. Variations in the depth to bedrock cause crops to mature unevenly.

This soil is suited to most tree species. Productivity is moderate, but slope limits equipment operation. The hazard of erosion is increased if equipment is used during wet periods, but erosion can be controlled by constructing logging roads on the contour.

The depth to bedrock and slope are major limitations for community development. Slope limits some types of recreational use.

The capability subclass is IVe.

PiA—Pipestone loamy sand, 0 to 3 percent slopes. This soil is nearly level and poorly drained. It is in depressions on terraces and outwash plains. The areas are irregularly shaped and range from about 5 to 100 acres.

Typically, the surface layer is about 9 inches thick. The upper part of the surface layer is black loamy sand, and the lower part is grayish brown sand. The subsoil is dark reddish brown and yellowish brown sand 13 inches thick. The substratum is yellowish brown coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Saugatuck and Deerfield soils, areas of soil with gravel in the subsoil and substratum, and areas of soils with a surface layer of fine sandy loam. Included soils make up 10 to 15 percent of the unit.

The permeability of this Pipestone soil is rapid, and available water capacity is low. The depth to bedrock is more than 5 feet. A high water table is at a depth of 6 inches to 1-1/2 feet from October to June. The frost-action potential of the soil is moderate.

The seasonal high water table makes this soil poorly suited to farming. Using tile drains or open ditches improves the suitability of the soil for moisture-tolerant grasses and legumes.

Most areas of this soil are wooded. The soil is well suited to trees, mainly water tolerant species such as red maple. Productivity is moderate. The seasonal high water table limits some types of forest management practices and logging operations.

The water table is the main limitation of the soil for most types of community development and recreational use.

The capability subclass is IVw.

PiB—Pipestone loamy sand, 3 to 8 percent slopes. This soil is gently sloping and poorly drained. It is in depressions on terraces and outwash plains. The areas are irregularly shaped and range from about 10 to 150 acres.

Typically, the surface layer is about 9 inches thick. The upper part of the surface layer is black loamy sand, and the lower part is grayish brown sand. The subsoil is dark reddish brown and yellowish brown sand 13 inches thick. The substratum is yellowish brown coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are Saugatuck and Deerfield soils, soils with gravel in the subsoil and substratum, and soils with a surface layer of fine sandy loam. Included soils make up 10 to 15 percent of the unit.

The permeability of this Pipestone soil is rapid, and available water capacity is low. The depth to bedrock is more than 5 feet. A high water table is at a depth of 6 inches to 1-1/2 feet from October to June. The frost-action potential of the soil is moderate.

The seasonal high water table makes this soil poorly suited to farming. Using tile drains or open ditches improves the suitability of the soil for moisture-tolerant grasses and legumes.

The soil is well suited to trees, mostly water-tolerant species such as red maple. Productivity is moderate. The seasonal high water table limits some types of forest management and logging operations.

The seasonal high water table limits the soil for most types of community development and recreational use.

The capability subclass is IVw.

Pr—Pits, gravel. This unit consists of open excavations from which gravel or sand has been removed. Many of the excavations are on terraces. The pits range from about 2 to 40 acres.

Included with this unit in mapping are a few pits in upland areas that contain stones and boulders and a few pits that are less than 2 acres and that are shown on the soil map by a special spot symbol.

The recently abandoned areas of this unit are unsuitable for farming. Reclamation for farming requires grading, adding lime, fertilizer, and organic matter, and using drought-tolerant plants. Onsite investigation is needed to determine the suitability of the unit for any use.

This unit is not assigned to a capability subclass.

PtA—Pittstown Variant loam, 0 to 3 percent slopes. This soil is nearly level and moderately well drained. It is in slight depressions in uplands in the southern part of the survey area, mainly in the town of Hollis. The areas are irregularly shaped and range from 5 to 20 acres.

Typically, the surface layer is very dark grayish brown loam about 10 inches thick. The subsoil is light olive brown very fine sandy loam 9 inches thick. The substratum is mottled, olive very fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are areas of Pennichuck and Canton soils on the higher parts of the landscape and Leicester Variant soils in depressions. Included soils make up 10 to 15 percent of the unit.

The permeability of this Pittstown Variant soil is moderate in the surface layer and subsoil and slow in the substratum. Available water capacity is moderate. The depth to bedrock is generally more than 5 feet. A high water table is perched at a depth of 1 to 2 feet from November to April. The frost-action potential of the soil is high.

Most areas of this soil are in woodland or row crops. Some areas in Hollis and Nashua are used for residential development.

Seasonal wetness is the main limitation of this soil for farming. Use of the soil for row crops requires drainage by tile or open ditches, and grasses and legumes must be moisture-tolerant species. If the soil is not drained, wetness restricts the choice of crops and delays cultivation in the spring. Mixing crop residue and manure into the plow layer of the soil improves tilth and the organic matter content.

This soil is suited to most tree species, and productivity is moderate. There are few or no limitations for most types of forest management or logging operations.

The high water table and frost-action potential limit this soil for many types of community development. The water table and slow permeability of the substratum limit recreational use.

The capability subclass is IIw.

PtB—Pittstown Variant loam, 3 to 8 percent slopes. This soil is gently sloping and moderately well drained. It is in slight depressions in uplands in the southern part of the survey area, mainly in the town of Hollis. The areas are irregularly shaped and range from 5 to 20 acres.

Typically, the surface layer is very dark grayish brown loam about 10 inches thick. The subsoil is light olive brown very fine sandy loam 9 inches thick. The substratum is mottled, olive very fine sandy loam to a depth of 60 inches or more.

Included with this soil in the mapping are areas of Pennichuck and Canton soils on the higher parts of the landscape and Leicester Variant soils in depressions. Included soils make up 10 to 15 percent of the unit.

The permeability of this Pittstown Variant soil is moderate in the surface layer and subsoil and slow in the substratum. The available water capacity is moderate. The depth to bedrock is generally more than 5 feet. A high water table is perched at a depth of 1 to 2 feet from November to April. The frost-action potential of the soil is high.

Most areas of this soil are in woodland or row crops. Some areas in Hollis are used for residential development.

Seasonal wetness is the main limitation of this soil for farming. Use of the soil for row crops requires drainage by tile or open ditches, and grasses and legumes must be moisture-tolerant species. If the soil is not drained, wetness restricts the choice of crops and delays cultivation in the spring. Mixing crop residue and manure into the plow layer of the soil improves tilth and the organic matter content.

This soil is suited to most tree species. Productivity is moderate. There are few limitations for most types of forest management or logging operations.

The high water table and frost-action potential limit this soil for many types of community development. The water table and slow permeability of the substratum limit most types of recreational use.

The capability sublcass is IIw.

Pu—Pootatuck fine sandy loam. This soil is nearly level and moderately well drained. It is in slight depressions in flood plains. The areas are long and narrow and range from 3 to 15 acres.

Typically, the surface layer is dark brown fine sandy loam about 8 inches thick. The subsoil is mottled, dark brown fine sandy loam 25 inches thick. The substratum is mottled and extends to a depth of 60 inches or more. It is grayish brown fine sandy loam in the upper part and light brownish gray fine sand in the lower part.

Included with this soil in mapping are small areas of Rippowam soils in depressions and Occum soils on the higher parts of the landscape. Included soils make up 10 to 15 percent of the unit.

The permeability of this Pootatuck soil is moderate or moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. This soil is subject to frequent flooding from November to April and has a seasonal high water table at a depth of 1-1/2 to 3 feet during the same period. The frost-action potential of the soil is moderate.

Most areas of this soil are used for vegetables or grasses and legumes.

The hazard of flooding and seasonal wetness limit this soil for row crops or hay and pasture. If this soil is not drained, seasonal wetness restricts the choice of crops and delays cultivation in the spring. Grasses and legumes must be moisture-tolerant species. A permanent strip of sod or trees along streams reduces the hazard of streambank erosion.

This soil is well suited to many tree species, and productivity is moderately high.

The hazard of flooding and seasonal wetness limit the soil for most types of community development and recreational use.

The capability subclass is IIw.

Qr—Quarries. This unit consists of open excavations from which granite has been removed. The areas range from about 2 to 40 acres. The areas that are less than 2 acres are shown on the soil map by a special spot symbol. Most of the quarries are inactive, but the Kitledge quarry in Milford is still in operation. Included with this unit in mapping are mine dumps consisting of waste rock from the quarrying operations.

An onsite investigation is needed to determine the suitability of this unit for any use.

This unit is not assigned to a capability subclass.

RbA—Ridgebury loam, 0 to 8 percent slopes. This soil is nearly level to gently sloping and is poorly drained. It is in depressions in hilly uplands. In many places the depressions are between drumlins. The areas of the soil are long and narrow and range from 3 to 10 acres.

Typically, the surface layer is very dark brown loam about 9 inches thick. The subsoil is mottled, gray fine sandy loam 10 inches thick. The substratum is a dense hardpan of mottled, gray fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of Woodbridge and stony Scarboro soils and areas of the Leicester-Walpole complex. Also included are areas of poorly drained soils in which the hardpan is loamy sand. Included soils make up 15 to 20 percent of the unit.

The permeability of this Ridgebury soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is low. The hardpan is at a depth of 10 to 28 inches and limits the rooting depth of plants. A high water table is between the surface and a depth of 18 inches from November to May. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

The seasonal high water table makes this soil unsuited to row crops. The soil is suitable for moisture-tolerant grasses and legumes if tile drains or open ditches are used.

The soil is suited to trees, mostly water-tolerant species such as red maple. Productivity is moderate. The seasonal high water table limits some forest management practices and logging operations.

The seasonal high water table and the slow permeability of the hardpan limit this soil for most types of community development and recreational use.

The capability subclass is IIIw.

ReA—Ridgebury stony loam, 0 to 3 percent slopes. This soil is nearly level and poorly drained. It is in depressions in hilly uplands. In many places the depressions are between drumlins. The areas of the soil are long and narrow and range from 3 to 30 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is very dark brown loam about 7 inches thick. The subsoil is mottled gray fine sandy loam 12 inches thick. The substratum is a dense hardpan of mottled, gray fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of stony Scarboro and Woodbridge soils. Also included are nearly level areas of Leicester and Walpole stony soils and areas of very stony soils. Included soils make up 15 to 25 percent of the unit.

The permeability of this Ridgebury soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is low. The hardpan is at a depth of 10 to 28 inches and limits the rooting depth of plants. A high water table is between the surface and a depth of 18 inches from November to May. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

The seasonal high water table and stones on the surface make this soil unsuitable for farming.

Most areas of the soil are wooded, and the soil is suited to trees, mostly water-tolerant species such as red maple. Productivity is moderate. The seasonal high water table limits forest management and logging operations.

The seasonal high water table, the slow permeability in the hardpan, and the high frost-action potential limit this soil for most types of community development and recreational use.

The capability subclass is VIIs.

ReB—Ridgebury stony loam, 3 to 8 percent slopes. This soil is gently sloping and poorly drained. It is in depressions in hilly uplands. In many places the depressions are between drumlins. The areas of the soil are long and narrow and range from 3 to 30 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is very dark brown loam about 7 inches thick. The subsoil is mottled, gray fine sandy loam 12 inches thick. The substratum is a dense hardpan of mottled, gray fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of Woodbridge soils and Leicester and Walpole stony soils. Also included are areas of very stony soils. Included soils make up 15 to 25 percent of the unit.

The permeability of this Ridgebury soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is low. The hardpan is at a depth of 10 to 28 inches and limits the rooting depth of plants. A high water table is between the surface and a depth of 18 inches from November to May. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

The seasonal high water table and stones on the surface make this soil unsuitable for farming.

Most areas of this soil are wooded, and the soil is suited to trees, mostly water-tolerant species such as red maple. Productivity is moderate. The seasonal high water table limits forest management and logging operations.

The seasonal high water table, the slow permeability in the hardpan, and the high frost-action potential limit this soil for most types of community development and recreational use.

The capability subclass is VIIs.

Rp—Rippowam fine sandy loam. This soil is nearly level and poorly drained. It is in depressions on flood plains. The areas are long and narrow and range from 5 to 10 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam 6 inches thick. The subsoil is mottled, dark grayish brown and grayish brown fine sandy loam 27 inches thick. The substratum extends to a depth of 60 inches or more. It is mottled, olive gray sand in the upper part and dark gray sand in the lower part.

Included with this soil in mapping are small areas of Pootatuck and Saco Variant soils that make up about 10 percent of the unit.

The permeability of this Rippowam soil is moderate or moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. The depth to bedrock is more than 5 feet. This soil is subject to frequent flooding from November to April and has a high water table between the surface and a depth of 18 inches during the same period. The frost-action potential of the soil is high.

Most areas of this soil are in woodland. A few areas are used for hay or pasture.

The seasonal high water table and frequent flooding make this soil unsuitable for truck crops or row crops. If adequately drained, the soil is suitable for some varieties of hay and pasture; open ditches are commonly used. A permanent strip of sod or trees along streams reduces the hazard of streambank erosion.

This soil is suited to water-tolerant tree species, and productivity is moderate. The seasonal high water table limits most types of forest management and logging operations.

The seasonal high water table and frequent flooding limit this soil for community development and recreational use.

The capability subclass is IIIw.

Sm—Saco Variant silt loam. This soil is nearly level and very poorly drained. It is on flood plains in depressions and old oxbows. The areas are long and narrow and range from 3 to 15 acres.

Typically, the surface layer is mottled, very dark gray silt loam about 10 inches thick. The substratum extends to a depth of 60 inches or more. It is dark gray and gray silt loam in the upper part and dark gray sand in the lower part.

Included with this soil in mapping are small areas of Rippowam and Pootatuck soils on the higher parts of the landscape. Included soils make up about 10 percent of the unit.

The permeability of this Saco Variant soil is moderate in the surface layer and rapid in the substratum. Available water capacity is high. The depth to bedrock is more than 5 feet. This soil is subject to frequent flooding from November to May and has a high water table between the surface and a depth of 6 inches from October to May. The frost-action potential of the soil is high.

Some areas of this soil are wooded, but the frequent flooding and seasonal high water table limit the soil for most uses other than wetland wildlife habitat.

The capability subclass is VIw.

Sn—Saugatuck loamy sand. This soil is nearly level and poorly drained. It is in depressions on terraces and outwash plains. The areas are irregularly shaped and range from 5 to 150 acres.

Typically, the surface layer is grayish brown loamy sand about 7 inches thick. The subsoil is 30 inches thick. The upper part of the subsoil is mottled, dark reddish gray loamy sand, and the lower part is strongly cemented, very dark grayish brown and yellowish red gravelly sand. The substratum is yellowish brown gravelly coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Pipestone and Scarboro soils that make up 10 to 15 percent of the unit.

The permeability of this Saugatuck soil mainly is rapid but is slow in the strongly cemented part of the subsoil. Available water capacity is very low. The depth to bedrock is more than 5 feet. A perched high water table is between the surface and a depth of 2 feet from December to June, and some areas have water on the surface during that period. The frost-action potential of the soil is moderate.

The seasonal high water table makes this soil generally unsuited to row crops. Using tile drains or open ditches makes the soil suitable for moisture-tolerant grasses and legumes.

Most areas of this soil are wooded, but the soil is poorly suited to most tree species and productivity is low. The seasonal high water table limits forest management and logging operations.

The high water table also limits the soil for community development and recreational use.

The capability subclass is Vw.

So—Scarboro mucky loamy sand. This soil is nearly level and very poorly drained. It is in depressions on terraces and outwash plains. The areas are irregularly shaped and range from 3 to 35 acres.

Typically, the surface layer is black mucky loamy sand 9 inches thick. The substratum is mottled, gray and olive gray sand to a depth of 60 inches or more. It has layers of coarse sand in the lower part.

Included with this soil in mapping are areas of very poorly drained Chocorua soils and poorly drained Pipestone and Saugatuck soils. Included soils make up about 10 percent of the unit.

The permeability of this Scarboro soil is rapid, and available water capacity is low. The depth to bedrock is more than 5 feet. A year-round high water table is between the surface and a depth of 1 foot, and some areas have water in the surface. The frost-action potential of the soil is high.

The high water table makes this soil generally unsuited to farming. The use of tile drains or open ditches makes the soil suitable for moisture-tolerant grasses and legumes.

Most areas of this soil are wooded, but the soil is poorly suited to most tree species and productivity is low. The high water table limits forest management and logging operations.

The high water table also limits the soil for community development and recreational use.

The capability subclass is Vw.

Sr—Scarboro stony mucky loamy sand. This soil is nearly level and very poorly drained. It mainly is in depressions on uplands. The areas are long and narrow and range from 3 to 15 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is black mucky loamy sand about 5 inches thick. The substratum is mottled, gray and olive gray sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of poorly drained Ridgebury soils, areas of very poorly drained Chocorua soils, and areas of Leicester and Walpole stony soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Scarboro soil is rapid, and available water capacity is low. The depth to bedrock is more than 5 feet. A year-round high water table is between the surface and a depth of 1 foot, and some areas have water on the surface. The frost-action potential of the soil is high.

The high water table and stones on the surface make this soil unsuited to farming. Most areas are wooded, but the soil is poorly suited to most tree species and productivity is low. The high water table limits forest management and logging operations and is the main limitation for community development and recreational use.

The capability subclass is VIIs.

SsA—Scituate fine sandy loam, 0 to 3 percent slopes. This soil is nearly level and moderately well drained. It is in slight depressions on hilly uplands. The areas are long and narrow or irregular in shape and range from 5 to 15 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam about 9 inches thick. The subsoil is mottled and 13 inches thick. The upper part of the subsoil is yellowish brown fine sandy loam, and the lower part is strong brown gravelly sandy loam. The substratum is a hardpan of mottled, pale olive gravelly loamy sand that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of poorly drained Leicester and Walpole soils in depressions. Included soils make up 15 to 20 percent of the unit.

The permeability of this Scituate soil is moderately rapid in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of 19 to 29 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

Most areas of this soil are used for hay or pasture, but some areas near Manchester and Nashua are used for residential development.

The seasonal high water table limits this soil for farming. Wetness restricts the choice of crops and delays cultivation in the spring. Using tile drains or open ditches makes the soil suitable for row crops. Grasses and legumes on this soil must be species that tolerate seasonal wetness. Mixing crop residues and manure into the plow layer improves tilth and the organic matter content.

This soil is suited to most tree species, and productivity is moderate. There are few or no limitations for most types of forest management or logging operations.

The seasonal high water table and slow permeability in the hardpan limit some types of community development and recreational use. The high frost-action potential is an additional limitation for community development.

The capability subclass is IIw.

SsB—Scituate fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and moderately well drained. It is in slight depressions on hilly uplands. The areas are long and narrow or irregular in shape and range from 3 to 10 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam about 9 inches thick. The subsoil is mottled and 13 inches thick. The upper part of the subsoil is yellowish brown fine sandy loam, and the lower part is strong brown gravelly sandy loam. The substratum is a hardpan of mottled, pale olive gravelly loamy sand that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of gently sloping, well drained Montauk soils and areas of Scituate soils that have slopes of 8 to 15 percent. Included soils make up 15 to 20 percent of the unit.

The permeability of this Scituate soil is moderately rapid in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The

hardpan is at a depth of 19 to 29 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

Most areas of this soil are used for hay or pasture, but some areas near Manchester and Nashua are used for residential development.

The seasonal high water table limits this soil for farming. Wetness restricts the choice of crops and delays cultivation in the spring. Using tile drains or open ditches makes the soil suitable for row crops. Stripcropping, contour farming, and using moisture-tolerant grasses and legumes in the cropping system help to control erosion. Mixing crop residue and manure into the plow layer improves tilth and the organic matter content.

This soil is suited to most tree species, and productivity is moderate. There are few limitations for most types of forest management or logging operations. Operating logging equipment during wet periods increases the hazard of erosion; constructing the roads on the contour helps to control this erosion.

The seasonal high water table and the slow permeability in the hardpan limit some types of community development and recreational use. The high frost-action potential is an additional limitation for community development.

The capability subclass is IIw.

SsC—Scituate fine sandy loam, 8 to 15 percent slopes. This soil is sloping and moderately well drained. It is in slight depressions on hilly uplands. The areas are irregular in shape and range from 5 to 10 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam about 7 inches thick. The subsoil is mottled and 15 inches thick. The upper part of the subsoil is yellowish brown fine sandy loam, and the lower part is strong brown gravelly sandy loam. The substratum is a hardpan of mottled, pale olive gravelly loamy sand that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of well drained Montauk soils on the higher parts of the landscape and areas of Scituate soils that have slopes of 3 to 8 percent. Included soils make up 15 to 20 percent of the unit.

The permeability of this Scituate soil is moderately rapid in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of 19 to 29 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

Most areas of this soil are used for hay, pasture, or woodland. Some areas near Manchester and Nashua are used for residential development.

Slope, an erosion hazard, and the seasonal high water table make this soil poorly suited to row crops. Using tile drains or open ditches and protecting the soil from erosion help to improve suitability for row crops. Stripcropping, contour farming, and using moisture-tolerant grasses and legumes in the cropping system help to control erosion. Adding manure and mixing crop residue into the soil provide additional organic matter to help maintain tilth and conserve moisture.

This soil is suited to most tree species, and productivity is moderate. There are few limitations for most types of forest management or logging operations. Operating logging equipment during wet periods increases the hazard of erosion; constructing the roads on the contour helps to control this hazard.

The seasonal high water table, slope, and the slow permeability in the hardpan limit this soil for some types of community development and recreational use. The high frost-action potential is an additional limitation for community development.

The capability subclass is IIIe.

StA—Scituate stony fine sandy loam, 0 to 3 percent slopes. This soil is nearly level and moderately well drained. It is in slight depressions in hilly uplands. The areas are irregularly shaped and range from 3 to 20 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is very dark grayish brown fine sandy loam about 7 inches thick. The subsoil is mottled and 15 inches thick. The upper part of the subsoil is yellowish brown fine sandy loam, and the lower part is strong brown gravelly sandy loam. The substratum is a hardpan of mottled, pale olive gravelly loamy sand that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of stony Leicester and Walpole soils in depressions and areas of Woodbridge soils. Also included are areas of very stony soils. Included soils make up 15 to 20 percent of the unit.

The permeability of this Scituate soil is moderately rapid in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of 19 to 29 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

Most areas of this soil are in woodland, but a few areas are used for pasture.

The stony surface interferes with cultivation and makes the soil unsuitable for row crops and limited for pasture and hay.

This soil is suited to most tree species, and productivity is moderate. There are few limitations for most types of forest management or logging operations.

The seasonal high water table and slow permeability of the hardpan limit this soil for some types of community development and recreational use. The high frost-action potential is an additional limitation for community development, and the stones on the surface for recreational use.

The capability subclass is Vs.

StB—Scituate stony fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping and moderately well drained. It is in slight depressions on hilly uplands. The areas are irregularly shaped and range from 5 to 25 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is very dark grayish brown fine sandy loam about 7 inches thick. The subsoil is mottled and 15 inches thick. The upper part of the subsoil is yellowish brown fine sandy loam, and the lower part is strong brown gravelly sandy loam. The substratum is a hardpan of mottled, pale olive gravelly loamy sand that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of stony Leicester and Walpole soils in depressions and areas of Woodbridge soils. Also included are small areas of very stony soils. Included soils make up 15 to 20 percent of the unit.

The permeability of this Scituate soil is moderately rapid in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of 19 to 29 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is generally more than 5 feet. The frost-action potential of the soil is high.

Most areas of this soil are in woodland, but a few areas are used for pasture.

The stony surface interferes with cultivation and makes the soil unsuitable for row crops and limited for pasture and hay.

This soil is suited to most tree species, and productivity is moderate. There are few limitations for most types of forest management or logging operations. Operating logging equipment during wet periods increases the hazard of erosion; constructing logging roads on the contour helps to control this erosion.

The seasonal high water table and the slow permeability in the hardpan limit this soil for some types of community development and recreational use. The high frost-action potential is an additional limitation for community development, and the stony surface for recreational use.

The capability subclass is VIs.

StC—Scituate stony fine sandy loam, 8 to 15 percent slopes. This soil is sloping and moderately well drained. It is in slight depressions and on side slopes of hills on uplands. The areas are irregularly shaped and range from 5 to 15 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is very dark grayish brown fine sandy loam about 7 inches thick. The subsoil is mottled and 15 inches thick. The upper part of the subsoil is yellowish brown fine sandy loam, and the lower part is strong brown gravelly sandy loam. The substratum is a hardpan of mottled, pale olive gravelly loamy sand that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of gently sloping, stony Leicester and Walpole soils in depressions and areas of very stony soils. Included soils make up 15 to 20 percent of the unit.

The permeability of this Scituate soil is moderately rapid in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of 19 to 29 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

Most areas of this soil are in woodland, but a few areas are used for pasture.

The stony surface interferes with cultivation and makes the soil unsuitable for row crops and limited for pasture and hay.

This soil is suited to most tree species, and productivity is moderate. There are few limitations for most types of forest management or logging operations. Operating logging equipment during wet periods increases the hazard of erosion; constructing logging roads on the contour helps to control this erosion.

The seasonal high water table and slope limit this soil for some types of community development and recreational use. The high frost-action potential is an additional limitation for community development, and the stony surface for recreational use.

The capability subclass is VIs.

Su—Suncook loamy fine sand. This soil is excessively drained and nearly level. It is on the highest parts of flood plains. The areas are long and narrow and range from 3 to 15 acres.

Typically, the surface layer is very dark grayish brown loamy fine sand 2 inches thick. The underlying layers extend to a depth of 60 inches or more and consist of light olive brown and light yellowish brown loamy fine sand and fine sand and very dark grayish brown loamy fine sand.

Included with this soil in mapping are small areas of soils that are gravelly in the substratum. Also included are spots of Occum soils. Included soils make up about 10 percent of the unit.

The permeability of this Suncook soil is rapid, and available water capacity is very low. The depth to bedrock is more than 5 feet. Flooding is common from March to May, and a seasonal high water table is at a depth of 3 to 6 feet from January to April.

Most areas of this soil are idle. One area is used as a golf course.

Because of droughtiness, this soil is not well suited to farming. Irrigation and large quantities of lime and fertilizer are needed for all crops.

The soil is poorly suited to most tree species, and productivity is low. There are few or no limitations for forest management and logging operations.

The hazard of flooding limits this soil for most types of community development and recreational use.

The capability subclass is IIIs.

UdA—Udipsamments, nearly level. This unit consists mainly of sandy and gravelly fill material that has been placed on terraces, flood plains, and uplands. The thickness of the fill varies from 20 inches to more than 20 feet. The areas are irregularly shaped and range from 5 to 100 acres. They are throughout the survey area, but most are in and near Manchester and Nashua. Slopes range from 0 to 60 percent but are dominantly 0 to 15 percent.

Generally, this soil has a surface layer of brown sand 31 inches thick. The subsoil is yellowish brown loamy sand 3 inches thick. The substratum extends to a depth of 60 inches or more. It is light yellowish brown sand in the upper part and mottled, yellow sand in the lower part.

Included with this unit in mapping are areas of Hinckley and Windsor soils and areas of nonearthy fill material such as building rubble. Included soils make up about 20 percent of the unit.

Most areas of this unit are used for building sites. Some open areas have been landscaped and planted with grasses and shrubs.

Some areas of the unit are suitable for lawns, trees, shrubs, vegetable gardens, or recreational uses such as picnic areas and parks. An onsite investigation is generally needed, however, to determine the potentials and limitations of the unit for most uses.

This unit is not assigned to a capability subclass.

Ur—Urban land. This unit consists of nearly level and gently sloping areas where more than 85 percent of the surface is covered with buildings, asphalt, and concrete. Examples of this unit are business districts, industrial parks, and shopping centers in Manchester and Nashua. The areas are irregularly shaped and range from 10 to 150 acres.

Included with this unit in mapping are areas of gently sloping to steep Windsor and Hinckley soils and areas of gently sloping to sloping fill material. Included soils make up 10 to 15 percent of the unit.

This unit is not assigned to a capability subclass.

WdA—Windsor loamy sand, 0 to 3 percent slopes. This soil is nearly level and excessively drained. It is on terraces and outwash plains. The areas are irregularly shaped and range from 10 to 200 acres.

Typically, the surface layer is 7 inches thick. It is very dark grayish brown loamy sand in the upper part and dark brown loamy sand in the lower part. The subsoil is 13 inches thick. The upper part of the subsoil is yellowish brown loamy sand and the lower part is brownish yellow sand. The substratum is pale yellow sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Deerfield soils, Hinckley soils, gently sloping Windsor soils, and soils that have thin layers of silt below a depth of 30 inches. Included soils make up 10 to 15 percent of the unit.

The permeability of this Windsor soil is rapid, and available water capacity is very low. The depth to bedrock is more than 5 feet.

Most areas of this soil are wooded. Some areas in the larger cities and suburbs are used for residential or industrial development.

Droughtiness limits this soil for farming. Irrigation and heavy applications of fertilizer are needed for most crops, but some areas are used for specialty crops such as squash.

This soil is best suited to drought-tolerant tree species, but productivity is low and droughtiness causes a high rate of seedling mortality. There are few or no limitations to most types of forest management or logging operations.

The rapid permeability of this soil causes a hazard of ground-water contamination in areas used for septic tank absorption fields. Establishing and maintaining lawn grasses is difficult because of droughtiness. Areas of this soil are a good source of sand.

The capability subclass is IIIs.

WdB—Windsor loamy sand, 3 to 8 percent slopes. This soil is gently sloping and excessively drained. It is on terraces and outwash plains. The areas are irregularly shaped and range from 10 to 60 acres.

Typically, the surface layer is 7 inches thick. It is very dark grayish brown loamy sand in the upper part and dark brown loamy sand in the lower part. The subsoil is 13 inches thick. The upper part of the subsoil is yellowish brown loamy sand, and the lower part is brownish yellow sand. The substratum is pale yellow sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Deerfield soils, Hinckley soils, sloping Windsor soils, and soils that have thin silt layers below a depth of 30 inches. Included soils make up 10 to 15 percent of the unit.

The permeability of this Windsor soil is rapid, and available water capacity is very low. The depth to bedrock is generally more than 5 feet.

Most areas of this soil are wooded or idle. Some areas in the larger cities and suburbs are used for residential or industrial development (fig. 5).

Droughtiness limits this soil for farming. Irrigation and heavy applications of fertilizer are needed for most crops.

This soil is best suited to drought-tolerant tree species, but productivity is low; droughtiness causes a high rate of seedling mortality. There are few or no limitations for most types of forest management or logging operations.

The rapid permeability of this soil causes a hazard of ground-water contamination in areas used for septic tank absorption fields. Establishing and maintaining lawn grasses is difficult because of droughtiness. Areas of this soil are a good source of sand.

The capability subclass is IIIs.

WdC—Windsor loamy sand, 8 to 15 percent slopes. This soil is excessively drained and sloping. It is on terraces and outwash plains. The areas are irregularly shaped and range from 5 to 20 acres.

Typically, the surface layer is 7 inches thick. It is very dark grayish brown loamy sand in the upper part and dark brown loamy sand in the lower part. The subsoil is 13 inches thick. The upper part of the subsoil is yellowish brown loamy sand, and the lower part is brownish yellow sand. The substratum is pale yellow sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of sloping Hinckley soils, moderately steep Windsor soils, and excessively drained soils consisting mainly of coarse sand. Included soils make up 10 to 15 percent of the unit.

The permeability of this Windsor soil is rapid, and available water capacity is very low. The depth to bedrock is more than 5 feet.

Most areas of this soil are wooded. Some areas in the larger cities and suburbs are used for residential development.

This soil is better suited to drought-resistant grasses and legumes than to row crops. Irrigation is needed for most row crops and for the establishment and maintenance of a grass cover. The hazard of erosion is moderate. Using cover crops and grasses and legumes, stripcropping, and using cover crops keep soil losses to a minimum. Fertilizer is quickly leached through this soil and needs to be reapplied frequently.

This soil is best suited to drought-tolerant tree species, but productivity is low; droughtiness causes a high rate

Figure 5.—Residential development on an area of Windsor loamy sand, 3 to 8 percent slopes.

of seedling mortality. There are few limitations for most types of forest management or logging operations.

Slope limits this soil for some types of community development and recreational use. The rapid permeability causes a hazard of ground-water contamination in areas used for septic tank absorption fields. Establishing lawn grasses is difficult because of droughtiness. This soil is a good source of sand.

The capability subclass is IVs.

WdD—Windsor loamy sand, 15 to 35 percent slopes. This soil is moderately steep and excessively drained. It is on terrace escarpments. The areas are long and narrow or irregularly shaped and range from 10 to 40 acres.

Typically, the surface soil layer is 7 inches thick. It is very dark grayish brown loamy sand in the upper part and dark brown loamy sand in the lower part. The subsoil is 13 inches thick. The upper part of the subsoil is yellowish brown loamy sand, and the lower part is pale yellow sand. The substratum is brownish yellow sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of sloping Hinckley soils, moderately steep Windsor soils, and excessively drained soils consisting mainly of coarse sand. Included soils make up 10 to 15 percent of the unit.

The permeability of this Windsor soil is rapid, and available water capacity is very low. The depth to bedrock is more than 5 feet.

Slope, an erosion hazard, and droughtiness make this soil unsuited to farming. Most areas are wooded, and the soil is best suited to drought-tolerant trees. However, slope limits logging operations, droughtiness causes a high rate of seedling mortality, and productivity is low.

Slope is the main limitation of the soil for community development and recreational use. Many areas are a good source of sand.

The capability subclass is VIs.

WnC—Windsor-Urban land complex, 3 to 15 percent slopes. This unit consists of gently sloping to sloping soils and urbanized areas that are so intermingled that it was not practical to map them separately. The areas of the unit are in and near Manchester and Nashua. They are about 45 percent Windsor soils, 35 percent urbanized, and 20 percent other soils. The areas of this unit are irregularly shaped and range from 5 to 300 acres.

Typically, the surface layer of the Windsor soils is very dark grayish brown loamy sand about 7 inches thick. The subsoil is 13 inches thick. The upper part of the subsoil is yellowish brown loamy sand, and the lower part is brownish yellow sand. The substratum is pale yellow sand to a depth of 60 inches or more.

Buildings, asphalt, or concrete cover more than 85 percent of the surface of the urbanized areas. Examples of such areas are business districts, industrial parks, and shopping centers. Some of the areas have been covered by more than 20 inches of fill material or have had most or all of the original surface layer removed during grading operations. Much of the fill material is from nearby areas of Windsor soils.

Included with this complex in mapping are areas of Hinckley and Deerfield soils and areas of Udipsamments, nearly level.

These Windsor soils have rapid permeability and very low available water capacity. The depth to bedrock is more than 5 feet.

Most areas of this unit are used for residential or industrial development. A few areas are used for parks. An onsite investigation is generally needed to determine the potential and limitations of this unit for most uses.

This unit is not assigned to a capability subclass.

WoA—Woodbridge loam, 0 to 3 percent slopes. This soil is nearly level and moderately well drained. It is mainly in slight depressions on hilly uplands. Some areas are on smooth-sided, oval hills called drumlins. The areas of this soil are long and narrow and range from 5 to 30 acres.

Typically, the surface layer is very dark grayish brown loam about 7 inches thick. The subsoil is mottled, light olive brown and olive fine sandy loam 18 inches thick. The substratum is a dense hardpan of mottled, light olive brown fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of Scituate and Ridgebury soils in depressions and Paxton soils on the higher parts of the landscape. Included soils make up 15 to 20 percent of the unit.

The permeability of this Woodbridge soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of 24 to 33 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is moderate.

Most areas of this soil are used for hay or pasture. Some areas are wooded.

The seasonal high water table makes this soil poorly suited to row crops. Wetness restricts the choice of crops and delays cultivation in the spring. Using tile drains or open ditches makes the soil suitable for row crops. Grasses and legumes on this soil must be species that tolerate seasonal wetness. Mixing crop residues and manure into the plow layer improves tilth and the organic matter content.

This soil is well suited to trees, and productivity is moderately high. There are few or no limitations for most types of forest management or logging operations.

The seasonal high water table, the frost-action potential, and the slow permeability in the hardpan limit this soil for community development and recreational use.

The capability subclass is IIw.

WoB—Woodbridge loam, 3 to 8 percent slopes. This soil is gently sloping and moderately well drained. It mainly in slight depressions on hilly uplands. Some areas areas are on smooth-sided, oval hills called drumlins. The areas of this soil are long and narrow and range from 5 to 25 acres.

Typically, the surface layer is very dark grayish brown loam about 7 inches thick. The subsoil is mottled, light olive brown and olive fine sandy loam 18 inches thick. The substratum is a dense hardpan of mottled, light olive brown fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of Scituate soils in depressions and Paxton soils on the higher parts of the landscape. Included soils make up 15 to 20 percent of the unit.

The permeability of this Woodbridge soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of 24 to 33 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

Most areas of this soil are used for hay or pasture. Some areas are in woodland.

The seasonal high water table makes this soil poorly suited to row crops. Wetness restricts the choice of crops and delays cultivation in the spring. Using tile drains or open ditches makes the soil suitable for crops. Grasses and legumes on this soil must be species that tolerate seasonal wetness. Mixing crop residue and manure into the plow layer improves tilth and the organic matter content.

This soil is well suited to most tree species, and productivity is moderately high. Operating logging equipment during wet periods increases the hazard of erosion; constructing logging roads on the contour helps to control this erosion.

The seasonal high water table, the high frost-action potential, and the slow permeability in the hardpan limit this soil for community development and recreational use.

The capability subclass is IIw.

WvB—Woodbridge stony loam, 3 to 8 percent slopes. This soil is gently sloping and moderately well drained. It mainly is in slight depressions on hilly uplands. Some areas are on smooth-sided, oval hills called drumlins. The areas of this soil are long and narrow and range from 5 to 75 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is very dark grayish brown loam about 5 inches thick. The subsoil is mottled, light olive brown and olive fine sandy loam 20 inches thick. The substratum is a dense hardpan of mottled, light olive brown fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of Paxton, Scituate, and Ridgebury soils. Also included are areas of very stony, nearly level Woodbridge soils. Included soils make up 15 to 20 percent of the unit.

The permeability of this Woodbridge soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of 24 to 33 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

Most areas of this soil are wooded, but a few areas are used for pasture.

The stony surface and the seasonal high water table make this soil unsuitable for row crops and limited for pasture and hay. The surface stones especially interfere with cultivation.

The soil is well suited to tree species. Operating logging equipment during wet periods increases the hazard of erosion. Constructing logging roads on the contour helps to control this erosion.

The seasonal high water table, the high frost-action potential, the stony surface, and the slow permeability in the hardpan limit this soil for community development and recreational use.

The capability subclass is VIs.

WvC—Woodbridge stony loam, 8 to 15 percent slopes. This soil is sloping and moderately well drained. It mainly is in slight depressions on hilly uplands. Some areas are on smooth-sided, oval hills called drumlins. The areas of this soil are long and narrow and range from 5 to 30 acres. Stones 1 to 1-1/2 feet in diameter and 5 to 30 feet apart cover the surface.

Typically, the surface layer is very dark grayish brown loam about 5 inches thick. The subsoil is mottled, light olive brown and olive fine sandy loam 20 inches thick. The substratum is a dense hardpan of mottled, light olive brown fine sandy loam that extends to a depth of 60 inches or more.

Included with this soil in mapping are areas of Paxton and Scituate soils and very stony Woodbridge soils. Included soils make up 10 to 15 percent of the unit.

The permeability of this Woodbridge soil is moderate in the surface layer and subsoil and slow in the hardpan. Available water capacity is moderate. The hardpan is at a depth of about 25 inches and limits the rooting depth of plants. A seasonal high water table is perched at a depth of 1-1/2 to 3 feet from November to May, and some areas have seep spots. The depth to bedrock is more than 5 feet. The frost-action potential of the soil is high.

Most areas of this soil are wooded, but a few areas are used for pasture.

The stony surface and seasonal high water table make this soil unsuitable for row crops and limited for pasture and hay. The surface stones especially interfere with cultivation.

This soil is well suited to most tree species, and productivity is moderately high. Operating logging equipment during wet periods increases the hazard of erosion. Constructing logging roads on the contour helps to control this erosion.

The seasonal high water table, the high frost-action potential, slope, the stones on the surface, and the slow permeability in the hardpan limit the soil for community development and recreational use.

The capability subclass is VIs.

prime farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in providing the Nation's short- and long-range needs for food and fiber. The supply of high quality farmland is limited, and the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, must encourage and facilitate the use of prime farmland with wisdom and foresight.

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to economically produce a sustained high yield of crops when the land is treated and managed using acceptable farming methods. Prime farmland produces the highest yields with minimal inputs of energy and economic resources and causes the least damage to the environment.

Prime farmland may now be in crops, pasture, woodland, or other land, but not urban and built-up land or water areas. It must either be used for producing food or fiber or be available for these uses.

Prime farmland usually has an adequate and dependable supply of moisture from precipitation or irrigation. It also has a favorable temperature and growing season and acceptable acidity or alkalinity. It has few or no rocks and is permeable to water and air. Prime farmland is not excessively erodible or saturated with water for long periods and is not flooded during the growing season. The slope ranges mainly from 0 to 8 percent. For more detailed information on the criteria for prime farmland, consult the local staff of the Soil Conservation Service.

About 12,000 acres, or approximately 4.5 percent of the survey area, meets the soil requirements for prime farmland. These areas are throughout the survey area, mainly in units 1, 5, and 6 of the general soil map. Most of this prime farmland is used for crops, mainly silage corn, hay, vegetables, and apples.

Some of the prime farmland in the Merrimack River valley has been lost to urban and industrial uses. The loss of prime farmland to other uses puts pressure on marginal lands, which are more erodible, droughty, difficult to cultivate, and usually less productive.

Soil map units that make up prime farmland in this survey area are listed in this section. This list does not constitute a recommendation for a particular land use. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps in the back of this publication. The soil qualities that affect use and management are described in the section "Detailed soil map units."

Soils that have limitations—for example, a high water table or flooding—may qualify for prime farmland if these limitations are overcome by such measures as drainage or flood control. In the following list, these limitations, if any, are shown in parentheses after the map unit name. Onsite evaluation is necessary to determine if these limitations have been overcome by corrective measures.

The map units that meet the soil requirements for prime farmland in this survey area are:

AgA—Agawam fine sandy loam, 0 to 3 percent slopes
AgB—Agawam fine sandy loam, 3 to 8 percent slopes
BaA—Belgrade silt loam, 0 to 3 percent slopes (if artificially drained)
BdA—Bernardston Variant very fine sandy loam, 0 to 3 percent slopes
BdB—Bernardston Variant very fine sandy loam, 3 to 8 percent slopes
MoB—Montauk fine sandy loam, 3 to 8 percent slopes
NnA—Ninigret very fine sandy loam, 0 to 3 percent slopes (if artificially drained)
NnB—Ninigret very fine sandy loam, 3 to 8 percent slopes (if artificially drained)
Oc—Occum fine sandy loam (if protected from flooding)
Om—Occum fine sandy loam, high bottom phase (if protected from flooding)
PbB—Paxton fine sandy loam, 3 to 8 percent slopes
PhB—Pennichuck channery fine sandy loam, 3 to 8 percent slopes
PtA—Pittstown Variant loam, 0 to 3 percent slopes (if artificially drained)
PtB—Pittstown Variant loam, 3 to 8 percent slopes (if artificially drained)
Pu—Pootatuck fine sandy loam, (if artificially drained)
WoA—Woodbridge loam, 0 to 3 percent slopes (if artificially drained)
WoB—Woodbridge fine sandy loam, 3 to 8 percent slopes (if artificially drained)

use and management of the soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

crops and pasture

Because data are available only on a countywide basis, statistics given in this section apply to all of Hillsborough County.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed soil map units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Crops and pasture cover about 23,000 acres of Hillsborough County. An estimated 65 percent of this acreage is used for hay and pasture; 20 percent for row crops, mainly vegetables and silage corn; and 15 percent for orchards or other crops. The acreage in crops and pasture has steadily declined during the past 50 years, mainly because of urban pressure from Manchester and Nashua.

Soil erosion is a major concern on much of the cropland and pasture in the survey area. Erosion is a hazard on soils where the slope exceeds 3 percent, such as some Paxton and Canton soils.

Loss of the surface layer through erosion reduces productivity and incorporates part of the subsoil into the plow layer. Loss of the surface layer is especially damaging to soils that have a restrictive layer in the substratum or shallow depth to bedrock that limits the depth of the root zone. Examples of soils that have a restructive layer are the Paxton and Montauk soils. The soils of the Chatfield-Hollis-Canton complex, for example, have bedrock near the surface.

Erosion of the soil on cropland results in sediment entering streams. Control of erosion minimizes the pollution of streams by sediment and improves water quality for municipal use, for recreation, and for fish and wildlife.

Erosion control practices provide a protective surface cover, reduce runoff, and increase infiltration of air and water. A cropping system that keeps plant cover on the soil for extended periods can hold soil erosion to an amount that will not reduce the productive capacity of the soil. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land, provide nitrogen, and improve tilth for the next crop in the rotation.

Other practices that help to control erosion are terracing and stripcropping. Field terraces effectively control erosion. Many parts of the survey area, however, have short and irregular slopes that are not suited to terraces and are better suited to diversions that intercept water and protect fields downslope.

Stripcropping, a practice in which alternate strips of row crops and grass crops are planted across the slope, is effective for controlling erosion on soils that have long, uniform slopes.

Fields in the survey area that are not suited to other practices can use cropping systems that keep plant cover on the soil for extended periods of time. Minimum tillage or no-till farming of crops that are normally tilled protects the soil from excessive erosion. These systems can be applied to most of the soils in the survey area.

A high water table is a major concern for several of the soils in the survey area. Some soils are naturally so wet that the production of crops common to the area is generally not feasible. Examples of such soils are very poorly drained Scarboro, Saco Variant, Greenwood, and Chocorua soils and Borohemists.

Poorly drained soils are too wet for good crop production during most years, but tile drainage and drainage ditches help to overcome the wetness of these soils. The Rippowam, Pipestone, Saugatuck, Ridgebury, and Leicester soils in this survey area are poorly drained.

Moderately well drained soils cannot be tilled or worked until late spring, and they are not well suited to early-season crops. The Woodbridge, Deerfield, Belgrade, Scituate, and Pootatuck soils are in this group.

Natural fertility, available phosphorus, and potassium levels are low in the soils in the survey area. The soils in their natural state are strongly acid or very strongly acid, so they require applications of lime to reduce the acidity for crops that are suited to slightly acid or neutral soils.

Soil tilth is important for the germination of seeds and the infiltration of water into the soil. Soils that have good tilth are granular and porous. Many of the soils used for crops in the survey area are light in color and low in organic matter content. Generally, the surface layer of these soils is granular and has good tilth. Regular additions of crop residue and manure help to maintain tilth and water infiltration.

The special crops grown in the survey area are vegetables and apples. The most commonly grown vegetables are sweet corn, squash, tomatoes, and cabbage. Soils in low positions, where frost is frequent and air drainage is poor, are poorly suited to early-season vegetables or small fruits and orchards.

Deep, friable soils that have good natural drainage are especially well suited to vegetables. The Ondawa, Pennichuck, Agawam, Paxton, and Bernardston Variant soils are in this group. The Hinckley and Windsor soils that have slopes of less than 8 percent are suitable if the soils are irrigated.

yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils.

land capability classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, or s, to the class numeral, for example, IIe. The letter e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w or s* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The capability classification of each map unit is given in the section "Detailed soil map units."

woodland management and productivity

Table 6 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *d*, restricted root depth; *s*, sandy texture; and *r*, steep slopes. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: x, w, d, s, and r.

In table 6, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *windthrow hazard* are based on soil characteristics that affect the development of tree roots and the ability of the soil to hold trees firmly. A rating of *slight* indicates that a few trees may be blown down by normal winds; *moderate*, that some trees will be blown down during periods of excessive soil wetness and strong winds; and *severe*, that many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

recreation

The soils of the survey area are rated in table 7 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water

impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 7, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 7 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 10 and interpretations for dwellings without basements and for local roads and streets in table 9.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

wildlife habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 8, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, and oats.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also

considerations. Examples of grasses and legumes are fescue, timothy, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are little bluestem, goldenrod, and beggarweed.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, highbush cranberry, and crabapple.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cattail, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobolink, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, shore birds, muskrat, mink, and beaver.

engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems,

ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

building site development

Table 9 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

sanitary facilities

Table 10 shows the degree and the kind of soil limitations that affect septic tank absorption fields, and sewage lagoons. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 10 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

construction materials

Table 11 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 11, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less

than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

water management

Table 12 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

soil properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

engineering index properties

Table 13 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent.

Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

physical and chemical properties

Table 14 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 14, the estimated content of organic matter of the plow layer is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity,

infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

soil and water features

Table 15 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams and by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt and water in swamps and marshes are not considered flooding.

Table 15 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 15 are the depth to the seasonal high water table; the kind of water table—that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 15.

An apparent water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An artesian water table is under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A perched water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is

not artificially drained. Silty and highly structured clayey soils that have a high water table in winter are most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*10*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 16, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Inceptisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Ochrept (*Ochr*, meaning pale, plus *ept*, from Inceptisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Dystrochrepts (*Dystr*, meaning low base saturation, plus *ochrepts*, the suborder of the Inceptisols that have an ochric epipedon).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Dystrochrepts.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, mixed, mesic Typic Dystrochrepts.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series. An example of a series in the survey area is the Chatfield series.

soil series and their morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*8*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*10*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed soil map units."

Agawam series

The Agawam series consists of well drained, moderately rapidly permeable and rapidly permeable soils that have moderate available water capacity. Agawam soils formed in thick, sandy deposits capped by thin, loamy deposits. They are on outwash plains and stream terraces. Slopes range from 0 to 8 percent.

Agawam soils are associated on the landscape with excessively drained Windsor soils and moderately well drained Ninigret soils. Agawam and Ninigret soils formed in similar parent material. Agawam soils are finer textured than Windsor soils.

Typical pedon of Agawam fine sandy loam, 0 to 3 percent slopes, in the town of Merrimack, under a powerline, 3,200 feet west of U.S route 3 and 400 feet south of the Merrimack-Bedford town line:

Ap—0 to 6 inches, very dark grayish brown (10YR 3/2), fine sandy loam, light yellowish brown (2.5Y 6/4) dry; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.
B21—6 to 11 inches, yellowish brown (10YR 5/8) fine sandy loam; weak medium granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.
B22—11 to 24 inches, yellowish brown (10YR 5/6) fine sandy loam; weak medium granular structure; very friable; few fine roots; medium acid; clear wavy boundary.
IIC1—24 to 37 inches, light yellowish brown (10YR 6/4) fine sand; weak medium granular structure; very friable; few fine roots; medium acid; abrupt smooth boundary.
IIC2—37 to 60 inches, light yellowish brown (10YR 6/4) sand; single grain; loose; medium acid.

The solum thickness ranges from 20 to 28 inches. In unlimed areas reaction ranges from very strongly acid to medium acid throughout.

The A horizon has chroma of 2 or 3. It is fine sandy loam or very fine sandy loam.

The upper part of the B2 horizon has chroma of 6 or 8. It is fine sandy loam or very fine sandy loam. The lower part of the B2 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 or 6.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 4. It ranges from loamy fine sand to sand.

Belgrade series

The Belgrade series consists of moderately well drained, moderately permeable and slowly permeable soils that have high available water capacity. Belgrade soils formed in thick, silty deposits on glaciolacustrine and fluvial terraces. The deposits are derived from granite, gneiss, and schist. Slopes range from 0 to 8 percent.

Belgrade soils are associated on the landscape with excessively drained Windsor soils, moderately well drained Deerfield and Ninigret soils, and poorly drained Binghamville soils. Belgrade and Binghamville soils formed in similar parent material. Belgrade soils are finer textured than Windsor, Deerfield, or Ninigret soils.

Typical pedon of Belgrade silt loam, 0 to 3 percent slopes, in the town of Bedford, 800 feet east of Nashua Road and 350 feet north of Meadow Road, in a wooded area:

O1—2 inches to 0, duff of leaves and pine needles.
A1—0 to 3 inches, very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; common fine and medium roots; medium acid; abrupt smooth boundary.
B21—3 to 9 inches, dark brown (10YR 4/3) silt loam, weak coarse granular structure; friable; common fine roots; strongly acid; abrupt wavy boundary.
B22—9 to 15 inches, light olive brown (2.5Y 5/4) silt loam; weak medium granular structure; friable; few fine roots; strongly acid; clear wavy boundary.
B23—15 to 32 inches, light brownish gray (2.5Y 6/2) silt loam; common fine distinct yellowish brown (10YR 5/6) mottles and common fine faint gray (5Y 6/1) mottles; weak coarse prismatic structure, gray streaks form polygons that extend into underlying horizons; firm; few fine roots; neutral; abrupt smooth boundary.
C1—32 to 46 inches, pale olive (5Y 6/3) silt and light gray (5Y 7/1) very fine sand; few fine distinct yellowish brown (10YR 5/6) mottles; moderate coarse platy structure; firm; few fine roots; medium acid; abrupt smooth boundary.
C2—46 to 50 inches, olive gray (5Y 5/2) varved silt and very fine sand; varves are 3 millimeters thick; massive; firm; slightly acid; abrupt smooth boundary.
C3—50 to 54 inches, olive (5Y 5/3) varved silt and very fine sand; varves are 3 millimeters thick; massive; firm; medium acid; abrupt smooth boundary.
C4—54 to 65 inches, light yellowish brown (2.5Y 6/4) varved silt and very fine sand; massive; firm; slightly acid.

The solum thickness ranges from 20 to 42 inches. Reaction is strongly acid to neutral.

The A horizon has value of 3 or 4 and chroma of 2 or 3.

The B2 horizon has value of 2.5Y or 5Y, value of 4 or 5, and chroma of 3 or 4. It is silt loam or very fine sandy loam.

The C horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2 to 4. Layers of varved silt separated by thin layers of very fine sand are common at a depth of more than 40 inches.

Bernardston Variant

The Bernardston Variant consists of well drained, moderately permeable and slowly permeable soils that have moderate available water capacity and a hardpan at a depth of 15 to 36 inches. Bernardston Variant soils are on till plains in the communities of Hollis and Nashua. The glacial till is compact and stony and is derived from phyllite and mica schist. Slopes range from 0 to 35 percent.

Bernardston Variant soils are associated on the landscape with somewhat excessively drained Hollis soils, well drained Pennichuck soils, and moderately well

drained Pittstown Variant soils. Bernardston Variant and Pittstown Variant soils formed in similar parent material. Bernardston Variant soils are thicker than the Pennichuck or Hollis soils.

Typical pedon of Bernardston Variant fine sandy loam, 3 to 8 percent slopes, in the town of Hollis, 2,850 feet east of Route 122, 150 feet north of Blood Road, in a cornfield:

Ap—0 to 11 inches, dark brown (10YR 3/3) very fine sandy loam, light yellowish brown (2.5Y 6/4) dry; weak medium granular structure; very friable; common fine roots; 10 percent thin flat fragments up to 6 inches in diameter, 3 percent pebbles; neutral; abrupt smooth boundary.

B21—11 to 15 inches, light olive brown (2.5Y 5/4) very fine sandy loam; weak medium granular structure; friable; common fine roots; 10 percent thin flat fragments up to 6 inches in diameter, 5 percent pebbles; neutral; abrupt wavy boundary.

B22—15 to 22 inches, light yellowish brown (2.5Y 6/4) very fine sandy loam; weak medium granular structure; friable; few roots; 10 percent thin flat fragments up to 6 inches in diameter, 3 percent pebbles; neutral; clear wavy boundary.

Cx—22 to 60 inches; olive (5Y 5/3) fine sandy loam; lenses of light gray (5Y 7/2) loamy sand 1 to 3 millimeters thick; few medium distinct strong brown (7.5YR 5/6) mottles at a depth of 40 to 59 inches; moderate fine platy structure; firm; 10 percent thin flat fragments up to 6 inches in diameter, 10 percent pebbles; slightly acid.

The solum thickness and the depth to the hardpan range from 15 to 36 inches. Reaction ranges from strongly acid to neutral. Some pedons have a few mottles immediately above or within the hardpan.

The Ap horizon has a value of 3 or 4 and a chroma of 2 to 4. Unplowed areas have an A1 horizon with hue of 10YR, value of 3, and a chroma of 2. The A horizon is dominantly very fine sandy loam but includes fine sandy loam, loam, and their channery or gravelly analogues. The coarse-fragment content ranges from 0 to 25 percent. Structure is weak or moderate, fine or medium granular.

The B21 horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4 or 5. It is dominantly very fine sandy loam but includes fine sandy loam, sandy loam, and their channery or gravelly analogues. The structure is weak, fine or medium granular. The coarse-fragment content ranges from 10 to 25 percent.

The B22 horizon has hue of 10YR or 2.5Y and value of 5 or 6. It is dominantly very fine sandy loam but includes fine sandy loam, sandy loam, and their channery or gravelly analogues. The coarse-fragment content ranges from 10 to 30 percent.

In some pedons an A2 horizon is between the B2 and Cx horizons.

The Cx horizon has value of 4 or 5 and chroma of 2 or 3. It is dominantly fine sandy loam but includes sandy loam and channery or gravelly analogues. The coarse-fragment content ranges from 5 to 35 percent. Structure is dominantly moderate thin or thick platy but includes weak medium platy, or the horizon is massive. Consistence is firm or very firm, and the fragipan is brittle.

These soils are a variant of the Bernardston series because of the high base saturation between 25 and 75 centimeters and the fine sandy loam texture of the C horizon.

Binghamville series

The Binghamville series consists of poorly drained, moderately permeable and slowly permeable soils that have high available water capacity. Binghamville soils formed in thick, silty deposits of glaciolacustrine sediments. Slopes range from 0 to 3 percent.

Binghamville soils are associated on the landscape with excessively drained Windsor soils and moderately well drained Deerfield and Belgrade soils. Binghamville and Belgrade soils formed in similar parent material. Binghamville soils are finer textured than Windsor or Deerfield soils.

Typical pedon of Binghamville silt loam, 0 to 3 percent slopes, in the town of Merrimack, 3,000 feet northeast of the junction of Bedford Road and Pearson Road:

O1—2 inches to 0, undecomposed pine needles and leaves.

A1—0 to 5 inches, very dark gray (10YR 3/1) silt loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

B21g—5 to 12 inches, grayish brown (2.5Y 5/2) silt loam; few fine distinct strong brown (7.5YR 5/6) mottles; weak fine granular structure; friable; few fine roots; strongly acid; clear wavy boundary.

B22g—12 to 19 inches, light brownish gray (2.5Y 6/2) very fine sandy loam; common fine prominent strong brown (7.5YR 5/6) mottles; weak medium platy structure; friable; few fine roots; medium acid; clear wavy boundary.

C1g—19 to 28 inches, light brownish gray (2.5Y 6/2) very fine sandy loam; many medium prominent strong brown (7.5YR 5/6) mottles; moderate medium platy structure; firm; slightly acid; clear wavy boundary.

C2g—28 to 60 inches, olive gray (5Y 5/2) silt loam; common medium prominent strong brown (7.5YR 5/6) mottles; moderate medium platy structure; firm; neutral.

The solum thickness ranges from 17 to 21 inches. Strata less than 1 inch thick ranging from very fine sandy loam to fine sand are in the B and C horizons of some pedons.

The A horizon has value of 3 or 4 and chroma of 1 or 2. It is silt loam or very fine sandy loam. Reaction is strongly acid or medium acid.

The B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It is silt loam or very fine sandy loam. Mottles are distinct or prominent. Structure is weak or moderate platy, or the horizon is massive. Consistence is friable or firm. Reaction ranges from strongly acid to slightly acid.

The C horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 1 or 2. It is very fine sandy loam or silt loam. Mottles are distinct or prominent.

Borohemists

Borohemists are very poorly drained and consist of moderately decomposed organic material. The soils have moderate permeability and high available water capacity. Borohemists formed in organic deposits more than 16 inches thick. Borohemists are in depressions on terraces, outwash plains, and glacial till uplands and are along the margins of lakes and ponds throughout the survey area. Slopes range from 0 to 3 percent.

Borohemists are associated on the landscape with very poorly drained Scarboro, Chocorua, and Greenwood soils. Borohemists, Chocorua, and Greenwood soils formed in organic material, but the Chocorua and Greenwood soils are less variable in composition than Borohemists. The organic material in Borohemists is at least 16 inches thick, but the organic material in Scarboro soils is less than 16 inches thick over mineral material.

The organic material in Borohemists ranges in thickness from 16 inches to more than 51 inches. The reaction throughout ranges from extremely acid to strongly acid. The fibers are primarily herbaceous, but some pedons are up to 20 percent woody fragments.

The surface tier ranges from reddish brown hemic material to black sapric material. The subsurface tier is dominantly reddish brown or dusky red hemic material, but thin layers of sapric material or fibric material or layers of water are in some pedons.

Some pedons have a bottom tier that is dominantly hemic or sapric material. Some have a C horizon containing mineral soil that is strongly gleyed outwash, glacial till, or lacustrine deposits.

Canton series

The Canton series consists of well drained, moderately rapidly permeable and rapidly permeable soils that have moderate available water capacity. Canton soils formed in glacial till on uplands. The till is acid and stony and is derived from granite and gneiss. Slopes range from 0 to 35 percent but are dominantly 3 to 15 percent.

Canton soils are associated on the landscape with somewhat excessively drained Hollis soils and moderately well drained Scituate soils. Canton soils do not have the fragipan typical of Scituate soils and are deeper to bedrock than Hollis soils.

Typical pedon of Canton stony fine sandy loam, 8 to 15 percent slopes, in the town of Hollis, 550 feet southwest of the junction of Rocky Pond Road and an unnamed road, and 38 feet south of Rocky Pond Road:

O1—1-1/2 inches to 1/2 inch, loose litter of oak leaves and pine needles.
O2—1/2 inch to 0, decomposed leaves and needles.
A1—0 to 4 inches, dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.
B21—4 to 7 inches, yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; common fine roots; 5 percent pebbles; very strongly acid; clear wavy boundary.
B22—7 to 19 inches, yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; few fine roots; 5 percent pebbles; 10 percent cobblestones; strongly acid; clear wavy boundary.
IIC1—19 to 35 inches, pale brown (10YR 6/3) gravelly loamy sand; massive; friable; 25 percent pebbles, 10 percent cobblestones; strongly acid; clear wavy boundary.
IIC2—35 to 60 inches, light brownish gray (2.5Y 6/2) gravelly loamy sand; massive; friable; 30 percent pebbles, 15 percent cobblestones; very strongly acid.

The solum thickness ranges from 18 to 30 inches and corresponds closely to the depth to the sandy lithologic discontinuity. The rock-fragment content ranges from 5 to 40 percent in the solum and from 25 to 50 percent in the substratum. Reaction is very strongly or strongly acid.

The A horizon has value of 3 or 4 and chroma of 2 or 3. It is fine sandy loam or sandy loam.

The B21 horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. It is fine sandy loam or sandy loam.

The B22 horizon has hue of 10YR or 2.5Y and value of 5 or 6. It is fine sandy loam or sandy loam. Structure is weak granular, or the horizon is massive.

The IIC horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4. It is gravelly loamy sand or loamy sand and is single grain or massive. Consistence is friable or very friable.

Chatfield series

The Chatfield series consists of well drained, moderately permeable and moderately rapidly permeable soils that have low available water capacity and bedrock at a depth of 20 to 40 inches. Chatfield soils formed in a mantle of glacial till over bedrock on hills and ridgetops. The till is derived from schist, gneiss, and granite. Slopes

range from 3 to 35 percent but are dominantly 8 to 25 percent.

Chatfield soils are associated on the landscape with somewhat excessively drained Hollis soils and well drained Canton soils but are not as deep as Canton soils. Chatfield and Hollis soils are formed in similar parent material.

Typical pedon of Chatfield fine sandy loam, in an area of Chatfield-Hollis complex, 8 to 15 percent slopes, in the town of Bedford, 1,900 feet east of the junction of Wallace Road and Route 101:

O1—2-1/2 to 1-1/2 inches, undecomposed pine needles and oak leaves.
O2—1-1/2 inches to 0, decomposed leaf litter.
A1—0 to 4 inches, very dark grayish brown (10YR 3/2) and dark yellowish brown (10YR 4/4) fine sandy loam, light yellowish brown (10YR 6/4) dry; weak fine granular structure; very friable; few fine and medium roots; 5 percent pebbles, 10 percent cobblestones; very strongly acid; clear wavy boundary.
B2—4 to 24 inches, yellowish brown (10YR 5/6) sandy loam; weak fine granular structure; very friable; many fine roots; 5 percent pebbles, 10 percent cobblestones; strongly acid; abrupt wavy boundary.
R—24 inches, slightly weathered granite bedrock.

The solum thickness ranges from 16 to 33 inches. The depth to bedrock ranges from 20 to 40 inches. The coarse-fragment content ranges from 10 to 20 percent in the surface layer and 10 to 30 percent in the subsoil. Reaction is very strongly acid or strongly acid.

The A horizon has value of 3 or 4 and chroma of 2 to 4. It is dominantly fine sandy loam but includes loam and sandy loam.

The B horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6. It is fine sandy loam or sandy loam. Consistence is very friable or friable.

Some pedons have a C horizon with hue of 10YR, value of 5, and chroma of 2 to 4. It is fine sandy loam or sandy loam and has a coarse-fragment content of 15 to 30 percent. Consistence ranges from friable to firm.

Chocorua series

The Chocorua series consists of very poorly drained soils that are 16 to 38 inches of moderately decomposed organic material over sandy material. The Chocorua soils have moderate permeability in the organic material and rapid permeability in the sandy material. The available water capacity is high. Chocorua soils formed in depressions on outwash terraces, outwash plains, till uplands, and flood plains. Slopes range from 0 to 1 percent.

Chocorua soils are associated on the landscape with excessively drained Windsor and Hinckley soils, well drained Canton soils, moderately well drained Deerfield soils, poorly drained Pipestone soils, and very poorly drained Greenwood soils. Chocorua soils formed in organic material, but Windsor, Hinckley, Canton, Deerfield, and Pipestone soils formed in mineral material. Greenwood soils have more than 51 inches of organic material over mineral material.

Typical pedon of Chocorua mucky peat, in the town of Pelham, 2,000 feet east of Island Pond, 75 feet south of Spring Road:

Oe1—0 to 6 inches, very dark gray (5YR 3/1) mucky peat (hemic material) on broken faces, dark reddish brown (5YR 2/2) when rubbed; 55 percent fibers, 20 percent rubbed; massive parting to weak subangular blocky structure; nonsticky; common fine roots; sodium pyrophosphate extract (10YR 6/4); herbaceous fibers; very strongly acid; clear smooth boundary.
Oe2—6 to 13 inches, black (5YR 2/1) mucky peat (hemic material) on broken faces, dark reddish brown (5YR 2/2) when rubbed; 40 percent fibers, 20 percent rubbed; massive; nonsticky; sodium pyrophosphate extract (10YR 6/2); herbaceous fibers; very strongly acid; clear smooth boundary.
Oe3—13 to 22 inches, black (5YR 2/1) mucky peat (hemic material) on broken faces and when rubbed; 55 percent fibers, 20 percent rubbed; massive; nonsticky; sodium pyrophosphate extract (10YR 5/2); herbaceous fibers; very strongly acid; clear smooth boundary.
IIC1—22 to 26 inches, dark yellowish brown (10YR 4/4) gravelly loamy sand; massive; nonsticky; very strongly acid; clear smooth boundary.
IIC2—26 to 33 inches, olive gray (5Y 5/2) gravelly sandy loam; massive; nonsticky; strongly acid; abrupt wavy boundary.
IIC3—33 to 48 inches, light brownish gray (2.5Y 6/2) coarse sand; massive; nonsticky; no roots; strongly acid; abrupt wavy boundary.
IIC4—48 to 58 inches, light brownish gray (2.5Y 6/2) coarse sand; massive; nonsticky; medium acid; abrupt wavy boundary.
IIC5—58 to 63 inches; light brownish gray (2.5Y 6/2) loamy sand; massive; nonsticky; strongly acid.

The thickness of the organic material ranges from 15 to 50 inches. Slightly decomposed woody fragments comprise 5 to 15 percent, by volume, of the organic material.

The surface tier has broken face and rubbed hue of 5YR or 7.5YR, value of 2 to 3, and chroma of 0 to 2. Structure is granular, or the tier is massive.

The subsurface and bottom tiers have hue of 5YR or 7.5YR and chroma of 0 to 2.

The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 to 4. It ranges from sandy loam to coarse sand and their gravelly analogues. Reaction ranges from very strongly acid to medium acid.

Deerfield series

The Deerfield series consists of moderately well drained, rapidly permeable and very rapidly permeable soils that have low available water capacity. Deerfield soils formed in thick, sandy glacial outwash on terraces and outwash plains. The outwash is derived from granite and gneiss. Slopes range from 0 to 8 percent.

Deerfield soils are associated on the landscape with excessively drained Windsor soils and poorly drained Pipestone and Saugatuck soils. Deerfield soils and the associated soils formed in similar parent material. Deerfield soils do not have the ortstein typical of Saugatuck soils.

Typical pedon of Deerfield loamy fine sand, 0 to 3 percent slopes, in the town of Litchfield, 1,700 feet west-southwest of the intersection of Route 102 and Litchfield-Hudson town line:

O1—1 inch to 0, loose leaf litter of pine needles.

Ap—0 to 9 inches, very dark grayish brown (10YR 3/2) loamy fine sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear wavy boundary.

B2—9 to 20 inches, yellowish brown (10YR 5/6) loamy fine sand; weak fine granular structure; very friable; few fine roots; very strongly acid; clear wavy boundary.

C1—20 to 36 inches, yellowish brown (10YR 5/4) loamy sand; few fine faint light brownish gray (10YR 6/2) mottles; massive; loose; very strongly acid; clear wavy boundary.

C2—36 to 50 inches, pale brown (10YR 6/2) sand; common medium faint light brownish gray (10YR 6/2) mottles and common medium distinct strong brown (7.5YR 5/8) mottles; single grain; nonsticky; very strongly acid; clear wavy boundary.

C3—50 to 60 inches, light brownish gray (10YR 6/2) sand; common medium distinct strong brown (7.5YR 5/8) and yellowish red (5YR 4/8) mottles; single grain; nonsticky; very strongly acid.

The solum thickness ranges from 17 to 28 inches. The coarse-fragment content ranges from 0 to 5 percent in the solum and 0 to 15 percent in the substratum. In unlimed areas reaction ranges from very strongly acid to medium acid throughout. The depth to mottling ranges from 15 to 32 inches.

The Ap horizon has a value of 2 or 3. It ranges from sandy loam to loamy sand.

The B horizon has value of 4 to 6 and chroma of 4 to 6. It ranges from loamy sand to coarse sand.

The C horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4. It ranges from loamy sand to coarse sand that is mottled in some pedons.

Greenwood series

The Greenwood series consists of very poorly drained soils that are partly decomposed organic material. The Greenwood soils have moderate permeability and high available water capacity. They formed in organic deposits more than 51 inches thick in depressions on outwash terraces, outwash plains, and till uplands. Slopes range from 0 to 3 percent.

Greenwood soils are associated on the landscape with excessively drained Windsor and Hinckley soils, poorly drained Ridgebury and Leicester soils, and very poorly drained Scarboro and Chocorua soils. Greenwood soils formed in organic material, but Windsor, Hinckley, Ridgebury, Leicester, and Scarboro soils formed in mineral material. The organic material in Greenwood soils is more than 51 inches thick, and the organic material in Chocorua soils is less than 51 inches thick.

Typical pedon of Greenwood mucky peat, in the town of Pelham, on the north side of N.H. Route 38:

Oe1—0 to 10 inches, very dusky red (2.5YR 2/2) mucky peat (hemic material) on broken face and when rubbed; 40 percent fibers, 25 percent rubbed; massive; slightly sticky; common fine roots; sodium pyrophosphate extract (10YR 7/3); herbaceous fibers; very strongly acid; clear smooth boundary.

Oe2—10 to 27 inches very dusky red (2.5YR 2/2) mucky peat (hemic material) on broken face, black (10YR 2/1) when rubbed; 35 percent fibers, 25 percent rubbed; massive; slightly sticky; sodium phrophosphate extract (10YR 7/3); herbaceous fibers; very strongly acid; clear smooth boundary.

Oe3—27 to 40 inches, dark reddish brown (2.5YR 2/4) mucky peat (hemic material) on broken face, very dusky red (2.5YR 2/2) when rubbed; 30 percent fibers, 15 percent rubbed; massive; slightly sticky; sodium pyrophosphate extract (10YR 7/3); herbaceous fibers; strongly acid; clear smooth boundary.

Oe4—40 to 61 inches, very dusky red (2.5YR 2/2) mucky peat (hemic material) on broken face and when rubbed; 30 percent fibers, 20 percent rubbed; weak medium subangular blocky structure; nonsticky; sodium pyrophosphate extract (10YR 7/4); herbaceous fibers; very strongly acid.

The thickness of the organic material exceeds 51 inches. The fibers are primarily herbaceous, but some pedons are up to 20 percent woody fragments.

The surface tier has a broken face and rubbed hue of 2.5YR through 5YR and value of 2 or 3. The fiber content ranges from 35 to 65 percent undisturbed and from 10 to 30 percent rubbed.

The subsurface tier has a broken face and rubbed hue of 2.5YR through 10YR, value of 2 or 3, and chroma of 1 to 4. The fiber content ranges from 15 to 30 percent rubbed. Structure is weak, medium subangular blocky, or the tier is massive.

The bottom tier has a broken face and rubbed hue of 2.5YR through 10YR, value of 2 to 3, and chroma of 2 to 4. The fiber content ranges from 30 to 65 percent undisturbed and 10 to 35 percent rubbed. Structure is weak, medium subangular blocky, thick platy, or the tier is massive.

Hinckley series

The Hinckley series consists of excessively drained, rapidly permeable and very rapidly permeable soils that have very low available water capacity. Hinckley soils formed in deep glaciofluvial deposits of sand, gravel, and cobblestones on terraces, outwash plains, kames, and eskers. The deposits are derived from granite, gneiss, and schist. Slopes range from 0 to 35 percent.

Hinckley soils are associated on the landscape with excessively drained Windsor soils, well drained Canton soils, and moderately well drained Deerfield soils. Hinckley soils have more gravel and cobblestones than Windsor or Deerfield soils. Hinckley soils formed in glacial outwash, but Canton soils formed in stony glacial till.

Typical pedon of Hinckley loamy sand, 8 to 15 percent slopes, in the town of Merrimack, on the west side of Camp Sargent Road, in the Merrimack Village Water District forest:

O1—2 inches to 0, loose leaf litter of fresh pine needles.
A1—0 to 3 inches, very dark brown (10YR 2/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; 10 percent pebbles; very strongly acid; abrupt and wavy boundary.
B2—3 to 21 inches, yellowish brown (10YR 5/6) gravelly loamy sand; weak fine granular structure; very friable; common fine and medium roots; 30 percent pebbles, 10 percent cobblestones; strongly acid; clear and wavy boundary.
C1—21 to 37 inches, pale brown (10YR 6/3) gravelly coarse sand; single grain; loose; very few fine roots; 45 percent pebbles; very strongly acid; clear and wavy boundary.
C2—37 to 60 inches, brownish yellow (10YR 6/6) very gravelly coarse sand; single grain; loose; 55 percent pebbles; 5 percent cobblestones; strongly acid.

The solum thickness ranges from 14 to 29 inches. Pebbles and cobblestones make up 15 to 35 percent of the solum and 35 to 70 percent of the C horizon. Reaction ranges from very strongly acid to medium acid.

The A horizon has value of 2 or 3 and chroma of 1 to 3. Value of 2 is only in the A1 horizon. The A horizon ranges from fine sandy loam to sand and their gravelly analogues.

The B2 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 8. It ranges from fine sandy loam to loamy sand and their gravelly analogues to a depth of 10 inches, and from loamy sand to gravelly loamy coarse sand at a depth of more than 10 inches.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 8. It ranges from gravelly loamy sand to very gravelly coarse sand and is stratified.

Hollis series

The Hollis series consists of somewhat excessively drained soils that have moderate or moderately rapid permeability, very low available water capacity, and bedrock at a depth of 10 to 20 inches. Hollis soils formed on hilltops and ridges in a thin mantle of glacial till over bedrock. The till is derived from schist, gneiss, and granite. Slopes range from 3 to 35 percent but are dominantly 8 to 25 percent.

Hollis soils are associated on the landscape with well drained Canton and Chatfield soils and in this survey area are mapped only with those two soils. Hollis soils are shallower to bedrock than Canton or Chatfield soils. Hollis and Chatfield soils formed in similar parent material.

Typical pedon of Hollis fine sandy loam, in a forested area of Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes, in the town of Pelham, 3,300 feet west of N.H. Route 123, and 200 feet north of Bush Hill Road:

O2—1 inch to 0, decayed leaves and twigs.
A1—0 to 4 inches, dark brown (10YR 3/3) fine sandy loam, light yellowish brown (10YR 6/4) dry; weak fine granular structure; very friable; many fine roots; very strongly acid; clear wavy boundary.
B2—4 to 19 inches, yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; 10 percent cobblestones; very strongly acid; abrupt wavy boundary.
R—19 inches, unweathered granite bedrock.

The solum thickness and depth to bedrock range from 10 to 20 inches. Rock fragments of pebbles, cobblestones, and stones make up 5 to 25 percent of the solum. Reaction is very strongly acid or strongly acid throughout.

The A horizon has a value of 2 to 4 and chroma of 2 or 3. It ranges from fine sandy loam to loam.

The B2 horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8. It is fine sandy loam or sandy loam.

A thin C horizon is in some pedons.

Leicester series

The Leicester series consists of poorly drained soils that have moderate or moderately rapid permeability and moderate available water capacity. Leicester soils are on uplands and formed in loamy glacial till in slightly concave areas and drainageways. The till is derived from schist, gneiss, and granite. Slopes range from 0 to 8 percent.

Leicester soils are associated on the landscape with somewhat excessively drained Hollis soils, well drained Canton soils, moderately well drained Scituate soils, poorly drained Walpole soils, and very poorly drained Scarboro soils. Leicester soils are finer textured in the substratum than Walpole soils, are finer textured throughout than Scarboro soils, and are deeper to bedrock than Hollis soils.

Typical pedon of Leicester loam, in an area of Leicester-Walpole complex, 0 to 3 percent slopes, in the town of Milford, 1,900 feet north-northeast of Union Square:

Ap—0 to 9 inches, very dark grayish brown (10YR 3/2) loam; moderate fine granular structure; friable; many roots; 5 percent pebbles; strongly acid; clear wavy boundary.

B21—9 to 14 inches, grayish brown (10YR 5/2) fine sandy loam; common fine faint brown (7.5YR 5/4) mottles; weak medium subangular blocky structure; friable; common roots; 5 percent pebbles, 5 percent cobblestones; acid; clear wavy boundary.

B22—14 to 22 inches, grayish brown (10YR 5/2) fine sandy loam; common medium distinct reddish brown (5YR 5/4) mottles; moderate coarse subangular blocky structure; friable; few fine roots; 10 percent pebbles, 5 percent cobblestones; strongly acid; clear wavy boundary.

C1—22 to 38 inches, light brownish gray (10YR 6/2) sandy loam; many medium prominent yellowish red (5YR 4/6) mottles; moderate coarse subangular blocky structure; friable; 10 percent pebbles, 5 percent cobblestones, 5 percent stones; very strongly acid; clear wavy boundary.

C2—38 to 60 inches, light gray (5Y 6/1) gravelly sandy loam; massive; friable; 15 percent pebbles, 5 percent cobblestones, 5 percent stones; very strongly acid.

The solum thickness ranges from 20 to 30 inches. The coarse-fragment content ranges from 5 to 30 percent in the A horizon, from 10 to 25 percent in the B horizon, and from 15 to 40 percent in the C horizon. Reaction ranges from very strongly acid to medium acid.

The A horizon has value of 2 or 3 and chroma of 1 or 2. It ranges from loam to sandy loam. Consistence is friable or very friable.

The B21 horizon has value of 4 to 6 and chroma of 1 or 2. It is fine sandy loam or sandy loam. Structure is weak granular or weak subangular blocky.

The B22 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4. It is fine sandy loam or sandy loam. Structure is weak or moderate, medium or coarse, granular or subangular blocky.

The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 3. It is fine sandy loam, sandy loam, or gravelly sandy loam. Consistence is friable or firm. Distinct or prominent mottles become less abundant with depth.

Leicester Variant

The Leicester Variant consists of poorly drained, moderately permeable, moderately rapidly permeable, and rapidly permeable soils that have moderate available water capacity. Leicester Variant soils are on uplands and formed in loamy glacial till in slightly concave areas and drainageways. The till is derived from phyllite and mica schist. Slopes range from 0 to 80 percent.

Leicester Variant soils are associated on the landscape with well drained Pennichuck and Bernardston Variant soils and moderately well drained Pittstown Variant soils. Leicester Variant soils are deeper to bedrock than the Pennichuck soils. Leicester Variant, Bernardston Variant, and Pittstown Variant soils formed in similar material, but Leicester Variant soils are wetter and do not have a fragipan.

Typical pedon of Leicester Variant loam, 0 to 3 percent slopes, in Hollis, 2,700 feet southeast of the junction of N.H. Route 122 and Merrill Lane:

O1—1/2 inch to 0, twigs, ferns, and leaves.

Ap—0 to 8 inches, very dark gray (10YR 3/1) loam; moderate fine granular structure; friable; many fine and medium roots; 5 percent thin flat fragments up to 6 inches in length; slightly acid; abrupt smooth boundary.

B21g—8 to 27 inches, olive gray (5Y 5/2) very fine sandy loam; many medium distinct yellowish brown (10YR 5/6) mottles; weak fine granular; friable; 7 percent thin flat fragments up to 6 inches in length; slightly acid; clear smooth boundary.

B22g—27 to 36 inches, olive gray (5Y 5/2) loam; common medium distinct yellowish brown (10YR 5/6) mottles and common coarse faint light brownish gray (2.5Y 6/2) mottles; weak fine granular; friable; 7 percent thin flat fragments up to 6 inches in length; slightly acid; abrupt smooth boundary.

C1—36 to 45 inches, olive (5Y 5/3) channery fine sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles and common coarse faint light brownish gray (2.5Y 6/2) mottles; massive; friable; 20 percent thin flat fragments; slightly acid; abrupt wavy boundary.

C2—45 to 65 inches, olive (5Y 5/3) very channery fine sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles and common coarse faint light brownish gray (2.5Y 6/2) mottles; massive; friable; 60 percent thin flat fragments; 15 percent cobblestones; slightly acid.

The solum thickness ranges from 20 to 36 inches. Rock fragments make up 10 to 30 percent of the Ap horizon, 15 to 40 percent of the B horizon, and 35 to 50 percent of the C horizon. Reaction ranges from strongly acid to neutral throughout.

The A1 or Ap horizon has value of 2 or 3 and chroma of 1 or 2. The A horizon is loam, very fine sandy loam, or fine sandy loam. Consistence is very friable or friable.

The B horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 1 or 2. It is loam, very fine sandy loam, or gravelly fine sandy loam. Structure is weak subangular blocky or weak granular, or the horizon is massive.

The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 1 to 3. It is channery fine sandy loam, very channery fine sandy loam, and very channery sandy loam. Consistence is friable to firm.

These soils are a variant of the Leicester series because of the high content of channery rock fragments in the C horizon and the loam and very fine sandy loam in the B2 horizon.

Montauk series

The Montauk series consists of well drained, moderately permeable and slowly permeable soils that have moderate available water capacity and a hardpan at a depth of 18 to 36 inches. Montauk soils formed in loamy material over thick, compact sandy glacial till on drumlins and ridges. The till is derived from granite, schist, and gneiss and is acid. Slopes range from 3 to 25 percent.

Montauk soils are associated on the landscape with well drained Canton and Paxton soils and moderately well drained Scituate soils. Montauk soils are better drained than Scituate soils. Canton soils do not have a hardpan.

Typical pedon of Montauk stony fine sandy loam, 3 to 8 percent slopes, in the town of Hudson, 2,200 feet west of Highland Street and 235 feet north of Rocky Hill Road:

O1—1-1/2 inches to 1 inch, loose litter of leaves and pine needles.
O2—1 inch to 0, decomposed leaf litter.
A1—0 to 2 inches, dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many roots; 5 percent pebbles; very strongly acid; clear wavy boundary.
B21—2 to 16 inches, yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; common roots; 5 percent fine pebbles, 15 percent cobblestones; strongly acid; clear wavy boundary.
B22—16 to 26 inches, yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; few roots; 10 percent pebbles, 5 percent cobblestones; medium acid; clear wavy boundary.
C1x—26 to 32 inches, olive gray (5Y 5/2) gravelly sandy loam; moderate medium platy structure; firm; 15 percent pebbles, 5 percent cobbles; medium acid; clear wavy boundary.
IIC2x—32 to 60 inches, light olive gray (5Y 6/2) gravelly loamy sand; moderate medium platy structure; firm; 15 percent pebbles, 10 percent cobblestones; medium acid.

The solum thickness and depth to the fragipan range from 18 to 36 inches. The coarse-fragment content ranges from 5 to 20 percent in the solum and 10 to 35 percent in the hardpan. Reaction ranges from very strongly acid to medium acid throughout.

The A horizon has value of 3 or 4 and chroma of 2 or 3. It is dominantly fine sandy loam or sandy loam but is loam in some areas. Consistence is friable or very friable. A thin A2 horizon is in some pedons in the northwestern part of the survey area.

The B horizon has hue of 7.5YR to 2.5Y and value and chroma of 4 to 6. It is fine sandy loam or sandy loam. Structure is weak granular, or the horizon is massive in the lower part.

The Cx horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 2 to 4. It is mainly loamy sand or gravelly loamy sand but ranges to sandy loam, gravelly sandy loam, and fine sandy loam in the upper part. Structure is weak or moderate medium platy, or the horizon is massive. Loose or friable sand layers 1/8 to 1 inch thick with horizontal orientation are characteristic of the hardpan.

Ninigret series

The Ninigret series consists of moderately well drained soils that have moderately rapid permeability and moderate available water capacity. Ninigret soils formed on outwash plains and stream terraces in thick, sandy deposits capped with thin, loamy deposits. The outwash is derived from crystalline rock. Slopes range from 0 to 8 percent.

Ninigret soils are associated on the landscape with well drained Agawam soils and moderately well drained Deerfield soils. Ninigret and Agawam soils formed in similar parent material. Ninigret soils have a loamy cap and are not as coarse textured as Deerfield soils.

Typical pedon of Ninigret very fine sandy loam, 0 to 3 percent slopes, in the town of Hudson, 3,000 feet west of the junction of Route 3A and Chalifoux Road, and 650 feet south of Chalifoux Road:

Ap—0 to 9 inches, very dark grayish brown (10YR 3/2) very fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.
B2—9 to 23 inches, yellowish brown (10YR 5/6) very fine sandy loam; few fine distinct strong brown (7.5YR 5/8) mottles; weak fine granular structure; very friable; common fine roots; medium acid; abrupt wavy boundary.
IIC1—23 to 43 inches, olive (5Y 5/4) fine sand; common medium distinct yellowish brown (10YR 5/6) mottles and common medium faint light olive gray (5Y 6/2) mottles; massive; very friable; few fine roots; medium acid; clear wavy boundary.
IIC2—43 to 67 inches, light olive brown (2.5Y 5/4) fine sand; common medium distinct yellowish red (5YR

4/8) mottles and few fine faint olive (5Y 5/3) mottles; massive; loose; medium acid; clear wavy boundary.
IIC3—67 to 79 inches, olive (5Y 5/4) sand; massive; loose; medium acid.

The thickness of the solum and the depth to the lithologic discontinuity range from 20 to 30 inches. Reaction is strongly acid or medium acid.

The Ap horizon has value of 2 or 3 and chroma of 2 to 4. It is very fine sandy loam or fine sandy loam.

The B horizon has hue of 10YR or 2.5Y and chroma of 4 to 6. It is mainly very fine sandy loam or fine sandy loam and has loamy fine sand lenses less than 5 inches thick in the lower part.

The C horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 2 to 6. It ranges from loamy fine sand to coarse sand.

Occum series

The Occum series consists of well drained, moderately rapidly permeable and rapidly permeable soils that have high available water capacity and that are frequently or rarely flooded. Occum soils formed in flood-plain deposits bordering major stream channels. The deposits are derived from gneiss, schist, and granite. Slopes range from 0 to 3 percent.

Occum soils are associated on the landscape with excessively drained Windsor soils, well drained Agawam soils, and moderately well drained Pootatuck soils. Occum and Pootatuck soils formed in similar parent material. Occum soils are finer textured than Windsor soils and formed in alluvial parent material at a lower elevation than Windsor or Agawam soils.

Typical pedon of Occum fine sandy loam, high bottom, in the town of Litchfield, 100 feet east of the Merrimack River and 3,400 feet upstream from the Litchfield-Hudson town line:

Ap—0 to 9 inches, dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; many roots; medium acid; abrupt wavy boundary.
B2—9 to 25 inches, yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; common roots; strongly acid; clear wavy boundary.
IIC—25 to 60 inches, yellowish brown (10YR 5/4) loamy fine sand; massive; friable; few roots; strongly acid.

The solum thickness ranges from 20 to 35 inches. Reaction is strongly acid to medium acid throughout.

The A horizon has value of 3 or 4 and chroma of 2 to 4. It is fine sandy loam or sandy loam. Structure is weak, fine, or medium granular.

The B horizon has hue of 10YR or 2.5Y and value and chroma of 3 to 6. It is sandy loam or fine sandy loam. Consistence is friable or very friable.

The IIC horizon has hue of 10YR or 5Y, value of 3 to 5, and chroma of 2 to 6. It ranges from loamy fine sand to fine sand.

Paxton series

The Paxton series consists of well drained, moderately permeable and slowly permeable soils that have moderate available water capacity and have a hardpan at a depth of 15 to 36 inches. Paxton soils formed on drumlins and glacial till uplands. The till is compact, acid, and stony and is derived from mica schist and granite. Slopes range from 3 to 35 percent.

Paxton soils are associated on the landscape with somewhat excessively drained Hollis soils, moderately well drained Woodbridge soils, and poorly drained Ridgebury soils. Paxton, Woodbridge, and Ridgebury soils formed in similar parent material. Paxton soils are deeper to bedrock than are Hollis soils.

Typical pedon of Paxton fine sandy loam, 15 to 25 percent slopes, in the town of Amherst, 1,350 feet north and 300 feet west of N.H. Route 101 on the Amherst-Bedford town line:

Ap—0 to 5 inches, dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; 5 percent pebbles; medium acid; abrupt wavy boundary.
B21—5 to 11 inches, yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; few fine roots; 10 percent pebbles; slightly acid; clear wavy boundary.
B22—11 to 24 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; weak fine granular structure; friable; few fine roots; 10 percent pebbles; slightly acid; clear wavy boundary.
Cx—24 to 60 inches, olive (5Y 5/3) fine sandy loamy; weak thick platy structure; very firm; 5 percent pebbles; medium acid.

The solum thickness and depth to the hardpan range from 15 to 36 inches. Reaction ranges from strongly acid to slightly acid throughout. Some pedons have a few mottles immediately above or within the fragipan.

The Ap horizon has value of 3 or 4 and chroma of 2 to 4. An A1 horizon in unplowed areas has hue of 10YR, value of 3, and chroma of 2. The A horizon is dominantly fine sandy loam but includes sandy loam, loam, and their gravelly analogues. The coarse-fragment content ranges from 10 to 25 percent. Structure is weak or moderate, fine or medium, granular.

The B21 horizon is dominantly fine sandy loam but includes gravelly sandy loam and gravelly fine sandy loam. The coarse-fragment content ranges from 10 to 25 percent.

The B22 horizon has hue of 10YR and value of 5 or hue of 2.5Y and value of 5 or 6. It is dominantly fine sandy loam but includes gravelly sandy loam and

gravelly fine sandy loam. The coarse-fragment content ranges from 10 to 35 percent.

An A2 horizon is in some pedons between the B2 and Cx horizons.

The Cx horizon has hue of 2.5Y, value of 4, and chroma of 2; or hue of 5Y, value of 4 or 5, and chroma of 2 or 3. It is dominantly fine sandy loam but includes sandy loam and gravelly analogues. The coarse-fragment content ranges from 15 to 30 percent. Structure is dominantly moderate thick platy but includes weak medium platy, or the horizon is massive. Consistence is firm or very firm and is brittle.

Pennichuck series

The Pennichuck series consists of moderately deep, well drained soils that have moderate permeability, moderate available water capacity, and bedrock at a depth of 20 to 40 inches. Pennichuck soils formed in channery loamy glacial till over bedrock on till plains and slopes. The till is derived from phyllite and mica schist. Slopes range from 0 to 25 percent.

Pennichuck soils are associated on the landscape with somewhat excessively drained, shallow Hollis soils and well drained, deep Canton and Bernardston soils. Pennichuck soils have more coarse fragments than Hollis, Canton, or Bernardston soils, and the coarse fragments in the Pennichuck soils are channery rather than gravelly.

Typical pedon of Pennichuck channery fine sandy loam, 3 to 8 percent slopes, in the town of Hollis, 2,100 feet south, 55 degrees west of the Hollis town hall and 175 feet north of Love Lane:

Ap—0 to 9 inches, dark brown (10YR 3/3) channery fine sandy loam; weak fine granular structure; very friable; common fine roots; 20 percent thin flat fragments, 5 percent pebbles; neutral; abrupt smooth boundary.

B21—9 to 16 inches, yellowish brown (10YR 5/6) channery fine sandy loam; weak fine granular structure; friable; few medium and fine roots; 20 percent thin flat fragments, 10 percent pebbles; neutral; clear wavy boundary.

B22—16 to 21 inches, yellowish brown (10YR 5/6) channery fine sandy loam; massive; friable; few medium and fine roots; 30 percent thin flat fragments, 10 percent pebbles; neutral; clear wavy boundary.

B23—21 to 24 inches, yellowish brown (10YR 5/4) channery fine sandy loam; massive; friable; few medium and fine roots; 30 percent thin flat fragments and 5 percent pebbles; neutral; clear wavy boundary.

C—24 to 36 inches, yellowish brown (10YR 5/4) very channery fine sandy loam; massive; firm; few medium and fine roots; 80 percent thin flat fragments; neutral; clear wavy boundary.

R—36 inches, unweathered gray (5Y 6/1) phyllite bedrock.

The solum thickness ranges from 17 to 28 inches. The depth to bedrock ranges from 20 to 40 inches. Channery rock fragments make up 10 to 60 percent, by volume, of the solum and 45 to 80 percent of the C horizon. Reaction ranges from medium acid to neutral throughout.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. In some forested areas the A horizon has hue of 5YR, value of 2.5 or 3, and chroma of 1 to 3. The A horizon is dominantly channery fine sandy loam but is channery loam, very channery loam, channery fine sandy loam, or channery sandy loam in some areas. Structure is dominantly weak fine granular but ranges to moderate medium granular in some pedons. Consistency is very friable or friable.

The B horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8; or hue of 2.5Y, value of 4 or 5, and chroma of 4. It is fine sandy loam, channery or very channery fine sandy loam, channery loam, or channery sandy loam. Structure is dominantly weak fine granular, but is moderate medium or coarse granular in some areas and massive in some others. Consistency is very friable or friable.

The C horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 2 to 4. It ranges from fine sandy loam to very channery fine sandy loam. Structure is weak fine granular, or the horizon is massive. Consistency ranges from very friable to firm.

Pipestone series

The Pipestone series consists of poorly drained soils that have rapid permeability and low available water capacity. Pipestone soils formed in shallow depressions in terraces, outwash plains, and sandy lake plains. The outwash is derived from crystalline rock. Slopes range from 0 to 8 percent.

Pipestone soils are associated on the landscape with moderately well drained Deerfield soils and poorly drained Leicester and Saugatuck soils. Pipestone, Deerfield, and Saugatuck soils formed in similar parent material, but Pipestone soils have less ortstein than Saugatuck soils. Pipestone soils are nonstony and are not as fine textured as Leicester soils.

Typical pedon of Pipestone loamy sand, 0 to 3 percent slopes, in the town of Amherst, 1,550 feet west of the junction of Upham and Old County Roads and 50 feet north of Old County Road:

O1—1-1/2 inches to 1/2 inch, fresh leaf litter.

O2—1/2 inch to 0, decomposed hardwood leaves.

A1—0 to 3 inches, black (10YR 2/1) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt wavy boundary.

A2—3 to 9 inches, grayish brown (10YR 5/2) sand; single grain; loose; strongly acid; abrupt wavy boundary.

B21hir—9 to 12 inches, dark reddish brown (2.5YR 2/4) sand; single grain; loose; strongly acid; abrupt smooth boundary.
B22—12 to 22 inches, yellowish brown (10YR 5/6) sand; common fine distinct yellowish red (5YR 5/8) mottles; single grain; loose; strongly acid; clear wavy boundary.
C1—22 to 41 inches, yellowish brown (10YR 5/6) coarse sand; many medium distinct strong brown (7.5YR 5/6) mottles; single grain; loose; medium acid; clear wavy boundary.
C2—41 to 61 inches, yellowish brown (10YR 5/4) coarse sand; common medium distinct strong brown (7.5YR 5/8) mottles; single grain; loose; medium acid.

The solum thickness ranges from 20 to 30 inches. Reaction ranges from very strongly acid to medium acid throughout.

The A1 horizon has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2.

The A2 horizon has hue of 10YR or 7.5YR, value of 5 to 7, and chroma of 1 to 3. It is loamy sand or sand.

The B21 horizon has hue of 2.5YR to 10YR, value of 2 to 4, and chroma of 3 or 4. It is loamy sand or sand. The amount of ortstein ranges from 0 to 30 percent.

The B22 horizon has value of 4 to 6 and chroma of 4 to 6. It is loamy sand or sand and contains faint to distinct mottles.

The C horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 2 to 6. It ranges from loamy sand to coarse sand.

Pittstown Variant

The Pittstown Variant consists of moderately well drained, moderately permeable and slowly permeable soils that have moderate available water capacity and a hardpan at a depth of 15 to 30 inches. The soils formed in glacial till on drumlins on the uplands. The till is compact and stony and is derived from phyllite and mica schist. Slopes range from 0 to 8 percent.

Pittstown Variant soils are associated on the landscape with well drained Bernardston Variant soils, poorly drained Ridgebury soils, and very poorly drained Scarboro soils. Pittstown Variant, Bernardston Variant, and Ridgebury soils formed in similar parent material. Pittstown Variant soils are finer textured than Scarboro soils.

Typical pedon of Pittstown Variant loam, 3 to 8 percent slopes, in the town of Hollis, 1,900 feet east of Route 122 on Blood Road, 200 feet north of Blood Road, in a cornfield:

Ap—0 to 10 inches, very dark grayish brown (2.5Y 3/2) loam; moderate fine granular structure; very friable; common fine roots; 10 percent thin flat fragments, 5 percent pebbles; neutral; abrupt smooth boundary
B2—10 to 19 inches, light olive brown (2.5Y 5/4) very fine sandy loam; moderate medium granular structure; friable; few fine roots; 7 percent thin flat fragments, 3 percent pebbles; neutral; abrupt wavy boundary.
Cx—19 to 60 inches, olive (5Y 5/3) very fine sandy loam; common coarse faint gray (5Y 6/1) mottles and common medium distinct strong brown (7.5YR 5/6) mottles; moderate medium platy structure; firm; 10 percent thin flat fragments, 5 percent pebbles; slightly acid.

The solum thickness and depth to the hardpan range from 15 to 30 inches. The content of coarse fragments ranges from 10 to 30 percent in the A horizon and from 10 to 40 percent in the B and C horizons. Reaction ranges from strongly acid to neutral.

The Ap horizon has value of 2 or 3 and a chroma of 1 or 2. It is very fine sandy loam, fine sandy loam, or loam and channery or gravelly analogues. Structure is weak or moderate fine or medium granular.

The B2 horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4 to 6. It is very fine sandy loam, fine sandy loam, or loam and channery or gravelly analogues. Structure is weak or moderate fine or medium granular.

The Cx horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2 or 3. It is very fine sandy loam, fine sandy loam, or sandy loam and channery or gravelly analogues. Structure is dominantly moderate thin or thick platy but includes weak medium platy, or the horizon is massive. Consistence is firm or very firm and brittle.

These soils are a variant of the Pittstown series because of the high base saturation throughout the profile.

Pootatuck series

The Pootatuck series consists of moderately well drained soils that have moderate or moderately rapid and rapid permeability. The soils have moderate available water capacity and are frequently flooded. They formed in flood-plain deposits bordering major stream channels. The deposits are derived from gneiss, schist, and granite. Slopes range from 0 to 3 percent.

Pootatuck soils are associated on the landscape with well drained Occum soils, moderately well drained Ninigret soils, poorly drained Rippowam soils, and very poorly drained Saco Variant soils. Pootatuck, Occum, and Rippowam soils formed in similar parent material. Pootatuck soils are not as fine textured as Saco Variant soils and formed in alluvial parent material at an elevation below that of the Ninigret soils.

Typical pedon of Pootatuck fine sandy loam, in the town of Amherst, 700 feet south of the bridge on Boston Post Road over the Souhegan River, in an abandoned field:

Ap—0 to 8 inches, dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; slightly acid; clear wavy boundary.

B2—8 to 33 inches, dark brown (10YR 4/3) fine sandy loam; common medium faint dark grayish brown (10YR 4/2) mottles, many medium faint grayish brown (2.5Y 5/2) mottles, and common fine distinct brown (7.5YR 4/4) mottles; weak medium granular structure; friable; few fine roots; slightly acid; clear wavy boundary.
C1—33 to 38 inches, grayish brown (2.5Y 5/2) fine sandy loam; common fine distinct brown (7.5YR 4/4) mottles; massive; friable; medium acid; clear wavy boundary.
IIC2—38 to 63 inches, light brownish gray (2.5Y 6/2) fine sand; common medium distinct yellowish brown (10YR 5/6) mottles; single grain; loose; medium acid.

The solum thickness ranges from 20 to 33 inches. Reaction ranges from slightly acid to very strongly acid throughout in unlimed areas.

The A horizon has chroma of 2 or 3. It is fine sandy loam or sandy loam.

The B horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4. It is fine sandy loam or sandy loam. Strata less than 5 inches thick ranging from loamy very fine sand to sand are in some pedons.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. It has distinct or prominent, high-chroma mottles. It ranges from loamy fine sand to sand.

Ridgebury series

The Ridgebury series consists of poorly drained, moderately permeable and slowly permeable soils that have low available water capacity and a hardpan at a depth of 10 to 28 inches. Ridgebury soils formed in the slightly concave areas and drainageways of glacial till uplands. The till is derived from granite, gneiss, and schist. Slopes range from 0 to 8 percent.

Ridgebury soils are associated on the landscape with well drained Paxton soils, moderately well drained Woodbridge soils, and very poorly drained Scarboro soils. Ridgebury, Paxton, and Woodbridge soils formed in similar parent material. Ridgebury soils are finer textured than Scarboro soils.

Typical pedon of Ridgebury loam, 0 to 3 percent slopes, in the town of Amherst, on the Huntington Farm on Chestnut Hill Road, 300 feet south of the farmhouse, in a silage cornfield:

Ap—0 to 9 inches, very dark brown (10YR 2/2) loam; weak fine granular structure; friable; many fine and medium roots; 5 percent pebbles; medium acid; abrupt smooth boundary.
B2g—9 to 19 inches, gray (10YR 6/1) fine sandy loam; common medium prominent yellowish red (5YR 5/8) mottles; weak medium platy structure; friable; few fine roots; 5 percent pebbles; medium acid; clear wavy boundary.
Cx—19 to 60 inches, gray (10YR 6/1) fine sandy loam; many medium prominent yellowish red (5YR 5/8) mottles; weak medium platy structure; firm; 15 percent fine pebbles; strongly acid.

The depth to the hardpan and the thickness of the solum range from 10 to 28 inches. The content of coarse fragments within the soil ranges from 10 to 25 percent, by volume. Reaction ranges from very strongly acid to medium acid.

The A horizon has value of 2 or 3. It ranges from loam to fine sandy loam.

The B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 3. It has many or common, medium, distinct or prominent mottles. It ranges from fine sandy loam to sandy loam.

The C horizon has hue of 10YR through 5Y, value of 5 or 6, and chroma or 1 to 4. It has many or common, medium, distinct or prominent mottles. It ranges from coarse sandy loam to loam. The structure is platy, or the horizon is massive.

These soils are a taxadjunct to the Ridgebury series because they have lower chroma in the solum than is typical for the series.

Rippowam series

The Rippowam series consists of frequently flooded, poorly drained soils that have moderate available water capacity. Permeability is moderate or moderately rapid and rapid. Rippowam soils formed in flood-plain deposits bordering major stream channels. The deposits are derived from gneiss, schist, and granite. Slopes range from 0 to 3 percent.

Rippowam soils are associated on the landscape with well drained Occum soils, moderately well drained Pootatuck soils, and very poorly drained Saco Variant soils. Rippowam, Occum, Pootatuck, and Saco Variant soils formed in similar parent material. Rippowam soils are not as fine textured as Saco Variant soils.

Typical pedon of Rippowam fine sandy loam, 0 to 3 percent slopes, in the town of Amherst, 680 feet south of the bridge over the Souhegan River on Boston Post Road, in an idle field:

O1—1-1/2 inches to 1/2 inch, loose leaf litter and stems of rushes.
O2—1/2 inch to 0, decomposed leaf litter.
A1g—0 to 6 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; few fine roots; strongly acid; clear wavy boundary.
B21g—6 to 12 inches, dark grayish brown (10YR 4/2) fine sandy loam; common medium prominent yellowish red (5YR 4/8) mottles; weak fine granular structure; friable; common medium roots; strongly acid; clear wavy boundary.
B22g—12 to 33 inches, grayish brown (10YR 5/2) fine sandy loam; common medium distinct yellowish red

(5YR 4/8) mottles; weak fine granular structure; friable; strongly acid; clear wavy boundary.
IIC1—33 to 39 inches, olive gray (5Y 4/2) sand; common medium prominent yellowish red (5YR 4/8) mottles; massive; loose; strongly acid; clear wavy boundary.
IIC2g—39 to 60 inches, dark gray (5Y 4/1) sand; massive; nonsticky; medium acid.

The solum thickness ranges from 20 to 33 inches. Reaction ranges from very strongly acid to medium acid.

The A horizon has value of 2 or 3 and chroma of 1 or 2.

The B horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. It is fine sandy loam or sandy loam.

The IIC horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 1 to 3. It ranges from loamy sand to gravelly sand. Strata less than 5 inches thick ranging in texture from silt to gravel are in some pedons.

Saco Variant

The Saco Variant consists of very poorly drained, moderately permeable and rapidly permeable, frequently flooded soils that have high available water capacity. Saco Variant soils formed in alluvial deposits in slightly concave areas of flood plains bordering major stream channels. The deposits are derived from gneiss, schist, and granite. Slopes range from 0 to 2 percent.

Saco Variant soils are associated on the landscape with moderately well drained Pootatuck soils and poorly drained Rippowam soils. Saco Variant, Pootatuck, and Rippowam soils formed in similar parent material, but Saco Variant soils are coarser textured in the solum.

Typical pedon of Saco Variant silt loam, in the town of Milford, 125 feet north of the northwest corner of Hayward's Trading Post on Route 101, in a pasture:

Ap—0 to 10 inches, very dark gray (10YR 3/1) silt loam; common medium prominent dark reddish brown (2.5YR 2/4) mottles; weak fine granular structure; friable; common fine roots; strongly acid; abrupt smooth boundary.
C1—10 to 16 inches, dark gray (5Y 4/1) silt loam; massive; friable; medium acid; clear smooth boundary.
C2g—16 to 28 inches, gray (5Y 5/1) silt loam; massive; friable; medium acid; abrupt smooth boundary.
IIC3g—28 to 60 inches, dark gray (5Y 4/1) sand; single grain; loose; 10 percent gravel; medium acid.

The depth to sand ranges from 28 to 40 inches. The content of coarse fragments at a depth of more than 28 inches ranges from 0 to 15 percent. Reaction is strongly acid or medium acid throughout.

The A horizon has value of 2 or 3 and chroma of 1 or 2. It is silt loam or very fine sandy loam.

The C horizon has hue of 2.5Y or 5Y, value of 3 to 5, and chroma of 1 or 2. A buried A horizon less than 2 inches thick is in some pedons. It is silt loam or very fine sandy loam in the upper part and sand or fine sand in the lower part.

These soils are a variant of the Saco series because the sand texture of the IIC horizon is not typical for the series.

Saugatuck series

The Saugatuck series consists of poorly drained soils that have rapid permeability, very low available water capacity, and a slowly permeable ortstein layer 2 to 26 inches thick at a depth of 12 to 31 inches. Saugatuck soils formed in thick deposits of sandy glacial outwash in depressions in terraces and outwash plains. The outwash is derived from granite and gneiss. Slope range from 0 to 3 percent.

Saugatuck soils are associated on the landscape with moderately well drained Deerfield soils and poorly drained Pipestone soils. Saugatuck, Deerfield, and Pipestone soils formed in similar parent material. Saugatuck soils have more orstein than Pipestone soils.

Typical pedon of Saugatuck loamy sand, in the town of Amherst, 2,500 feet southeast of the junction of Baboosic Lake Road and Spring Road, 75 feet northeast of Spring Road:

O1—1-1/2 inches to 1 inch, undecomposed maple leaves and hemlock needles.
O2—1 inch to 0, decomposed leaf litter and hemlock needles.
A2—0 to 7 inches, grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt irregular boundary.
B21—7 to 12 inches, dark reddish gray (5YR 4/2) loamy sand; common medium distinct dark yellowish brown (10YR 3/4) mottles; weak fine granular structure; very friable; common fine roots; very strongly acid; abrupt wavy boundary.
B22hm—12 to 23 inches, very dark grayish brown (10YR 3/2) sand; massive; strongly cemented; few fine roots; 15 percent pebbles; very strongly acid; clear wavy boundary.
B23irm—23 to 37 inches, yellowish red (5YR 4/6) sand; massive; strongly cemented; 15 percent pebbles; very strongly acid; clear wavy boundary.
C—37 to 60 inches, yellowish brown (10YR 5/4) coarse sand; massive; firm; 20 percent pebbles; strongly acid.

The solum thickness ranges from 22 to 39 inches. Reaction of the solum is very strongly acid or strongly acid.

Some pedons have an A1 horizon with hue of 10YR to 5YR, value of 2 or 3, and chroma of 1 or 2. It is loamy sand or sand.

The A2 horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 1 or 2. It is sand or loamy sand.

The B21 horizon has hue of 2.5YR to 7.5YR, value of 2 or 3, and chroma of 2 or 3.

The B22hm horizon has hue of 2.5YR to 10YR, value of 2 or 3, and chroma of 2 to 4. More than half of the horizon is cemented. The gravel content ranges from 0 to 15 percent.

The B23irm horizon has hue of 2.5YR to 10YR, value of 2 to 4, and chroma of 4 to 6. Cementation ranges from weak to strong. The gravel content ranges from 0 to 20 percent.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 or 4. The gravel content ranges from 0 to 20 percent.

Scarboro series

The Scarboro series consists of very poorly drained soils that have rapid permeability and low available water capacity. Scarboro soils formed in sand deposits in depressions in outwash plains, terraces, and uplands. The sand is derived from granite, gneiss, and schist. Slopes range from 0 to 3 percent.

Scarboro soils are associated on the landscape with poorly drained Pipestone and Saugatuck soils and moderately well drained Deerfield soils. Scarboro, Pipestone, Saugatuck, and Deerfield soils formed in similar parent material. Scarboro soils do not contain ortstein, which is a characteristic of Saugatuck soils.

Typical pedon of Scarboro mucky loamy sand, in the town of Hudson, on the Alvirne High School farm, 400 feet south of the Hills Mansion:

Ap—0 to 9 inches, black (N 2/0) mucky loamy sand; weak fine granular structure; friable; many roots; very strongly acid; abrupt smooth boundary.

C1g—9 to 20 inches, gray (5Y 6/1) sand; few medium distinct strong brown (7.5YR 5/6) mottles; massive; very friable; very strongly acid; clear wavy boundary.

C2g—20 to 38 inches, gray (5Y 6/1) sand; common medium faint gray (5Y 5/1) mottles and many medium prominent strong brown (7.5YR 5/8) mottles; massive; nonsticky; very strongly acid; clear wavy boundary.

C3—38 to 63 inches, olive gray (5Y 5/2) sand with strata of coarse sand; common medium distinct gray (N 6/0) mottles; massive; nonsticky; very strongly acid.

The content of coarse fragments in the 10- to 40-inch control section ranges from 0 to 10 percent. Reaction ranges from very strongly acid to medium acid throughout the soil.

Unplowed pedons have an O horizon 3 to 16 inches thick. It ranges from mucky peat to muck.

The Ap or A1 horizon has hue of 7.5YR to 2.5Y, value of 2 or 3, and chroma of 0 to 2. The A horizon ranges from fine sandy loam to sand and their mucky analogues. The content of rock fragments ranges from 0 to 10 percent.

Unplowed pedons have an A2 horizon with hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. Some A2 horizons have faint mottles.

The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It mainly is loamy sand or sand. Strata of coarse sand or fine gravel are in some pedons.

Scituate series

The Scituate series consists of moderately well drained, moderately rapidly permeable and slowly permeable soils that have moderate available water capacity and a hardpan at a depth of 19 to 29 inches. Scituate soils formed in slight depressions in glacial till uplands. The till is acid and derived from granite, schist, and gneiss. Slopes range from 0 to 15 percent but are dominantly 3 to 8 percent.

Scituate soils are associated on the landscape with well drained Montauk and Canton soils and poorly drained Leicester soils. Scituate and Montauk soils both have a hardpan, but Scituate soils are not so well drained as Montauk soils. Scituate soils have fewer coarse fragments than Canton soils and are coarser textured in the C horizon than Leicester soils.

Typical pedon of Scituate fine sandy loam, 3 to 8 percent slopes, in the town of Amherst, 2,800 feet east of the New Hampshire Route 101 overpass on Old County Road, 50 feet north of Old County Road:

Ap—0 to 9 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; friable; many coarse and fine roots; 5 percent pebbles; strongly acid; abrupt smooth boundary.

B21—9 to 20 inches, yellowish brown (10YR 5/6) fine sandy loam; few fine faint strong brown (7.5YR 5/8) mottles; weak fine granular structure; friable; many coarse and fine roots; 10 percent pebbles, 5 percent cobblestones; strongly acid; abrupt wavy boundary.

B22—20 to 22 inches, strong brown (7.5YR 5/6) gravelly sandy loam; many medium distinct yellowish red (5YR 4/6) mottles; weak fine granular structure; friable; few fine roots; 15 percent pebbles, 5 percent cobblestones; strongly acid; abrupt wavy boundary.

IIC1x—22 to 29 inches, pale olive (5Y 6/3) gravelly loamy sand; common medium prominent strong brown (7.5YR 5/8) mottles; weak thick platy structure; firm; 20 percent pebbles, 10 percent cobblestones; medium acid; clear wavy boundary.

IIC2x—29 to 60 inches, pale olive (5Y 6/4) gravelly loamy sand; few medium prominent strong brown (7.5YR 5/8) mottles; massive; firm; 20 percent pebbles, 10 percent cobblestones; medium acid.

The solum thickness ranges from 19 to 29 inches. Reaction ranges from very strongly acid to medium acid in unlimed areas.

The Ap horizon has value of 2 or 3 and chroma of 2 or 3. It is dominantly fine sandy loam but includes sandy loam. The coarse-fragment content ranges from 10 to 20 percent.

The B21 horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. The coarse-fragment content ranges from 10 to 20 percent.

The B22 horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 6. It is fine sandy loam or sandy loam. The coarse-fragment content ranges from 10 to 20 percent.

The IICx horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 2 to 4. It ranges from loamy sand to gravelly loamy coarse sand. The coarse-fragment content ranges from 15 to 35 percent.

Suncook series

The Suncook series consists of commonly flooded, excessively drained soils that have rapid permeability and very low available water capacity. Suncook soils formed in recent, sandy flood-plain deposits bordering major stream channels. The deposits are derived from gneiss, schist, and granite. Slopes range from 0 to 3 percent.

Suncook soils are associated on the landscape with well drained Occum soils, moderately well drained Pootatuck soils, and poorly drained Rippowam soils but are coarser textured.

Typical pedon of Suncook loamy fine sand, in the city of Manchester, 50 feet east of the Merrimack River, 700 feet north of the Goffs Falls railroad bridge:

O1—1 inch to 0, undecomposed pine needles and leaves.
A1—0 to 2 inches, very dark grayish brown (2.5Y 3/2) loamy fine sand; weak medium granular structure; friable; many fine and medium roots; strongly acid; abrupt smooth boundary.
C1—2 to 5 inches, light olive brown (2.5Y 3/2) loamy fine sand; massive; very friable; common fine and medium roots; medium acid; clear wavy boundary.
C2—5 to 23 inches, light yellowish brown (2.5Y 6/4) fine sand; massive; loose; common fine and medium roots; medium acid; clear wavy boundary.
A1b—23 to 25 inches, very dark grayish brown (10YR 3/2) loamy fine sand; massive; very friable; many fine roots; very strongly acid; clear wavy boundary.
C3—25 to 61 inches, light olive brown (2.5Y 5/4) loamy fine sand; massive; very friable; few medium roots; medium acid.

The gravel content ranges from 0 to 20 percent between depths of 20 and 40 inches and 0 to 30 percent below a depth of 40 inches. Reaction ranges from strongly acid to slightly acid.

The A horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3. It ranges from fine sandy loam to loamy fine sand. Structure is weak medium granular, or the horizon is massive.

The C horizon has hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 2 to 4. It ranges from loamy fine sand to coarse sand.

The buried A1 horizon has value of 2 or 3. It ranges from loamy fine sand to sand.

Udipsamments

Udipsamments consists of deep, well drained soils. They have variable permeability and available water capacity. Udipsamments formed in sandy and gravelly fill material. The fill is generally derived from Windsor and Hinckley soils. Slopes range from 0 to 60 percent.

Udipsamments are associated on the landscape with excessively drained Windsor and Hinckley soils, but Udipsamments do not have identifiable diagnostic horizons.

The depth to the buried horizons is at least 20 inches. There are no identifiable fragments of diagnostic horizons within a depth of 40 inches. The texture between depths of 10 and 40 inches is loamy fine sand or coarser. The rock-fragment content in all subhorizons is less than 35 percent. Udipsamments are strongly acid to medium acid.

Walpole series

The Walpole series consists of poorly drained, moderately rapidly permeable and rapidly permeable soils that have moderate available water capacity. Walpole soils formed in sandy and gravelly glaciofluvial deposits in slightly concave areas and drainageways of glacial till uplands. The deposits are derived from schist, gneiss, and granite. Slopes range from 0 to 8 percent.

Walpole soils are associated on the landscape with well drained Canton soils, moderately well drained Scituate soils, poorly drained Leicester soils, and very poorly drained Scarboro soils. Walpole soils formed in glacial outwash, but Canton, Leicester, and Scituate soils formed in glacial till. Walpole soils do not have the fragipan typical of Scituate soils and are finer textured in the solum and have more gravel in the C horizon than Scarboro soils.

Typical pedon of Walpole sandy loam, in an area of Leicester-Walpole complex, stony, 0 to 3 percent slopes, in the town of Brookline, 2,100 feet northeast of Old Milford Road on Rocky Pond Road and 400 feet south of Rocky Pond Road:

O1—5 to 4 inches, undecomposed leaf litter.
O2—4 inches to 0, decomposed leaves.
A1—0 to 5 inches, very dark gray (10YR 3/1) sandy loam; weak medium granular structure; very friable; common fine and medium roots; 10 percent pebbles; very strongly acid; clear wavy boundary.
B2—5 to 18 inches, dark grayish brown (10YR 4/2) sandy loam; few medium distinct light gray (2.5Y 7/2) mottles; massive; friable; few fine roots; 10

percent pebbles; very strongly acid; abrupt wavy boundary.
IIC1—18 to 26 inches, pale brown (10YR 6/3) sand; common medium distinct light gray (2.5Y 7/2) mottles; single grain; loose; 15 percent pebbles; medium acid; abrupt wavy boundary.
IIC2—26 to 60 inches, light yellowish brown (2.5Y 6/4) gravelly sand; common medium faint light gray (2.5Y 7/2) mottles and common medium distinct yellowish red (5YR 5/8) mottles; single grain; loose; 30 percent pebbles; medium acid.

The solum thickness and depth to the lithologic discontinuity range from 18 to 28 inches. The coarse-fragment content ranges from 0 to 25 percent in the solum and 0 to 40 percent in the IIC horizon. Reaction ranges from very strongly acid to medium acid throughout.

The A horizon has value of 2 or 3 and chroma of 1 or 2. It is fine sandy loam or sandy loam.

The B2 horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 or 3. It is fine sandy loam or sandy loam. Structure is weak granular or subangular blocky, or the horizon is massive.

The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 or 4. It is loamy sand, sand, or their gravelly analogues.

Windsor series

The Windsor series consists of excessively drained soils that have rapid permeability and very low available water capacity. Windsor soils formed in sandy glacial outwash derived from crystalline rock. They are on outwash plains, terraces, and kames. Slopes range from 0 to 35 percent but mainly are less than 10 percent.

Windsor soils are associated on the landscape with excessively drained Hinckley soils, well drained Canton soils, and moderately well drained Deerfield soils. Windsor and Deerfield soils formed in similar parent material. Windsor soils have fewer coarse fragments than Hinckley or Canton soils. Windsor soils formed in glacial outwash, but Canton soils formed in glacial till.

Typical pedon of Windsor loamy sand, 3 to 8 percent slopes, in the town of Hudson, 1,200 feet east of Alvrine High School:

O1—2 inches to 1 inch, loose leaf litter of partially decomposed leaves and needles.
O2—1 inch to 0 inch, decomposed litter of leaves and needles.
Ap1—0 to 4 inches, very dark grayish brown (10YR 3/2) loamy sand; weak fine granular structure; very friable; many roots; very strongly acid; clear wavy boundary.
Ap2—4 to 7 inches, dark brown (10YR 3/3) loamy sand; weak fine granular structure; very friable; common roots; strongly acid; clear wavy boundary.
B22—7 to 12 inches, yellowish brown (10YR 5/6) loamy sand; weak fine granular structure; very friable; few roots; medium acid; clear wavy boundary.
B23—12 to 20 inches, brownish yellow (10YR 6/6) sand; single grain; loose; few roots; medium acid; clear wavy boundary.
C—20 to 60 inches, pale yellow (2.5Y 7/4) sand; single grain; loose; few roots; strongly acid.

The thickness of the solum ranges from 20 to 30 inches. Thin strata of gravel are in the solum of some pedons, and gravel content is as much as 10 percent at a depth of more than 25 inches. Reaction ranges from very strongly acid to medium acid throughout.

The A horizon has chroma of 2 or 3. It is loamy sand or loamy fine sand. Consistence is friable or loose.

The B2 horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8. It is loamy sand or sand.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 4.

Woodbridge series

The Woodbridge series consists of moderately well drained, moderately permeable and slowly permeable soils that have moderate available water capacity and a hardpan at a depth of 24 to 33 inches. Woodbridge soils formed in the nearly level to sloping positions on drumlins and the sloping areas of glacial till uplands. The till is compact, acid, and stony and is derived from mica schist and granite. Slopes range from 0 to 15 percent.

Woodbridge soils are associated on the landscape with well drained Paxton soils, poorly drained Ridgebury soils, and very poorly drained Scarboro soils. Woodbridge, Paxton, and Ridgebury soils formed in similar parent material. Woodbridge soils are finer textured than Scarboro soils.

Typical pedon of Woodbridge stony loam, 3 to 8 percent slopes, in the town of Goffstown, 2,700 feet southwest of the junction of Route 13 and the county line:

O1—1-1/2 inches to 1/2 inch, loose litter of maple and oak leaves.
O2—1/2 inch to 0, decomposed leaf litter.
Ap—0 to 7 inches, very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; many coarse and medium roots; 5 percent pebbles; very strongly acid; abrupt smooth boundary.
B2—7 to 23 inches, light olive brown (2.5Y 5/4) fine sandy loam; common medium distinct strong brown (7.5YR 5/8) mottles below a depth of 13 inches; weak fine granular structure; friable; common fine roots; 10 percent pebbles, 10 percent cobblestones; strongly acid; clear wavy boundary.
A2—23 to 25 inches, olive (5Y 5/3) fine sandy loam; many medium prominent yellowish red (5YR 4/6) mottles; massive; friable; few fine roots; 5 percent pebbles; strongly acid; clear wavy boundary.

Cx—25 to 60 inches, light olive brown (2.5Y 5/4) fine sandy loam; many medium distinct yellowish red (5YR 4/6) mottles; massive; firm; 10 percent pebbles; strongly acid.

The depth to the fragipan and the thickness of the solum range from 24 to 33 inches. The depth to mottling ranges from 7 to 24 inches. The coarse-fragment content ranges from 10 to 30 percent in the solum and 10 to 35 percent in the substratum. Reaction ranges from very strongly acid to medium acid.

The A horizon has value of 2 to 4 and chroma of 1 to 3. It ranges from loam to fine sandy loam.

The B horizon has hue of 7.5YR through 2.5Y, value of 3 to 6, and chroma of 4 to 8. It is fine sandy loam or sandy loam.

The A2 horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2 to 3. It is fine sandy loam or sandy loam.

The Cx horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. It is fine sandy loam or sandy loam. Structure is medium platy, or the horizon is massive. In some pedons black (10YR 3/1) stains coat some ped faces.

morphology of the soils

Most of the soils in the survey area exhibit distinct horizon development. Soils forming in recent alluvium, such as Suncook, Occum, and Pootatuck soils, are the exceptions.

Distinct soil horizons are the result of soil profile development under cool, humid conditions in the northeastern United States. The reasons for differences in these horizons are many. In this survey area the principal reasons are addition of organic matter; transfer of organic matter and iron and aluminum oxides; chemical weathering of primary rocks, minerals, and parent materials into silicate clays; and chemical transfer of iron. One or more of these processes have acted on most of the soils in the survey area, but the degree of activity varies from soil to soil.

Organic matter has accumulated in the soils in the survey area to form an A1 horizon. Plowing and cultivation have changed the A1 horizon to an Ap horizon, and in some places part or all of the A horizon has been removed by erosion. The amount of organic matter added to the surface layer of a soil varies with vegetation, aspect, temperature, moisture, and drainage conditions. The Suncook and Windsor soils have very small amounts of organic matter in the A horizon, while Scarboro and Walpole soils have an A horizon with a high level of organic matter content.

The major process in the formation of horizons in soils in the survey area is the movement of organic matter, iron, and aluminum oxides out of the A horizon and into the B horizon, where they are precipitated under oxidizing conditions. The intensity of this soil-forming process determines the degree of development of a spodic horizon. At higher elevations in the western and northwestern parts of the survey area, a light gray A2 horizon may form over an accumulation of humus, iron, and aluminum oxides in the B horizon. In most places the A2 horizon is absent. The spodic horizon is strongly expressed in the Saugatuck soils, where the movement of organic matter, iron, and aluminum oxides is associated with a fluctuating water table.

In wet soils the reduction of ferric iron to ferrous iron results in a soil color change. The soil color changes from yellowish brown to various shades of gray. This process is called gleization (*4*). In some cases the iron is removed entirely from the profile; in others the iron moves to a different horizon and is partially reoxidized. Mottles in the soil result from this reoxidation. Gray layers are common in poorly drained and very poorly drained soils, such as the Leicester, Ridgebury, and Scarboro soils.

Some soils, such as Paxton and Montauk soils, have a dense hardpan at a depth of about 2 feet. It is believed that the hardpan did not form during the current cycle of soil development, but that it formed through a process of lodgement or plastering while the glacial till was being deposited.

formation of the soils

This section describes the factors of soil formation in the survey area.

factors of soil formation

Soils are the result of the interaction of five major factors: climate, parent material, plant and animal life, topography, and time (*6*). The relative importance of each factor differs from place to place. One or more of the factors may dominate the kind of soil formed in a particular area. More commonly, however, the effect of any one factor is difficult to isolate, and the combined effect of all five factors is evident. Differences in parent material, drainage, and time cause most of the differences among the soils in this survey area.

climate

The climate of the survey area is predominantly continental. Average annual temperature is about 46 degrees F. Average annual rainfall is about 43 inches. Rainfall during the growing season is fairly uniform. It ranges from about 3 to 3.5 inches per month. Local variations in climate are mainly the result of differences in elevation. More detailed information about the climate of the survey area is given in the climate section under "General nature of the area."

Temperature and rainfall govern the rates of physical and chemical weathering of the soil (*9*). The excessively drained to moderately well drained soils in the survey

area have been leached of readily soluble bases and are acid in reaction. Chemical weathering proceeds at a very slow rate during the winter, but physical weathering in the form of freezing and thawing promotes the granulation of soil material and the breaking of rock fragments into smaller units (*7*).

parent material

Parent material is the unconsolidated material in which soils form. It determines to a large extent the mineralogical and chemical composition of the soils. It also affects the rate at which soil formation takes place.

There are six major types of parent material in the survey area: (1) glacial till, (2) stratified deposits of glacial outwash, (3) silty glacial lake deposits, (4) recent alluvium, (5) organic deposits, and (6) sandy soil material altered by man, called Udipsamments. The parent materials of most of the soils are glacial deposits about 12,000 years old.

More than half of the soils in the survey area formed in coarse textured or moderately coarse textured glacial till. These soils vary widely in characteristics. Canton, Paxton, Montauk, and Hollis soils, for instance, formed in glacial till.

The Windsor, Hinckley, and Pipestone soils formed in glacial outwash. They have a sandy surface layer and subsoil and are commonly underlain by stratified sand and gravel.

The Belgrade and Binghamville soils in this survey area formed in silty glacial lake deposits. Such deposits are of limited extent in the survey area.

The Occum, Pootatuck, and Rippowam soils are flood-plain soils that are forming in recent alluvium. These soils are moderately coarse textured and show only slight profile development.

The Greenwood soils are an example of a soil forming in organic deposits. The organic deposits consist of partially decomposed plant remains which have been accumulating in depressions for long periods.

Udipsamments are soils which are forming in sandy material altered by man during the preparation of building sites.

plant and animal life

Plant and animal life are active factors of soil formation. In this survey area, however, climate, topography, and parent material have had a greater influence on soil formation. The major influence of plants is through the addition of organic matter.

This survey area was originally 90 to 95 percent wooded. White pine was dominant but red oak, white oak, beech, sugar maple, and hemlock were also common.

The nature of the vegetation influences the number and kind of micro-organisms in the soils. Fungi are generally present in much greater numbers in soil developed under forest than in soil developed under grass. Bacteria, fungi, and other micro-organisms decompose the fresh organic matter and change it to more resistant humus. Earthworms, rodents, and other animals that live in the soil help mix the soil layers and aid in aeration and the decomposition of organic matter.

The activities of man have also brought about significant changes in soil development. Clearing the forests, constructing buildings and roads, cultivating, liming, fertilizing, and irrigating the soil are a few of man's activities that have altered the upper soil layers, accelerated the rate of erosion, or otherwise changed the nature of the soils. Sometimes man has created entirely new soils. Udipsamments are an example of a soil created by man.

topography

Topography affects surface drainage and has considerable influence on soil formation. This survey area is located in two physiographic regions. The western half of the survey area is in the New England upland, which consists of low hills and mountains underlain by schist, gneiss, and granite. Elevation ranges from about 500 feet above sea level to 1,924 feet above sea level on the summit of North Uncanoonuc Mountain in Goffstown. A rolling ground moraine and a few lakes and ponds are between the hills and mountains.

The eastern half of the survey area is in the New England seaboard. The seaboard region is at an elevation of about 400 to 500 feet, and it slopes southeasterly toward the Atlantic Ocean. The bedrock underlying the seaboard region is mostly schist, phyllite, and granite. The Merrimack River valley is in a depression in the New England seaboard region.

The influence of topography on the soils is evident from a comparison of the profiles of soils that formed in the same parent material and climate, but which differ in topography and drainage conditions. For example, the Paxton, Woodbridge, and Ridgebury soils formed in compact, platy glacial till. The Paxton soils are well drained, have a hardpan at a depth of about 2 feet, and are mostly sloping. They are not steep enough to encourage excessive erosion on undisturbed sites, but they have enough slope so that surface water drains off freely. The Woodbridge soils are moderately well drained and have a hardpan in the substratum. They are mostly gently sloping, runoff is medium to slow, and a considerable amount of water flows through the soil. The Ridgebury soils are nearly level to gently sloping. They are in depressions, are poorly drained, and have a hardpan in the substratum. Because of the low position of the Ridgebury soils, water tends to collect on the surface. In table 17 the soil series are arranged to show the relationship of parent material, topographic position, and drainage.

time

Formation of soil requires time—usually long periods. The degree of profile development reflects the length of

time that soil forming processes have had to act on the soil parent material.

Generally, the soils in this survey area have been forming since the last ice sheet receded about 12,000 years ago. Whether a distinct profile forms depends in part on each of the five soil-forming factors. If the parent material has been in place long enough, the soil will develop distinct horizons. Windsor and Canton soils are examples of soils in this survey area with a well developed horizon. The rate of weathering, or soil formation, exceeds the rate of geologic erosion in these soils. Horizons form more quickly in sandy soils, where leaching takes place quite rapidly.

If the soil is steep and the geologic erosion rate has been rapid, the soil generally has indistinct horizons. The soils of the Suncook series formed in recent alluvium on flood plains. They have indistinct horizons because of the continual accumulation of sediments during periods of flooding.

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glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Basal till. Compact glacial till deposited beneath the ice.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a fragment.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) up to 38.1 centimeters (15 inches) long.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.
Cemented.—Hard; little affected by moistening.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or arresting grazing for a prescribed period.

Depth to bedrock. Bedrock at a depth that adversely affects the specified use. Depth is expressed as very shallow (0 to 10 inches), shallow (10 to 20 inches), moderately deep (20 to 40 inches), and deep (more than 40 inches).

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.
Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.
Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.
Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.
Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.
Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.
Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount

of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, and clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Fragile (in tables). A soil that is easily damaged by use or disturbance.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift (geology). Pulverized and other rock material transported by glacial ice and then deposited. Also the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial melt water.

Glacial till (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial melt water. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual.* The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of

soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake in inches per hour is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Kame (geology). An irregular, short ridge or hill of stratified glacial drift.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Large stones (in tables). Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Ledge. The solid rock that underlies the soil or that is exposed at the surface as rock outcrop.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Moraine (geology). An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Ortstein. A pan layer common to some poorly drained Spodosols. The pan is cemented with iron and organic matter and is commonly red or black in color.

Outwash, glacial. Stratified sand and gravel produced by glaciers and carried, sorted, and deposited by glacial melt water.

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it is generally low in relief.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management; for example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phyllite. A gray metamorphic rock similar to slate but having a silky luster.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rippable. Bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk

density, and the lowest water content at saturation of all organic soil material.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to insure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Till plain. An extensive flat to undulating area underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, that are in soils in extremely small amounts. They are essential to plant growth.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by melt water streams, in a glacial lake or other body of still water in front of a glacier.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Data were recorded in the period 1951-76 at Nashua, New Hampshire]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	33.9	11.2	22.6	56	-20	0	3.25	1.67	4.53	8	17.6
February	36.5	13.4	25.0	60	-18	0	3.25	2.05	4.33	7	18.6
March	43.7	22.7	33.3	69	-1	0	3.73	2.51	4.85	8	14.0
April	57.6	32.1	44.9	85	16	19	3.50	2.15	4.72	8	2.5
May	68.7	41.6	55.2	91	25	187	3.51	1.93	4.79	8	.0
June	78.0	51.8	64.9	95	33	447	3.08	1.71	4.19	7	.0
July	82.8	56.7	69.7	97	41	611	3.15	1.68	4.35	7	.0
August	80.5	54.5	67.5	95	37	543	3.47	2.00	4.67	7	.0
September	72.6	46.7	59.7	92	27	294	3.68	1.84	5.18	6	.0
October	62.4	36.3	49.3	84	17	75	3.56	1.81	4.98	6	.1
November	49.1	28.0	38.6	73	8	0	4.63	2.99	6.10	8	3.1
December	36.8	16.3	26.6	62	-11	0	4.26	2.60	5.74	8	15.8
Yearly:											
Average	58.6	34.3	46.4	---	---	---	---	---	---	---	---
Extreme	---	---	---	98	-22	---	---	---	---	---	---
Total	---	---	---	---	---	2,176	43.07	36.63	49.27	88	71.7

[1]A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 °F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Data were recorded in the period 1951-76 at Nashua, New Hampshire]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 4	May 21	June 1
2 years in 10 later than--	April 29	May 15	May 28
5 years in 10 later than--	April 19	May 5	May 19
First freezing temperature in fall:			
1 year in 10 earlier than--	October 5	September 20	September 13
2 years in 10 earlier than--	October 11	September 25	September 17
5 years in 10 earlier than--	October 21	October 5	September 25

TABLE 3.--GROWING SEASON

[Data were recorded in the period 1951-76 at Nashua, New Hampshire]

Probability	Daily minimum temperature during growing season		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	161	131	109
8 years in 10	169	139	115
5 years in 10	185	152	128
2 years in 10	200	166	141
1 year in 10	208	173	147

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
AgA	Agawam fine sandy loam, 0 to 3 percent slopes	659	0.2
AgB	Agawam fine sandy loam, 3 to 8 percent slopes	363	0.1
BaA	Belgrade silt loam, 0 to 3 percent slopes	192	0.1
BaB	Belgrade silt loam, 3 to 8 percent slopes	332	0.1
BdA	Bernardston Variant very fine sandy loam, 0 to 3 percent slopes	146	0.1
BdB	Bernardston Variant very fine sandy loam, 3 to 8 percent slopes	1,062	0.4
BdC	Bernardston Variant very fine sandy loam, 8 to 15 percent slopes	478	0.2
BeC	Bernardston Variant stony very fine sandy loam, 8 to 15 percent slopes	194	0.1
BeD	Bernardston Variant stony very fine sandy loam, 15 to 35 percent slopes	74	*
Bg	Binghamville silt loam	368	0.1
BoA	Borohemists, nearly level	2,891	1.1
BpA	Borohemists, ponded	1,864	0.7
CaB	Canton fine sandy loam, 0 to 8 percent slopes	4,691	1.8
CaC	Canton fine sandy loam, 8 to 15 percent slopes	4,085	1.5
CaD	Canton fine sandy loam, 15 to 25 percent slopes	692	0.3
CmB	Canton stony fine sandy loam, 3 to 8 percent slopes	8,207	3.1
CmC	Canton stony fine sandy loam, 8 to 15 percent slopes	34,824	13.0
CmD	Canton stony fine sandy loam, 15 to 25 percent slopes	14,038	5.3
CmE	Canton stony fine sandy loam, 25 to 35 percent slopes	654	0.2
CnC	Canton very stony fine sandy loam, 8 to 15 percent slopes	5,946	2.2
CnD	Canton very stony fine sandy loam, 15 to 35 percent slopes	4,732	1.8
CoC	Canton-Urban land complex, 3 to 15 percent slopes	4,779	1.8
CpB	Chatfield-Hollis-Canton complex, 3 to 8 percent slopes	1,926	0.7
CpC	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes	5,734	2.1
CpD	Chatfield-Hollis-Canton complex, 15 to 25 percent slopes	2,371	0.9
CsB	Chatfield-Hollis complex, 3 to 8 percent slopes	1,184	0.4
CsC	Chatfield-Hollis complex, 8 to 15 percent slopes	13,238	5.0
CtD	Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes	11,139	4.2
Cu	Chocorua mucky peat	3,765	1.4
DeA	Deerfield loamy fine sand, 0 to 3 percent slopes	3,912	1.5
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	905	0.3
Dp	Dumps	272	0.1
Gw	Greenwood mucky peat	3,055	1.1
HsA	Hinckley loamy sand, 0 to 3 percent slopes	5,903	2.2
HsB	Hinckley loamy sand, 3 to 8 percent slopes	13,084	4.9
HsC	Hinckley loamy sand, 8 to 15 percent slopes	6,127	2.3
HsD	Hinckley loamy sand, 15 to 35 percent slopes	3,976	1.5
LeA	Leicester Variant loam, 0 to 3 percent slopes	192	0.1
LsA	Leicester Variant stony loam, 0 to 3 percent slopes	96	*
LtA	Leicester-Walpole complex, 0 to 3 percent slopes	365	0.1
LtB	Leicester-Walpole complex, 3 to 8 percent slopes	135	*
LvA	Leicester-Walpole complex stony, 0 to 3 percent slopes	4,057	1.5
LvB	Leicester-Walpole complex stony, 3 to 8 percent slopes	1,234	0.5
MoB	Montauk fine sandy loam, 3 to 8 percent slopes	669	0.3
MoC	Montauk fine sandy loam, 8 to 15 percent slopes	585	0.2
MoD	Montauk fine sandy loam, 15 to 25 percent slopes	179	0.1
MtB	Montauk stony fine sandy loam, 3 to 8 percent slopes	500	0.2
MtC	Montauk stony fine sandy loam, 8 to 15 percent slopes	1,152	0.4
MtD	Montauk stony fine sandy loam, 15 to 25 percent slopes	119	*
NnA	Ninigret very fine sandy loam, 0 to 3 percent slopes	512	0.2
NnB	Ninigret very fine sandy loam, 3 to 8 percent slopes	141	0.1
Oc	Occum fine sandy loam	503	0.2
Om	Occum fine sandy loam, high bottom	2,310	0.9
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	2,869	1.1
PbC	Paxton fine sandy loam, 8 to 15 percent slopes	2,514	0.9
PbD	Paxton fine sandy loam, 15 to 25 percent slopes	2,491	0.9
PfB	Paxton stony fine sandy loam, 3 to 8 percent slopes	1,305	0.5
PfC	Paxton stony fine sandy loam, 8 to 15 percent slopes	4,742	1.8
PfD	Paxton stony fine sandy loam, 15 to 25 percent slopes	4,042	1.5
PfE	Paxton stony fine sandy loam, 25 to 35 percent slopes	1,716	0.6
PhB	Pennichuck channery fine sandy loam, 3 to 8 percent slopes	574	0.2
PhC	Pennichuck channery fine sandy loam, 8 to 15 percent slopes	835	0.3
PhD	Pennichuck channery fine sandy loam, 15 to 25 percent slopes	402	0.2
PiA	Pipestone loamy sand, 0 to 3 percent slopes	4,942	1.9
PiB	Pipestone loamy sand, 3 to 8 percent slopes	169	0.1
Pr	Pits, gravel	1,332	0.5
PtA	Pittstown Variant loam, 0 to 3 percent slopes	189	0.1
PtB	Pittstown Variant loam, 3 to 8 percent slopes	287	0.1
Pu	Pootatuck fine sandy loam	762	0.3
Qr	Quarries	56	*

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS --Continued

Map symbol	Soil name	Acres	Percent
RbA	Ridgebury loam, 0 to 8 percent slopes	110	*
ReA	Ridgebury stony loam, 0 to 3 percent slopes	569	0.2
ReB	Ridgebury stony loam, 3 to 8 percent slopes	206	0.1
Rp	Rippowam fine sandy loam	2,184	0.8
Sm	Saco Variant silt loam	330	0.1
Sn	Saugatuck loamy sand	400	0.1
So	Scarboro mucky loamy sand	1,517	0.6
Sr	Scarboro stony mucky loamy sand	1,110	0.4
SsA	Scituate fine sandy loam, 0 to 3 percent slopes	404	0.2
SsB	Scituate fine sandy loam, 3 to 8 percent slopes	1,337	0.5
SsC	Scituate fine sandy loam, 8 to 15 percent slopes	188	0.1
StA	Scituate stony fine sandy loam, 0 to 3 percent slopes	701	0.3
StB	Scituate stony fine sandy loam, 3 to 8 percent slopes	4,329	1.6
StC	Scituate stony fine sandy loam, 8 to 15 percent slopes	571	0.2
Su	Suncook loamy fine sand	966	0.4
UdA	Udipsamments, nearly level	1,409	0.5
Ur	Urban land	2,795	1.0
WdA	Windsor loamy sand, 0 to 3 percent slopes	7,384	2.8
WdB	Windsor loamy sand, 3 to 8 percent slopes	9,217	3.5
WdC	Windsor loamy sand, 8 to 15 percent slopes	3,253	1.2
WdD	Windsor loamy sand, 15 to 35 percent slopes	2,834	1.1
WnC	Windsor-Urban land complex, 3 to 15 percent slopes	10,574	4.0
WoA	Woodbridge loam, 0 to 3 percent slopes	186	0.1
WoB	Woodbridge loam, 3 to 8 percent slopes	535	0.2
WvB	Woodbridge stony loam, 3 to 8 percent slopes	1,054	0.4
WvC	Woodbridge stony loam, 8 to 15 percent slopes	139	*
	Water	2,726	1.0
	Total	266,866	100.0

* Less than 0.1 percent.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Corn silage	Irish potatoes	Alfalfa hay	Grass-legume hay	Grass hay	Pasture
	Ton	Cwt	Ton	Ton	Ton	AUM*
AgA---- Agawam	24	270	5	4.5	---	---
AgB---- Agawam	24	270	5	4.5	---	---
BaA---- Belgrade	24	---	4.5	4.0	---	---
BaB---- Belgrade	22	---	4.0	3.5	---	---
BdA---- Bernardston Variant	22	240	4.5	4.0	---	---
BdB---- Bernardston Variant	22	300	4.5	4.0	---	---
BdC---- Bernardston Variant	20	270	4.0	3.5	---	---
BeC---- Bernardston Variant	---	---	---	---	---	---
BeD---- Bernardston Variant	---	---	---	---	---	---
Bg---- Binghamville	18	---	---	3.5	4.0	6.5
BoA**, BpA**. Borohemists						
CaB---- Canton	24	---	4.5	4.5	4.0	---
CaC---- Canton	22	---	4.5	4.0	3.5	---
CaD---- Canton	18	---	4.0	3.5	3.0	---
CmB, CmC, CmD---- Canton	---	---	---	---	---	---
CmE---- Canton	---	---	---	---	---	---
CnC---- Canton	---	---	---	---	---	---
CnD---- Canton	---	---	---	---	---	---
CoC*---- Canton-Urban land	---	---	---	---	---	---
CpB---- Chatfield-Hollis-Canton	19	---	---	3.7	---	---
CpC---- Chatfield-Hollis-Canton	17	---	---	3.3	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Irish potatoes	Alfalfa hay	Grass-legume hay	Grass hay	Pasture
	Ton	Cwt	Ton	Ton	Ton	AUM*
CpD---------- Chatfield-Hollis-Canton	---	---	---	---	---	---
CsB---------- Chatfield-Hollis	16	---	---	3.3	---	6.5
CsC---------- Chatfield-Hollis	15	---	---	3.1	---	6.0
CtD---------- Chatfield-Hollis-Rock outcrop	---	---	---	---	---	---
Cu---------- Chocorua	---	---	---	---	---	---
DeA, DeB---------- Deerfield	16	240	3.5	3.0	---	---
Dp**. Dumps						
Gw---------- Greenwood	---	---	---	---	---	---
HsA, HsB---------- Hinckley	12	---	2.5	2.0	---	---
HsC---------- Hinckley	---	---	---	---	---	---
HsD---------- Hinckley	---	---	---	---	---	---
LeA---------- Leicester Variant	16	---	---	3.5	4.0	---
LsA---------- Leicester	---	---	---	---	---	---
LtA, LtB---------- Leicester-Walpole	16	---	---	3.3	3.5	---
LvA, LvB---------- Leicester-Walpole	---	---	---	---	---	---
MoB---------- Montauk	22	300	4.0	3.5	4.0	---
MoC---------- Montauk	20	270	4.0	3.5	3.5	---
MoD---------- Montauk	18	---	3.5	3.0	3.5	---
MtB, MtC, MtD---------- Montauk	---	---	---	---	---	---
NnA, NnB---------- Ninigret	22	330	4.0	3.5	4.0	---
Oc, Om---------- Occum	24	330	4.5	4.0	---	---
PbB---------- Paxton	24	330	4.5	4.0	4.0	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Irish potatoes	Alfalfa hay	Grass-legume hay	Grass hay	Pasture
	Ton	Cwt	Ton	Ton	Ton	AUM*
PbC---------- Paxton	22	300	4.5	4.0	4.0	---
PbD---------- Paxton	20	---	4.0	3.5	3.5	---
PfB, PfC, PfD---------- Paxton	---	---	---	---	---	---
PfE---------- Paxton	---	---	---	---	---	---
PhB---------- Pennichuck	18	300	4.5	3.5	3.5	---
PhC---------- Pennichuck	17	270	4.5	3.5	3.5	---
PhD---------- Pennichuck	---	---	4.0	3.0	3.0	---
PiA, PiB---------- Pipestone	12	---	---	3.0	---	---
Pr**. Pits						
PtA, PtB---------- Pittstown Variant	20	---	4.0	3.5	---	---
Pu---------- Pootatuck	24	275	4.0	4.5	4.5	7.5
Qr**. Quarries						
RbA---------- Ridgebury	16	---	---	3.5	4.0	---
ReA, ReB---------- Ridgebury	---	---	---	---	---	---
Rp---------- Rippowam	20	---	---	4.0	4.0	6.5
Sm---------- Saco Variant	---	---	---	---	---	---
Sn---------- Saugatuck	---	---	---	---	---	---
So, Sr---------- Scarboro	---	---	---	---	---	---
SsA---------- Scituate	24	270	4.0	3.5	4.0	---
SsB---------- Scituate	24	270	4.0	3.5	4.0	---
SsC---------- Scituate	22	240	4.0	3.5	4.0	---
StA---------- Scituate	---	---	---	---	---	---
StB, StC---------- Scituate	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Irish potatoes	Alfalfa hay	Grass-legume hay	Grass hay	Pasture
	Ton	Cwt	Ton	Ton	Ton	AUM*
Su---------- Suncook	12	240	2.5	2.0	2.0	---
UdA**. Udipsamments						
Ur**. Urban land						
WdA, WdB---------- Windsor	14	---	3.0	2.5	2.0	---
WdC---------- Windsor	12	---	3.0	2.5	2.0	---
WdD---------- Windsor	---	---	---	---	---	---
WnC---------- Windsor-Urban land	---	---	---	---	---	---
WoA---------- Woodbridge	24	270	4.0	4.0	4.0	---
WoB---------- Woodbridge	24	270	4.0	4.0	4.0	---
WvB, WvC---------- Woodbridge	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
AgA, AgB---------- Agawam	4o	Slight	Slight	Slight	Slight	Eastern white pine-- Red pine---------- Northern red oak---- Sugar maple---------	70 70 65 ---	Eastern white pine, red pine, white spruce, Norway spruce.
BaA, BaB---------- Belgrade	3o	Slight	Slight	Slight	Slight	Eastern white pine-- Northern red oak----	75 62 62	Eastern white pine, red pine, European larch, white spruce.
BdA, BdB, BdC, BeC- Bernardston Variant	4o	Slight	Slight	Slight	Slight	Northern red oak---- Eastern white pine-- Sugar maple--------- Eastern hemlock-----	55 65 65 65	Eastern white pine, eastern hemlock, white spruce, Scotch pine.
BeD---------- Bernardston Variant	4r	Slight	Moderate	Slight	Slight	Northern red oak---- Eastern white pine-- Sugar maple--------- Eastern hemlock-----	55 65 65 65	Eastern white pine, eastern hemlock, white spruce, Scotch pine.
Bg---------- Binghamville	4w	Slight	Severe	Severe	Severe	Eastern white pine-- Red spruce----------	65 45	Eastern white pine, white spruce, northern white-cedar.
CaB, CaC---------- Canton	5o	Slight	Slight	Slight	Slight	Eastern white pine-- Northern red oak---- Red pine----------	58 52 73	Eastern white pine, red pine, white spruce.
CaD---------- Canton	5r	Slight	Moderate	Slight	Slight	Eastern white pine-- Northern red oak---- Red pine----------	58 52 73	Eastern white pine, red pine, white spruce.
CmB, CmC---------- Canton	5o	Slight	Slight	Slight	Slight	Eastern white pine-- Northern red oak---- Red pine----------	58 52 73	Eastern white pine, red pine, white spruce.
CmD, CmE---------- Canton	5r	Slight	Moderate	Slight	Slight	Eastern white pine-- Northern red oak---- Red pine----------	58 52 73	Eastern white pine, red pine, white spruce.
CnC---------- Canton	5x	Slight	Moderate	Slight	Slight	Eastern white pine-- Northern red oak---- Red pine----------	58 52 73	Eastern white pine, red pine, white spruce.
CnD---------- Canton	5r	Slight	Moderate	Slight	Slight	Eastern white pine-- Northern red oak---- Red pine----------	58 52 73	Eastern white pine, red pine, white spruce.
CoC*: Canton----------	5o	Slight	Slight	Slight	Slight	Eastern white pine-- Northern red oak---- Red pine----------	58 52 73	Eastern white pine, red pine, white spruce.
Urban land.								
CpB*, CpC*: Chatfield---------	3o	Slight	Slight	Slight	Slight	Sugar maple--------- Northern red oak---- White ash----------	65 70 75	Eastern white pine, red pine, European larch, Norway spruce.
Hollis----------	5d	Slight	Slight	Severe	Moderate	Northern red oak---- Eastern white pine-- Sugar maple--------- Red pine---------- Red spruce----------	47 55 56 47 37	Eastern white pine, red pine.

See footnote at end of table

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
CpB*, CpC*:								
Canton	5o	Slight	Slight	Slight	Slight	Eastern white pine	58	Eastern white pine, red pine, white spruce.
						Northern red oak	52	
						Red pine	73	
CpD*:								
Chatfield	3r	Slight	Moderate	Slight	Slight	Sugar maple	65	Eastern white pine, red pine, European larch, Norway spruce.
						Northern red oak	70	
						White ash	75	
Hollis	5d	Slight	Moderate	Severe	Moderate	Northern red oak	47	Eastern white pine, red pine.
						Eastern white pine	55	
						Sugar maple	56	
						Red pine	47	
						Red spruce	37	
Canton	5r	Slight	Moderate	Slight	Slight	Eastern white pine	58	Eastern white pine, red pine, white spruce.
						Northern red oak	52	
						Red pine	73	
CsB*, CsC*:								
Chatfield	3o	Slight	Slight	Slight	Slight	Sugar maple	65	Eastern white pine, red pine, European larch, Norway spruce.
						Northern red oak	70	
						White ash	75	
Hollis	5d	Slight	Slight	Severe	Moderate	Northern red oak	47	Eastern white pine, red pine.
						Eastern white pine	55	
						Sugar maple	56	
						Red pine	47	
						Red spruce	37	
CtD*:								
Chatfield	3r	Slight	Moderate	Slight	Slight	Sugar maple	65	Eastern white pine, red pine, European larch, Norway spruce.
						Northern red oak	70	
						White ash	75	
Hollis	5d	Slight	Moderate	Severe	Moderate	Northern red oak	47	Eastern white pine, red pine.
						Eastern white pine	55	
						Sugar maple	56	
						Red pine	47	
						Red spruce	37	
Rock outcrop.								
DeA, DeB	4s	Slight	Slight	Moderate	Slight	Eastern white pine	65	Eastern white pine, red pine, European larch.
Deerfield						Northern red oak	55	
Gw	5w	Slight	Severe	Severe	Severe	Balsam fir	39	
Greenwood						Black spruce	15	
						Tamarack	35	
						Red maple	40	
						Silver maple	65	
						Black cherry	---	
HsA, HsB, HsC	5s	Slight	Slight	Severe	Slight	Northern red oak	49	Eastern white pine, red pine, European larch.
Hinckley						Eastern white pine	60	
						Red pine	58	
						Sugar maple	57	
HsD	5s	Slight	Moderate	Severe	Slight	Northern red oak	49	Eastern white pine, red pine, European larch.
Hinckley						Eastern white pine	60	
						Red pine	58	
						Sugar maple	57	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
LeA---------- Leicester Variant	4w	Slight	Severe	Severe	Severe	Northern red oak----	56	Eastern white pine, white spruce, eastern hemlock.
						Eastern white pine--	69	
						Red maple----------	70	
LsA---------- Leicester	4w	Slight	Severe	Severe	Severe	Northern red oak----	56	Eastern white pine, white spruce, eastern hemlock.
						Eastern white pine--	69	
						Red maple----------	70	
LtA*, LtB*, LvA*, LvB*: Leicester--------	4w	Slight	Severe	Severe	Severe	Northern red oak----	56	Eastern white pine, white spruce, eastern hemlock.
						Eastern white pine--	69	
						Red maple----------	70	
Walpole----------	4w	Slight	Severe	Severe	Severe	Eastern white pine--	68	Eastern white pine, white spruce, northern white-cedar, Norway spruce.
						Red maple----------	75	
						White ash----------	61	
						Eastern hemlock-----	54	
MoB, MoC---------- Montauk	3o	Slight	Slight	Slight	Slight	Sugar maple---------	65	Norway spruce, white spruce, European larch.
						Northern red oak----	70	
						Red pine-----------	75	
						Eastern white pine--	75	
MoD---------- Montauk	3r	Slight	Moderate	Slight	Slight	Sugar maple---------	65	Norway spruce, white spruce, European larch.
						Northern red oak----	70	
						Red pine-----------	75	
						Eastern white pine--	75	
MtB, MtC---------- Montauk	3o	Slight	Slight	Slight	Slight	Sugar maple---------	65	Norway spruce, white spruce, red pine.
						Northern red oak----	70	
						Red pine-----------	75	
MtD---------- Montauk	3r	Slight	Moderate	Slight	Slight	Sugar maple---------	65	Norway spruce, white spruce, red pine.
						Northern red oak----	70	
						Red pine-----------	75	
NnA, NnB---------- Ninigret	3o	Slight	Slight	Slight	Slight	Red pine-----------	71	Eastern white pine, white spruce.
						Eastern white pine--	75	
						Red maple----------	60	
						Northern red oak----	65	
						Sugar maple---------	55	
Oc, Om---------- Occum	3o	Slight	Slight	Slight	Slight	Eastern white pine--	70	Eastern white pine.
						Northern red oak----	65	
						Sugar maple---------	60	
PbB, PbC---------- Paxton	3o	Slight	Slight	Slight	Slight	Northern red oak----	65	Red pine, eastern white pine, Norway spruce, European larch.
						Red pine-----------	67	
						Eastern white pine--	66	
						Sugar maple---------	75	
PbD---------- Paxton	3r	Slight	Moderate	Slight	Slight	Northern red oak----	65	Red pine, eastern white pine, Norway spruce, European larch.
						Red pine-----------	67	
						Eastern white pine--	66	
						Sugar maple---------	75	
PfB, PfC---------- Paxton	3o	Slight	Slight	Slight	Slight	Northern red oak----	65	Red pine, eastern white pine, Norway spruce, European larch.
						Red pine-----------	67	
						Eastern white pine--	66	
						Sugar maple---------	75	
PfD, PfE---------- Paxton	3r	Slight	Moderate	Slight	Slight	Northern red oak----	65	Red pine, eastern white pine, Norway spruce, European larch.
						Red pine-----------	67	
						Eastern white pine--	66	
						Sugar maple---------	75	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
PhB, PhC---------- Pennichuck	3o	Slight	Slight	Slight	Slight	Eastern white pine--	70	Eastern white pine, red pine, European larch, eastern hemlock.
						Northern red oak----	65	
						White oak----------	60	
						Red maple----------	75	
						Sugar maple---------	---	
PhD---------- Pennichuck	3r	Slight	Moderate	Slight	Slight	Eastern white pine--	70	Eastern white pine, red pine, European larch, eastern hemlock.
						Northern red oak----	65	
						White oak----------	60	
						Red maple----------	75	
						Sugar maple---------	---	
PiA, PiB---------- Pipestone	3s	Slight	Slight	Moderate	Slight	Red maple----------	56	Eastern white pine, Norway spruce, Austrian pine.
						White ash----------	56	
						American basswood---	56	
PtA, PtB---------- Pittstown Variant	3o	Slight	Slight	Slight	Slight	Northern red oak----	72	Eastern white pine, eastern hemlock, white spruce, Scotch pine.
						Sugar maple---------	66	
						Eastern white pine--	75	
						Eastern hemlock-----	75	
						Red spruce----------	50	
Pu---------- Pootatuck	3o	Slight	Slight	Slight	Slight	Eastern white pine--	75	Eastern white pine, white spruce.
						Red pine-----------	75	
						Red maple----------	60	
						Yellow birch--------	60	
RbA, ReA, ReB------ Ridgebury	4w	Slight	Severe	Severe	Severe	Northern red oak----	57	Eastern white pine, white spruce.
						Red spruce----------	47	
						Eastern white pine--	63	
						Sugar maple---------	52	
Rp---------- Rippowam	4w	Slight	Severe	Severe	Severe	Red maple----------	75	Eastern white pine, white spruce.
						Eastern white pine--	65	
Sm---------- Saco Variant	5w	Slight	Severe	Severe	Severe	Eastern white pine--	50	
						Red maple----------	50	
						Northern white-cedar	45	
Sn---------- Saugatuck	5w	Slight	Severe	Moderate	Moderate	White ash----------	40	Black spruce, white spruce, paper birch.
						Black spruce--------	40	
						Red maple----------	39	
						Paper birch---------	56	
So, Sr---------- Scarboro	5w	Slight	Severe	Severe	Severe	Eastern white pine--	55	Northern white-cedar.
						Red maple----------	55	
						Atlantic white-cedar	45	
SsA, SsB, SsC, StA, StB, StC---------- Scituate	4o	Slight	Slight	Slight	Slight	Northern red oak----	61	Eastern white pine, red pine, white spruce, European larch.
						Eastern white pine--	65	
						Sugar maple---------	55	
						Red pine-----------	70	
Su---------- Suncook	5s	Slight	Slight	Severe	Slight	Eastern white pine--	55	Eastern white pine, red pine.
						Black oak----------	50	
						Northern red oak----	50	
						Red maple----------	50	
WdA, WdB, WdC------ Windsor	5s	Slight	Slight	Severe	Slight	Eastern white pine--	57	Eastern white pine, red pine.
						Northern red oak----	52	
						Red pine-----------	61	
						Sugar maple---------	55	
WdD---------- Windsor	5s	Slight	Moderate	Severe	Slight	Eastern white pine--	57	Eastern white pine, red pine.
						Northern red oak----	52	
						Red pine-----------	61	
						Sugar maple---------	55	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
WnC*:								
Windsor	5s	Slight	Slight	Severe	Slight	Eastern white pine	57	Eastern white pine, red pine.
						Northern red oak	52	
						Red pine	61	
						Sugar maple	55	
Urban land.								
WoA, WoB	3o	Slight	Slight	Slight	Slight	Eastern white pine	67	Eastern white pine, European larch.
Woodbridge						Northern red oak	72	
						Red pine	65	
						Red spruce	50	
						Sugar maple	65	
WvB, WvC	3o	Slight	Slight	Slight	Slight	Eastern white pine	67	Eastern white pine, red pine, European larch.
Woodbridge						Northern red oak	72	
						Red pine	65	
						Red spruce	50	
						Sugar maple	65	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AgA Agawam	Slight	Slight	Slight	Slight	Slight.
AgB Agawam	Slight	Slight	Moderate: slope.	Slight	Slight.
BaA Belgrade	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: erodes easily.	Moderate: wetness.
BaB Belgrade	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Severe: erodes easily.	Moderate: wetness.
BdA Bernardston Variant	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: small stones, wetness.	Slight	Moderate: wetness.
BdB Bernardston Variant	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, small stones, wetness.	Slight	Moderate: wetness.
BdC Bernardston Variant	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Slight	Moderate: wetness, slope.
BeC Bernardston Variant	Moderate: large stones, wetness, slope.	Moderate: large stones, wetness, slope.	Severe: large stones, slope, small stones.	Slight	Moderate: large stones, wetness, slope.
BeD Bernardston Variant	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Bg Binghamville	Severe: wetness.	Severe: wetness.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
BoA*, BpA*. Borohemists					
CaB Canton	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
CaC Canton	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
CaD Canton	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
CmB Canton	Moderate: large stones.	Slight	Moderate: slope, large stones.	Moderate: large stones.	Moderate: large stones.
CmC Canton	Moderate: slope, large stones.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: large stones, slope.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CmD--- Canton	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, large stones.	Severe: slope.
CmE--- Canton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CnC--- Canton	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: large stones.
CnD--- Canton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CoC*: Canton---	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight---	Moderate: slope.
Urban land.					
CpB*: Chatfield---	Slight---	Slight---	Moderate: slope, small stones.	Slight---	Moderate: droughty, thin layer.
Hollis---	Slight---	Slight---	Severe: depth to rock.	Slight---	Severe: depth to rock.
Canton---	Slight---	Slight---	Moderate: slope, small stones.	Slight---	Slight.
CpC*: Chatfield---	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight---	Moderate: droughty, slope, thin layer.
Hollis---	Moderate: slope.	Moderate: slope.	Severe: slope, depth to rock.	Slight---	Severe: depth to rock.
Canton---	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight---	Moderate: slope.
CpD*: Chatfield---	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Hollis---	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Moderate: slope.	Severe: slope, depth to rock.
Canton---	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
CsB*: Chatfield---	Slight---	Slight---	Moderate: slope, small stones.	Slight---	Moderate: droughty, thin layer.
Hollis---	Slight---	Slight---	Severe: depth to rock.	Slight---	Severe: depth to rock.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CsC*:					
Chatfield	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: droughty, slope, thin layer.
Hollis	Moderate: slope.	Moderate: slope.	Severe: slope, depth to rock.	Slight	Severe: depth to rock.
CtD*:					
Chatfield	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hollis	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Rock outcrop.					
Cu	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
Chocorua					
DeA	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight	Moderate: wetness.
Deerfield					
DeB	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Slight	Moderate: wetness.
Deerfield					
Dp*.					
Dumps					
Gw	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
Greenwood					
HsA	Slight	Slight	Moderate: small stones.	Slight	Moderate: small stones, droughty.
Hinckley					
HsB	Slight	Slight	Moderate: slope, small stones.	Slight	Moderate: small stones, droughty.
Hinckley					
HsC	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: small stones, droughty, slope.
Hinckley					
HsD	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hinckley					
LeA	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Leicester Variant					
LsA	Severe: wetness.	Severe: wetness.	Severe: wetness, large stones.	Severe: wetness.	Severe: wetness.
Leicester Variant					
LtA*, LtB*:					
Leicester	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Walpole	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
LvA*, LvB*: Leicester	Severe: wetness.	Severe: wetness.	Severe: wetness, large stones.	Severe: wetness.	Severe: wetness.
Walpole	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
MoB Montauk	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones.	Slight	Slight.
MoC Montauk	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
MoD Montauk	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
MtB Montauk	Moderate: large stones, percs slowly.	Moderate: large stones.	Severe: large stones, small stones.	Slight	Moderate: small stones, large stones.
MtC Montauk	Moderate: slope, large stones, percs slowly.	Moderate: slope, large stones.	Severe: large stones, slope, small stones.	Slight	Moderate: small stones, large stones, slope.
MtD Montauk	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: slope.
NnA Ninigret	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
NnB Ninigret	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Moderate: wetness.	Moderate: wetness.
Oc Occum	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Om Occum	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
PbB Paxton	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly, small stones.	Slight	Slight.
PbC Paxton	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
PbD Paxton	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
PfB Paxton	Moderate: percs slowly, large stones.	Moderate: large stones.	Severe: large stones.	Slight	Moderate: large stones.
PfC Paxton	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Slight	Moderate: slope, large stones.
PfD Paxton	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Moderate: slope.	Severe: slope.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
PfE--- Paxton	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Severe: slope.	Severe: slope.
PhB--- Pennichuck	Slight---	Slight---	Moderate: slope, small stones, depth to rock.	Slight---	Moderate: thin layer.
PhC--- Pennichuck	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight---	Moderate: slope, thin layer.
PhD--- Pennichuck	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
PiA, PiB--- Pipestone	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Pr*. Pits					
PtA--- Pittstown Variant	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: small stones, wetness.	Moderate: wetness.	Moderate: wetness.
PtB--- Pittstown Variant	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, small stones, wetness.	Moderate: wetness.	Moderate: wetness.
Pu--- Pootatuck	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
Qr*. Quarries					
RbA--- Ridgebury	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
ReA, ReB--- Ridgebury	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, large stones, small stones.	Severe: wetness.	Severe: wetness.
Rp--- Rippowam	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Sm--- Saco Variant	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Sn--- Saugatuck	Severe: ponding, cemented pan.	Severe: ponding, cemented pan.	Severe: ponding, cemented pan.	Severe: ponding.	Severe: ponding, thin layer.
So--- Scarboro	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Sr--- Scarboro	Severe: ponding.	Severe: ponding.	Severe: large stones, ponding.	Severe: ponding.	Severe: ponding.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
SsA---------- Scituate	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: percs slowly, small stones, wetness.	Moderate: wetness.	Moderate: wetness.
SsB---------- Scituate	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, small stones, wetness.	Moderate: wetness.	Moderate: wetness.
SsC---------- Scituate	Moderate: percs slowly, slope, wetness.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: slope, wetness.
StA, StB---------- Scituate	Moderate: large stones, wetness, percs slowly.	Moderate: large stones, wetness, percs slowly.	Severe: large stones, small stones.	Moderate: wetness.	Moderate: small stones, large stones.
StC---------- Scituate	Moderate: slope, large stones, wetness.	Moderate: slope, large stones, wetness.	Severe: slope, large stones, small stones.	Moderate: wetness.	Moderate: slope, small stones, large stones.
Su---------- Suncook	Severe: flooding.				
UdA*. Udipsamments					
Ur*. Urban land					
WdA---------- Windsor	Slight----------	Slight----------	Slight----------	Slight----------	Moderate: droughty.
WdB---------- Windsor	Slight----------	Slight----------	Moderate: slope.	Slight----------	Moderate: droughty.
WdC---------- Windsor	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope, droughty.
WdD---------- Windsor	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
WnC*: Windsor----------	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope, droughty.
Urban land.					
WoA---------- Woodbridge	Moderate: percs slowly, wetness.	Moderate: percs slowly, wetness.	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: wetness.
WoB---------- Woodbridge	Moderate: percs slowly, wetness.	Moderate: percs slowly, wetness.	Moderate: slope, percs slowly, wetness.	Moderate: wetness.	Moderate: wetness.
WvB---------- Woodbridge	Moderate: wetness, large stones, percs slowly.	Moderate: wetness, large stones, percs slowly.	Severe: large stones.	Moderate: wetness.	Moderate: large stones, wetness.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WvC---------- Woodbridge	Moderate: slope, wetness, large stones.	Moderate: slope, wetness, large stones.	Severe: slope, large stones.	Moderate: wetness.	Moderate: slope, large stones, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AgA---- Agawam	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
AgB---- Agawam	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
BaA---- Belgrade	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
BaB---- Belgrade	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
BdA, BdB---- Bernardston Variant	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
BdC---- Bernardston Variant	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
BeC, BeD---- Bernardston Variant	Very poor.	Poor	Good	Good	Good	---	Very poor.	Very poor.	Poor	Good	Very poor.
Bg---- Binghamville	Poor	Fair	Fair	Fair	Fair	---	Good	Fair	Fair	Fair	Fair.
BoA*, BpA*. Borohemists											
CaB---- Canton	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
CaC---- Canton	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
CaD---- Canton	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
CmB---- Canton	Very poor.	Poor	Good	Good	Good	---	Poor	Very poor.	Poor	Good	Very poor.
CmC, CmD, CmE------ Canton	Very poor.	Poor	Good	Good	Good	---	Very poor.	Very poor.	Poor	Good	Very poor.
CnC---- Canton	Very poor.	Very poor.	Good	Good	Good	---	Very poor.	Very poor.	Poor	Fair	Very poor.
CnD---- Canton	Very poor.	Poor	Good	Good	Good	---	Very poor.	Very poor.	Poor	Good	Very poor.
CoC*: Canton----	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.											
CpB*: Chatfield----	Fair	Good	Good	Fair	Fair	---	Poor	Very poor.	Good	Fair	Very poor.
Hollis----	Poor	Poor	Fair	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
CpB*:											
Canton	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
CpC*:											
Chatfield	Fair	Good	Good	Fair	Fair	---	Very poor.	Very poor.	Good	Fair	Very poor.
Hollis	Poor	Poor	Fair	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.
Canton	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
CpD*:											
Chatfield	Poor	Fair	Good	Fair	Fair	---	Very poor.	Very poor.	Fair	Fair	Very poor.
Hollis	Poor	Poor	Fair	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.
Canton	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
CsB*:											
Chatfield	Fair	Good	Good	Fair	Fair	---	Poor	Very poor.	Good	Fair	Very poor.
Hollis	Poor	Poor	Fair	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.
CsC*:											
Chatfield	Fair	Good	Good	Fair	Fair	---	Very poor.	Very poor.	Good	Fair	Very poor.
Hollis	Poor	Poor	Fair	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.
CtD*:											
Chatfield	Very poor.	Fair	Good	Fair	Fair	---	Very poor.	Very poor.	Poor	Fair	Very poor.
Hollis	Very poor.	Poor	Fair	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop.											
Cu Chocorua	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	---	Good	Good	Very poor.	Very poor.	Good.
DeA Deerfield	Poor	Fair	Fair	Poor	Poor	---	Poor	Poor	Fair	Poor	Poor
DeB Deerfield	Poor	Fair	Fair	Poor	Poor	---	Poor	Very poor.	Fair	Poor	Very poor.
Dp*. Dumps											
Gw Greenwood	Very poor.	Poor	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good.
HsA, HsB, HsC Hinckley	Poor	Poor	Poor	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.
HsD Hinckley	Very poor.	Poor	Poor	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
LeA---- Leicester Variant	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
LsA---- Leicester Variant	Very poor.	Poor	Fair	Fair	Fair	---	Good	Good	Poor	Fair	Good.
LtA*:											
Leicester----	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
Walpole----	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
LtB*:											
Leicester----	Poor	Fair	Fair	Fair	Fair	---	Poor	Very poor.	Fair	Fair	Very poor.
Walpole----	Poor	Fair	Fair	Fair	Fair	---	Poor	Very poor.	Fair	Fair	Very poor.
LvA*:											
Leicester----	Very poor.	Poor	Fair	Fair	Fair	---	Good	Good	Poor	Fair	Good.
Walpole----	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
LvB*:											
Leicester----	Very poor.	Poor	Fair	Fair	Fair	---	Poor	Very poor.	Poor	Fair	Very poor.
Walpole----	Poor	Fair	Fair	Fair	Fair	---	Poor	Very poor.	Fair	Fair	Very poor.
MoB---- Montauk	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
MoC---- Montauk	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
MoD---- Montauk	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
MtB---- Montauk	Very poor.	Poor	Good	Good	Good	---	Poor	Very poor.	Poor	Good	Very poor.
MtC, MtD---- Montauk	Very poor.	Poor	Good	Good	Good	---	Very poor.	Very poor.	Poor	Good	Very poor.
NnA---- Ninigret	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
NnB---- Ninigret	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
Oc, Om---- Occum	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
PbB---- Paxton	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
PbC---- Paxton	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
PbD---- Paxton	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
PfB---- Paxton	Very poor.	Poor	Good	Good	Good	---	Poor	Very poor.	Poor	Good	Very poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
PfC, PfD, PfE---- Paxton	Very poor.	Poor	Good	Good	Good	---	Very poor.	Very poor.	Poor	Good	Very poor.
PhB---- Pennichuck	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
PhC---- Pennichuck	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
PhD---- Pennichuck	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
PiA, PiB---- Pipestone	Fair	Poor	Fair	Poor	Poor	---	Poor	Fair	Poor	Poor	Poor.
Pr*. Pits											
PtA---- Pittstown Variant	Fair	Good	Good	Fair	Fair	---	Poor	Poor	Good	Fair	Poor.
PtB---- Pittstown Variant	Fair	Good	Good	Fair	Fair	---	Poor	Very poor.	Good	Fair	Very poor.
Pu---- Pootatuck	Poor	Fair	Fair	Good	Good	---	Poor	Poor	Fair	Good	Poor.
Qr*. Quarries											
RbA---- Ridgebury	Poor	Poor	Fair	Fair	Fair	---	Poor	Very poor.	Fair	Fair	Very poor.
ReA---- Ridgebury	Very poor.	Poor	Fair	Fair	Fair	---	Good	Good	Poor	Fair	Good.
ReB---- Ridgebury	Very poor.	Poor	Fair	Fair	Fair	---	Poor	Very poor.	Poor	Fair	Very poor.
Rp---- Rippowam	Poor	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
Sm---- Saco Variant	Very poor.	Poor	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good.
Sn---- Saugatuck	Poor	Poor	Fair	Poor	Poor	---	Good	Good	Poor	Poor	Poor.
So---- Scarboro	Very poor.	Poor	Poor	Poor	Poor	---	Good	Poor	Poor	Poor	Fair.
Sr---- Scarboro	Very poor.	Poor	Poor	Poor	Poor	---	Good	Fair	Poor	Poor	Fair.
SsA---- Scituate	Fair	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
SsB---- Scituate	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
SsC---- Scituate	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
StA---- Scituate	Very poor.	Poor	Good	Good	Good	---	Poor	Poor	Poor	Good	Poor.
StB---- Scituate	Very poor.	Poor	Good	Good	Good	---	Poor	Very poor.	Poor	Good	Very poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
StC---------- Scituate	Very poor.	Poor	Good	Good	Good	---	Very poor.	Very poor.	Poor	Good	Very poor.
Su---------- Suncook	Poor	Fair	Fair	Poor	Poor	---	Very poor.	Very poor.	Fair	Poor	Very poor.
UdA*. Udipsamments											
Ur*. Urban land											
WdA, WdB, WdC------ Windsor	Poor	Poor	Fair	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.
WdD---------- Windsor	Very poor.	Poor	Fair	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.
WnC*: Windsor----------	Poor	Poor	Fair	Poor	Poor	---	Very poor.	Very poor.	Poor	Poor	Very poor.
Urban land.											
WoA---------- Woodbridge	Fair	Good	Good	Good	Fair	---	Poor	Poor	Good	Good	Poor.
WoB---------- Woodbridge	Fair	Good	Good	Good	Fair	---	Poor	Very poor.	Good	Good	Very poor.
WvB---------- Woodbridge	Very poor.	Poor	Good	Good	Fair	---	Poor	Very poor.	Poor	Good	Very poor.
WvC---------- Woodbridge	Very poor.	Poor	Good	Good	Fair	---	Very poor.	Very poor.	Poor	Good	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AgA---------- Agawam	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Slight.
AgB---------- Agawam	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
BaA---------- Belgrade	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: wetness.
BaB---------- Belgrade	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: slope, wetness.	Severe: frost action.	Moderate: wetness.
BdA---------- Bernardston Variant	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, frost action.	Moderate: wetness.
BdB---------- Bernardston Variant	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Moderate: wetness.
BdC---------- Bernardston Variant	Moderate: dense layer, wetness, slope.	Moderate: wetness, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: wetness, slope.
BeC---------- Bernardston Variant	Moderate: dense layer, wetness, slope.	Moderate: wetness, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: large stones, wetness, slope.
BeD---------- Bernardston Variant	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Bg---------- Binghamville	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, frost action.	Severe: wetness.
BoA*, BpA*. Borohemists						
CaB---------- Canton	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
CaC---------- Canton	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
CaD---------- Canton	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CmB---------- Canton	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: large stones.	Moderate: large stones.
CmC---------- Canton	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, large stones.	Moderate: large stones.
CmD, CmE---------- Canton	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CnC---------- Canton	Severe: cutbanks cave, large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: large stones.
CnD---------- Canton	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CoC*: Canton----------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Urban land.						
CpB*: Chatfield--------	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock, frost action.	Moderate: droughty, thin layer.
Hollis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Canton----------	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
CpC*: Chatfield--------	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: slope, depth to rock, frost action.	Moderate: droughty, slope, thin layer.
Hollis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Canton----------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
CpD*: Chatfield--------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hollis----------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Canton----------	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CsB*: Chatfield--------	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock, frost action.	Moderate: droughty, thin layer.
Hollis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
CsC*: Chatfield--------	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: slope, depth to rock, frost action.	Moderate: droughty, slope, thin layer.
Hollis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CtD*:						
Chatfield	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hollis	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Rock outcrop.						
Cu	Severe: cutbanks cave, excess humus, ponding.	Severe: ponding, low strength.	Severe: ponding, low strength.	Severe: ponding, low strength.	Severe: low strength, ponding, frost action.	Severe: ponding, excess humus.
DeA Deerfield	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Moderate: wetness.
DeB Deerfield	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: slope, wetness.	Moderate: frost action, wetness.	Moderate: wetness.
Dp*. Dumps						
Gw Greenwood	Severe: excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding, frost action.	Severe: ponding, flooding, excess humus.
HsA Hinckley	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: small stones, droughty.
HsB Hinckley	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: large stones.	Moderate: small stones, droughty.
HsC Hinckley	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, large stones.	Moderate: small stones, droughty, slope.
HsD Hinckley	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
LeA Leicester Variant	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
LsA Leicester Variant	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
LtA*, LtB*:						
Leicester	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
Walpole	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
LvA*, LvB*:						
Leicester	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
LvA*, LvB*: Walpole	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
MoB Montauk	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Slight.
MoC Montauk	Moderate: dense layer, wetness, slope.	Moderate: wetness, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: slope.
MoD Montauk	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MtB Montauk	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Moderate: small stones, large stones.
MtC Montauk	Moderate: dense layer, wetness, slope.	Moderate: wetness, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: small stones, large stones, slope.
MtD Montauk	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
NnA Ninigret	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Moderate: wetness.
NnB Ninigret	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: slope, wetness.	Moderate: frost action, wetness.	Moderate: wetness.
Oc Occum	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Om Occum	Severe: cutbank cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
PbB Paxton	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Moderate: frost action, wetness.	Slight.
PbC Paxton	Moderate: slope, dense layer, wetness.	Moderate: slope, wetness.	Moderate: slope, wetness.	Severe: slope.	Moderate: slope, frost action, wetness.	Moderate: slope.
PbD Paxton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
PfB Paxton	Moderate: dense layer, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Moderate: frost action, wetness.	Moderate: large stones.
PfC Paxton	Moderate: slope, dense layer, wetness.	Moderate: slope, wetness.	Moderate: slope, wetness.	Severe: slope.	Moderate: slope, frost action, wetness.	Moderate: slope, large stones.
PfD, PfE Paxton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
PhB Pennichuck	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock.	Moderate: thin layer.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
PhC--- Pennichuck	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope.	Moderate: slope, thin layer.
PhD--- Pennichuck	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.		Severe: slope.
PiA, PiB--- Pipestone	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Pr*. Pits						
PtA, PtB--- Pittstown Variant	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Moderate: wetness.
Pu--- Pootatuck	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Qr*. Quarries						
RbA, ReA, ReB--- Ridgebury	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
Rp--- Rippowam	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness, frost action.	Severe: wetness, flooding.
Sm--- Saco Variant	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, frost action.	Severe: wetness, flooding.
Sn--- Saugatuck	Severe: ponding, cutbanks cave, cemented pan.	Severe: ponding.	Severe: ponding, cemented pan.	Severe: ponding.	Severe: ponding.	Severe: ponding, thin layer.
So--- Scarboro	Severe: cutbanks cave, excess humus, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, frost action.	Severe: ponding, excess humus.
Sr--- Scarboro	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, frost action.	Severe: ponding, excess humus.
SsA--- Scituate	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Moderate: wetness.
SsB--- Scituate	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: slope, wetness.	Moderate: frost action, wetness.	Moderate: wetness.
SsC--- Scituate	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: slope, wetness.
StA--- Scituate	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Moderate: small stones, large stones.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
StB---------- Scituate	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: frost action, wetness.	Moderate: small stones, large stones.
StC---------- Scituate	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: slope, small stones, large stones.
Su---------- Suncook	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
UdA*. Udipsamments						
Ur*. Urban land						
WdA---------- Windsor	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
WdB---------- Windsor	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty.
WdC---------- Windsor	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope, droughty.
WdD---------- Windsor	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
WnC*: Windsor----------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope, droughty.
Urban land.						
WoA---------- Woodbridge	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: wetness.
WoB---------- Woodbridge	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: slope, wetness.	Severe: frost action.	Moderate: wetness.
WvB---------- Woodbridge	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: slope, wetness.	Severe: frost action.	Moderate: large stones, wetness.
WvC---------- Woodbridge	Severe: wetness.	Moderate: slope, wetness.	Severe: wetness.	Severe: slope.	Severe: frost action.	Moderate: slope, large stones, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and other terms. Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas
AgA, AgB---------- Agawam	Severe: poor filter.	Severe: seepage.
BaA, BaB---------- Belgrade	Severe: wetness, percs slowly.	Severe: wetness, seepage.
BdA---------- Bernardston Variant	Severe: percs slowly.	Moderate: wetness.
BdB---------- Bernardston Variant	Severe: percs slowly.	Moderate: slope, wetness.
BdC, BeC---------- Bernardston Variant	Severe: percs slowly.	Severe: slope.
BeD---------- Bernardston Variant	Severe: percs slowly, slope.	Severe: slope.
Bg---------- Binghamville	Severe: wetness, percs slowly.	Severe: wetness.
BoA*, BpA*. Borohemists		
CaB---------- Canton	Slight----------	Severe: seepage.
CaC---------- Canton	Moderate: slope.	Severe: slope, seepage.
CaD---------- Canton	Severe: slope.	Severe: slope, seepage.
CmB---------- Canton	Moderate: large stones.	Severe: seepage.
CmC---------- Canton	Moderate: slope, large stones.	Severe: slope, seepage.
CmD, CmE---------- Canton	Severe: slope.	Severe: slope, seepage.
CnC---------- Canton	Severe: large stones.	Severe: slope, seepage.
CnD---------- Canton	Severe: slope.	Severe: slope, seepage.
CoC*: Canton----------	Moderate: slope.	Severe: slope, seepage.
CoC*: Urban land.		
CpB*: Chatfield----------	Severe: depth to rock.	Severe: seepage, depth to rock.
Hollis----------	Severe: depth to rock.	Severe: depth to rock, seepage.
Canton----------	Slight----------	Severe: seepage.
CpC*: Chatfield----------	Severe: depth to rock.	Severe: seepage, depth to rock, slope.
Hollis----------	Severe: depth to rock.	Severe: slope, depth to rock, seepage.
Canton----------	Moderate: slope.	Severe: slope, seepage.
CpD*: Chatfield----------	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.
Hollis----------	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.
Canton----------	Severe: slope.	Severe: slope, seepage.
CsB*: Chatfield----------	Severe: depth to rock.	Severe: seepage, depth to rock.
Hollis----------	Severe: depth to rock.	Severe: depth to rock, seepage.
CsC*: Chatfield----------	Severe: depth to rock.	Severe: seepage, depth to rock, slope.
Hollis----------	Severe: depth to rock.	Severe: slope, depth to rock, seepage.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas
CtD*:		
Chatfield	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.
Hollis	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.
Rock outcrop.		
Cu Chocorua	Severe: wetness, ponding, poor filter.	Severe: seepage, ponding, excess humus.
DeA, DeB Deerfield	Severe: wetness, poor filter.	Severe: seepage, wetness.
Dp*. Dumps		
Gw Greenwood	Severe: flooding, ponding.	Severe: seepage, flooding, excess humus.
HsA, HsB Hinckley	Severe: poor filter.	Severe: seepage.
HsC Hinckley	Severe: poor filter.	Severe: slope, seepage.
HsD Hinckley	Severe: slope, poor filter.	Severe: slope, seepage.
LeA Leicester Variant	Severe: wetness.	Severe: seepage, wetness.
LsA Leicester Variant	Severe: wetness.	Severe: seepage, wetness.
LtA*, LtB*, LvA*, LvB*:		
Leicester	Severe: wetness.	Severe: seepage, wetness.
Walpole	Severe: wetness, poor filter.	Severe: seepage, wetness.
MoB Montauk	Severe: percs slowly.	Moderate: slope.
MoC Montauk	Severe: percs slowly.	Severe: slope.
MoD Montauk	Severe: slope, percs slowly.	Severe: slope.
MtB Montauk	Severe: percs slowly.	Moderate: slope.
MtC Montauk	Severe: percs slowly.	Severe: slope.
MtD Montauk	Severe: percs slowly, slope.	Severe: slope.
NnA, NnB Ninigret	Severe: wetness, poor filter.	Severe: wetness, seepage.
Oc Occum	Severe: flooding, poor filter.	Severe: seepage, flooding.
Om Occum	Severe: poor filter.	Severe: seepage, flooding.
PbB Paxton	Severe: percs slowly.	Moderate: slope.
PbC Paxton	Severe: percs slowly.	Severe: slope.
PbD Paxton	Severe: slope, percs slowly.	Severe: slope.
PfB Paxton	Severe: percs slowly.	Moderate: slope.
PfC Paxton	Severe: percs slowly.	Severe: slope.
PfD, PfE Paxton	Severe: slope, percs slowly.	Severe: slope.
PhB Pennichuck	Severe: depth to rock.	Severe: depth to rock.
PhC Pennichuck	Severe: depth to rock.	Severe: depth to rock, slope.
PhD Pennichuck	Severe: depth to rock, slope.	Severe: depth to rock, slope.
PiA, PiB Pipestone	Severe: wetness, poor filter.	Severe: wetness, seepage.
Pr*. Pits		
PtA Pittstown Variant	Severe: wetness, percs slowly.	Moderate: small stones.
PtB Pittstown Variant	Severe: wetness, percs slowly.	Moderate: slope, small stones.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas
Pu Pootatuck	Severe: flooding, wetness, poor filter.	Severe: seepage, wetness, flooding.
Qr*. Quarries		
RbA Ridgebury	Severe: percs slowly, wetness.	Moderate: slope.
ReA Ridgebury	Severe: percs slowly, wetness.	Slight.
ReB Ridgebury	Severe: percs slowly, wetness.	Moderate: slope.
Rp Rippowam	Severe: flooding, wetness, poor filter.	Severe: wetness, flooding, seepage.
Sm Saco Variant	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.
Sn Saugatuck	Severe: cemented pan, ponding, percs slowly.	Severe: ponding, seepage, cemented pan.
So, Sr Scarboro	Severe: ponding, poor filter.	Severe: seepage, excess humus, ponding.
SsA, SsB Scituate	Severe: percs slowly, wetness.	Severe: seepage.
SsC Scituate	Severe: percs slowly, wetness.	Severe: slope, seepage.
StA, StB Scituate	Severe: percs slowly, wetness.	Severe: seepage.
StC Scituate	Severe: percs slowly, wetness.	Severe: slope, seepage.
Su Suncook	Severe: flooding, poor filter.	Severe: flooding, seepage.
UdA*. Udipsamments		
Ur*. Urban land		
WdA, WdB Windsor	Severe: poor filter.	Severe: seepage.
WdC Windsor	Severe: poor filter.	Severe: slope, seepage.
WdD Windsor	Severe: slope, poor filter.	Severe: slope, seepage.
WnC*: Windsor	Severe: poor filter.	Severe: slope, seepage.
Urban land.		
WoA Woodbridge	Severe: percs slowly, wetness.	Slight.
WoB, WvB Woodbridge	Severe: percs slowly, wetness.	Moderate: slope.
WvC Woodbridge	Severe: percs slowly, wetness.	Severe: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
AgA, AgB Agawam	Good	Probable	Probable	Poor: too sandy, area reclaim.
BaA, BaB Belgrade	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
BdA, BdB, BdC, BeC Bernardston Variant	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
BeD Bernardston Variant	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Bg Binghamville	Poor: wetness, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
BoA*, BpA*. Borohemists				
CaB, CaC Canton	Good	Probable	Improbable: too sandy.	Poor: small stones.
CaD Canton	Fair: slope.	Probable	Improbable: too sandy.	Poor: slope, small stones.
CmB, CmC Canton	Good	Probable	Improbable: too sandy.	Poor: large stones.
CmD Canton	Fair: slope.	Probable	Improbable: too sandy.	Poor: slope, large stones.
CmE Canton	Poor: slope.	Probable	Improbable: too sandy.	Poor: slope, large stones.
CnC Canton	Fair: large stones.	Probable	Improbable: too sandy.	Poor: large stones.
CnD Canton	Poor: slope.	Probable	Improbable: too sandy.	Poor: slope, large stones.
CoC*: Canton	Good	Probable	Improbable: too sandy.	Poor: small stones.
Urban land.				
CpB*, CpC*: Chatfield	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Hollis	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, area reclaim.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
CpB*, CpC*: Canton	Good	Probable	Improbable: too sandy.	Poor: small stones.
CpD*: Chatfield	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Hollis	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer, area reclaim.
Canton	Fair: slope.	Probable	Improbable: too sandy.	Poor: slope, small stones.
CsB*, CsC*: Chatfield	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Hollis	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, area reclaim.
CtD*: Chatfield	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Hollis	Poor: slope, thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer, area reclaim.
Rock outcrop.				
Cu Chocorua	Poor: wetness, low strength.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
DeA, DeB Deerfield	Fair: wetness.	Probable	Improbable: excess fines.	Poor: too sandy, thin layer.
Dp*. Dumps				
Gw Greenwood	Poor: wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
HsA, HsB, HsC Hinckley	Good	Probable	Probable	Poor: too sandy, area reclaim, small stones.
HsD Hinckley	Poor: slope.	Probable	Probable	Poor: slope, too sandy, small stones.
LeA, LsA Leicester Variant	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
LtA*, LtB*, LvA*, LvB*:				
Leicester	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, small stones.
Walpole	Poor: wetness.	Probable	Probable	Poor: wetness, small stones.
MoB, MoC Montauk	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
MoD Montauk	Fair: wetness, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
MtB, MtC Montauk	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
MtD Montauk	Fair: wetness, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
NnA, NnB Ninigret	Fair: wetness.	Probable	Probable	Poor: area reclaim.
Oc, Om Occum	Good	Probable	Improbable: excess fines.	Fair: small stones, area reclaim, thin layer.
PbB Paxton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
PbC Paxton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, area reclaim.
PbD Paxton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
PfB, PfC Paxton	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
PfD Paxton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, large stones.
PfE Paxton	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, large stones.
PhB, PhC Pennichuck	Poor: area reclaim.	Improbable: excess fines, thin layer.	Improbable: thin layer.	Poor: small stones.
PhD Pennichuck	Poor: area reclaim.	Improbable: excess fines, thin layer.	Improbable: thin layer.	Poor: small stones, slope.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
PiA, PiB---------- Pipestone	Poor: wetness.	Probable----------	Improbable: too sandy.	Poor: wetness.
Pr*. Pits				
PtA, PtB---------- Pittstown Variant	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Pu---------- Pootatuck	Fair: wetness.	Probable----------	Improbable: too sandy.	Fair: thin layer.
Qr*. Quarries				
RbA, ReA, ReB--------- Ridgebury	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, small stones, area reclaim.
Rp---------- Rippowam	Poor: wetness.	Probable----------	Improbable: too sandy.	Poor: wetness.
Sm---------- Saco Variant	Poor: wetness.	Probable----------	Improbable: excess fines.	Poor: wetness.
Sn---------- Saugatuck	Poor: wetness.	Probable----------	Improbable: too sandy.	Poor: wetness, area reclaim.
So---------- Scarboro	Poor: wetness.	Probable----------	Improbable: too sandy.	Poor: too sandy, ponding.
Sr---------- Scarboro	Poor: wetness.	Probable----------	Improbable: too sandy.	Poor: too sandy, wetness.
SsA, SsB, SsC--------- Scituate	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
StA, StB, StC--------- Scituate	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Su---------- Suncook	Good----------	Probable----------	Improbable: too sandy.	Poor: too sandy.
UdA*. Udipsamments				
Ur*. Urban land				
WdA, WdB, WdC--------- Windsor	Good----------	Probable----------	Improbable: excess fines.	Poor: too sandy.
WdD---------- Windsor	Poor: slope.	Probable----------	Improbable: excess fines.	Poor: slope, too sandy.
WnC*: Windsor----------	Good----------	Probable----------	Improbable: excess fines.	Poor: too sandy.
Urban land.				

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
WoA, WoB---------- Woodbridge	Poor: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
WvB, WvC---------- Woodbridge	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
AgA---------- Agawam	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Favorable------	Favorable.
AgB---------- Agawam	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope----------	Favorable.
BaA---------- Belgrade	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave, slow refill.	Percs slowly, frost action.	Wetness, percs slowly.	Erodes easily, percs slowly.
BaB---------- Belgrade	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave, slow refill.	Percs slowly, frost action, slope.	Wetness, percs slowly, slope.	Erodes easily, percs slowly.
BdA---------- Bernardston Variant	Slight---------	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth.	Rooting depth, percs slowly.
BdB---------- Bernardston Variant	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth, slope.	Rooting depth, percs slowly.
BdC, BeC, BeD----- Bernardston Variant	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth, slope.	Slope, rooting depth, percs slowly.
Bg---------- Binghamville	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Wetness, percs slowly.	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
BoA*, BpA*. Borohemists						
CaB---------- Canton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Not needed-----	Slope, fast intake, erodes easily.	Slope, erodes easily.
CaC, CaD---------- Canton	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Not needed-----	Slope, fast intake, erodes easily.	Slope, erodes easily.
CmB---------- Canton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Not needed-----	Slope, fast intake, large stones.	Slope, large stones, erodes easily.
CmC, CmD, CmE, CnC, CnD--------- Canton	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Not needed-----	Slope, fast intake, large stones.	Slope, large stones, erodes easily.
CoC*: Canton----------	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Not needed-----	Slope, fast intake, erodes easily.	Slope, erodes easily.
Urban land.						
CpB*: Chatfield--------	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, depth to rock, slope.	Droughty, depth to rock.
Hollis----------	Severe: depth to rock.	Severe: piping.	Severe: no water.	Not needed-----	Slope, droughty, rooting depth.	Slope, droughty, rooting depth.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
CpB*:						
Canton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Not needed	Slope, fast intake, erodes easily.	Slope, erodes easily.
CpC*, CpD*:						
Chatfield	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, depth to rock, slope.	Slope, droughty, depth to rock.
Hollis	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Not needed	Slope, droughty, rooting depth.	Slope, droughty, rooting depth.
Canton	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Not needed	Slope, fast intake, erodes easily.	Slope, erodes easily.
CsB*:						
Chatfield	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, depth to rock, slope.	Droughty, depth to rock.
Hollis	Severe: depth to rock.	Severe: piping.	Severe: no water.	Not needed	Slope, droughty, rooting depth.	Slope, droughty, rooting depth.
CsC*:						
Chatfield	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, depth to rock, slope.	Slope, droughty, depth to rock.
Hollis	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Not needed	Slope, droughty, rooting depth.	Slope, droughty, rooting depth.
CtD*:						
Chatfield	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, depth to rock, slope.	Slope, droughty, depth to rock.
Hollis	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Not needed	Slope, droughty, rooting depth.	Slope, droughty, rooting depth.
Rock outcrop.						
Cu	Severe: seepage.	Severe: seepage, ponding, excess humus.	Severe: cutbanks cave.	Frost action, cutbanks cave, ponding.	Ponding	Wetness.
DeA	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Cutbanks cave	Fast intake, wetness, droughty.	Droughty.
DeB	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Slope, cutbanks cave.	Wetness, droughty, slope.	Droughty.
Dp*.						
Dumps						
Gw	Severe: seepage.	Severe: excess humus, ponding.	Moderate: slow refill.	Ponding, frost action.	Ponding, soil blowing.	Wetness.
HsA	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake.	Large stones, droughty.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
HsB---------- Hinckley	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Large stones, droughty.
HsC, HsD---------- Hinckley	Severe: slope, seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Large stones, droughty, slope.
LeA, LsA---------- Leicester Variant	Severe: seepage.	Severe: wetness.	Moderate: slow refill.	Frost action---	Wetness--------	Wetness.
LtA*: Leicester--------	Severe: seepage.	Severe: wetness.	Moderate: slow refill.	Frost action---	Wetness--------	Wetness.
Walpole----------	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Frost action, cutbanks cave.	Wetness--------	Wetness.
LtB*: Leicester--------	Severe: seepage.	Severe: wetness.	Moderate: slow refill.	Frost action, slope.	Wetness, slope.	Wetness.
Walpole----------	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Slope, frost action, cutbanks cave.	Wetness, slope.	Wetness.
LvA*: Leicester--------	Severe: seepage.	Severe: wetness.	Moderate: slow refill.	Frost action---	Wetness--------	Wetness.
Walpole----------	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Frost action, cutbanks cave.	Wetness--------	Wetness.
LvB*: Leicester--------	Severe: seepage.	Severe: wetness.	Moderate: slow refill.	Frost action, slope.	Wetness, slope.	Wetness.
Walpole----------	Severe: seepage	Severe: seepage wetness.	Severe: cutbanks cave.	Slope, frost action, cutbanks cave.	Wetness, slope.	Wetness.
MoB---------- Montauk	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth, slope.	Rooting depth, percs slowly.
MoC, MoD---------- Montauk	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth, slope.	Slope, rooting depth, percs slowly.
MtB---------- Montauk	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth, slope.	Rooting depth, percs slowly.
MtC, MtD---------- Montauk	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Percs slowly, rooting depth, slope.	Slope, rooting depth, percs slowly.
NnA---------- Ninigret	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness--------	Favorable.
NnB---------- Ninigret	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Slope, cutbanks cave.	Slope, wetness.	Favorable.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
Oc---------- Occum	Severe: seepage.	Severe: seepage.	Severe: deep to water, cutbanks cave.	Deep to water	Flooding-------	Favorable.
Om---------- Occum	Severe: seepage.	Severe: seepage.	Severe: deep to water, cutbanks cave.	Deep to water	Favorable------	Favorable.
PbB---------- Paxton	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly, rooting depth.	Percs slowly, rooting depth.
PbC, PbD---------- Paxton	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly, rooting depth.	Slope, percs slowly, rooting depth.
PfB---------- Paxton	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, large stones, percs slowly.	Rooting depth, percs slowly.
PfC, PfD, PfE----- Paxton	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, large stones, percs slowly.	Slope, rooting depth, percs slowly.
PhB---------- Pennichuck	Moderate: seepage, depth to rock, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Depth to rock, slope.	Depth to rock.
PhC, PhD---------- Pennichuck	Severe: slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Depth to rock, slope.	Slope, depth to rock.
PiA---------- Pipestone	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Fast intake, wetness, droughty.	Droughty, wetness.
PiB---------- Pipestone	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Slope, cutbanks cave.	Fast intake, wetness, droughty.	Droughty, wetness.
Pr*. Pits						
PtA---------- Pittstown Variant	Slight---------	Severe: piping.	Severe: no water.	Percs slowly---	Wetness, percs slowly, rooting depth.	Wetness, rooting depth.
PtB---------- Pittstown Variant	Moderate: slope.	Severe: piping.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Wetness, rooting depth.
Pu---------- Pootatuck	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, flooding.	Favorable.
Qr*. Quarries						
RbA---------- Ridgebury	Moderate: slope.	Severe: wetness, piping.	Severe: no water.	Slope, percs slowly, frost action.	Slope, wetness, percs slowly.	Wetness, percs slowly, rooting depth.
ReA---------- Ridgebury	Slight---------	Severe: piping, wetness.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly, rooting depth.	Wetness, percs slowly, rooting depth.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
ReB---- Ridgebury	Moderate: slope.	Severe: piping, wetness.	Severe: no water.	Slope, percs slowly, frost action.	Slope, wetness, percs slowly.	Wetness, percs slowly, rooting depth.
Rp---- Rippowam	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave, frost action.	Wetness, flooding.	Wetness.
Sm---- Saco Variant	Moderate: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Flooding, frost action, cutbanks cave.	Wetness, erodes easily, flooding.	Wetness, erodes easily.
Sn---- Saugatuck	Severe: seepage, cemented pan.	Severe: seepage, ponding, piping.	Severe: no water.	Percs slowly, cemented pan, ponding.	Fast intake, ponding, droughty.	Wetness, droughty, cemented pan.
So---- Scarboro	Severe: seepage.	Severe: seepage, ponding.	Severe: cutbanks cave.	Cutbanks cave, frost action.	Ponding, fast intake, droughty.	Wetness, droughty.
Sr---- Scarboro	Severe: seepage.	Severe: seepage, ponding.	Severe: cutbanks cave.	Ponding, frost action, cutbanks cave.	Ponding, fast intake.	Wetness.
SsA---- Scituate	Severe: seepage.	Moderate: piping.	Severe: no water.	Percs slowly---	Wetness, percs slowly, rooting depth.	Rooting depth, percs slowly.
SsB---- Scituate	Severe: seepage.	Moderate: piping.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Rooting depth, percs slowly.
SsC---- Scituate	Severe: seepage, slope.	Moderate: piping.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Slope, rooting depth, percs slowly.
StA---- Scituate	Severe: seepage.	Moderate: piping.	Severe: no water.	Percs slowly---	Wetness, percs slowly, rooting depth.	Rooting depth, percs slowly.
StB---- Scituate	Severe: seepage.	Moderate: piping.	Severe: no water.	Percs slowly, slope.	Percs slowly, wetness, slope.	Rooting depth, percs slowly.
StC---- Scituate	Severe: seepage, slope.	Moderate: piping.	Severe: no water.	Percs slowly, slope.	Percs slowly, wetness, slope.	Slope, rooting depth, percs slowly.
Su---- Suncook	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, flooding.	Too sandy.
UdA*. Udipsamments						
Ur*. Urban land						
WdA---- Windsor	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Cutbanks cave	Droughty, fast intake.	Droughty.
WdB---- Windsor	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Slope, cutbanks cave.	Slope, droughty, fast intake.	Droughty.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
WdC, WdD---------- Windsor	Severe: slope, seepage.	Severe: seepage, piping.	Severe: no water.	Slope, cutbanks cave.	Slope, droughty, fast intake.	Slope, droughty.
WnC*: Windsor----------	Severe: slope, seepage.	Severe: seepage, piping.	Severe: no water.	Slope cutbanks cave.	Slope, droughty, fast intake.	Slope droughty.
Urban land.						
WoA---------- Woodbridge	Slight---------	Moderate: piping, wetness.	Severe: no water.	Percs slowly, frost action.	Percs slowly, rooting depth.	Percs slowly, rooting depth.
WoB---------- Woodbridge	Moderate: slope.	Moderate: piping, wetness.	Severe: no water.	Slope, percs slowly, frost action.	Slope, percs slowly, rooting depth.	Percs slowly, rooting depth.
WvB---------- Woodbridge	Moderate: slope.	Moderate: piping, wetness.	Severe: no water.	Percs slowly, slope.	Slope, percs slowly, wetness.	Percs slowly, rooting depth.
WvC---------- Woodbridge	Severe: slope.	Moderate: piping, wetness.	Severe: no water.	Percs slowly, slope.	Slope, percs slowly, wetness.	Slope, percs slowly, rooting depth.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AgA, AgB--------- Agawam	0-6	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	65-95	40-65	<25	NP-3
	6-11	Fine sandy loam, very fine sandy loam, loam.	SM, ML	A-4	0	95-100	85-100	65-95	40-65	<25	NP-3
	11-24	Fine sandy loam	SM, SP-SM	A-2, A-3, A-4	0	90-100	85-100	60-95	5-45	<20	NP-3
	24-37	Fine sand, loamy fine sand, loamy sand.	SM, SP-SM	A-2	0	90-100	85-100	40-90	5-35	---	NP
	37-60	Stratified fine sand to very gravelly loamy sand.	SM, SP-SM, GM, GP-GM	A-1, A-2, A-3	0-5	50-100	30-100	15-80	5-35	---	NP
BaA, BaB--------- Belgrade	0-3	Silt loam--------	ML	A-4	0	100	95-100	90-100	60-95	<35	NP-8
	3-32	Silt loam, very fine sandy loam, loamy very fine sand.	ML	A-4	0	100	95-100	85-100	50-90	<35	NP-8
	32-65	Silt, very fine sand, sand and gravel.	ML, SM, SC	A-1, A-2, A-4	0	75-100	55-100	35-100	15-90	<35	NP-8
BdA, BdB, BdC---- Bernardston Variant	0-11	Very fine sandy loam.	ML, SM	A-2, A-4	0-5	80-100	70-95	50-90	30-60	25-40	NP
	11-22	Very fine sandy loam, fine sandy loam, gravelly sandy loam.	ML, SM	A-2, A-4	0-10	65-95	50-90	35-80	15-55	20-35	NP
	22-60	Fine sandy loam, sandy loam, gravelly sandy loam.	SM	A-2, A-4	0-10	65-95	50-90	30-75	15-50	20-30	NP
BeC, BeD--------- Bernardston Variant	0-11	Stony very fine sandy loam.	ML, SM	A-2, A-4	5-15	80-100	70-95	50-90	30-60	25-40	NP
	11-22	Very fine sandy loam, fine sandy loam, gravelly sandy loam.	ML, SM	A-2, A-4	5-10	65-95	50-90	35-80	15-55	20-35	NP
	22-60	Fine sandy loam, sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-10	65-95	50-90	30-75	15-50	20-30	NP
Bg--------------- Binghamville	0-12	Silt loam--------	ML	A-4	0	100	95-100	90-100	85-90	---	NP
	12-28	Silt, silt loam, very fine sandy loam.	ML	A-4	0	100	95-100	90-100	80-90	<30	NP-7
	28-60	Silt loam, silt, very fine sandy loam.	ML, CL, CL-ML	A-4, A-6	0	100	95-100	90-100	55-95	<30	NP-15
BoA*, BpA*. Borohemists											
CaB, CaC, CaD---- Canton	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-5	85-100	70-95	40-90	25-70	<18	NP
	4-19	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-2, A-4	0-15	80-100	65-95	45-90	25-70	<12	NP
	19-60	Gravelly loamy sand, loamy fine sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	5-30	75-95	50-85	20-80	5-25	<10	NP

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
CmB, CmC, CmD, CmE---------- Canton	0-4	Stony fine sandy loam.	SM, ML	A-2, A-4	5-25	80-100	65-95	45-90	25-70	<18	NP
	4-19	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-2, A-4	0-15	80-100	65-95	45-90	25-70	<12	NP
	19-60	Gravelly loamy sand, loamy fine sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	5-30	75-95	50-85	20-80	5-25	<10	NP
CnC---------- Canton	0-4	Very stony fine sandy loam.	SM, ML	A-2, A-4	15-30	80-95	60-90	40-85	25-70	<15	NP
	4-19	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-2, A-4	0-15	80-100	65-95	45-90	25-70	<12	NP
	19-60	Gravelly loamy sand, loamy fine sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	5-30	75-95	50-85	20-80	5-25	<10	NP
CnD---------- Canton	0-4	Very stony fine sandy loam.	SM, ML	A-2, A-4	15-30	80-95	60-90	40-85	25-70	<15	NP
	4-19	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-2, A-4	0-15	80-100	65-95	45-90	25-70	<12	NP
	19-60	Gravelly loamy sand, loamy fine sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	5-30	75-95	50-85	20-80	5-25	<10	NP
CoC*: Canton----------	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-5	85-100	70-95	40-90	25-70	<18	NP
	4-19	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-2, A-4	0-15	80-100	65-95	45-90	25-70	<12	NP
	19-60	Gravelly loamy sand, loamy fine sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	5-30	75-95	50-85	20-80	5-25	<10	NP
Urban land.											
CpB*, CpC*, CpD*: Chatfield-------	0-4	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4, A-2	0-5	80-95	75-90	50-80	25-65	10-20	1-6
	4-24	Loam, gravelly loam, gravelly sandy loam.	SM, ML, GM, CL-ML	A-4, A-2, A-1	0-5	60-95	55-90	35-80	15-65	10-20	1-6
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hollis----------	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-15	75-100	65-95	40-85	25-70	<20	NP-3
	4-19	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
CpB*, CpC*, CpD*:											
Canton	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-5	85-100	70-95	40-90	25-70	<18	NP
	4-19	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-2, A-4	0-15	80-100	65-95	45-90	25-70	<12	NP
	19-60	Gravelly loamy sand, loamy fine sand, gravelly loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	5-30	75-95	50-85	20-80	5-25	<10	NP
CsB*, CsC*:											
Chatfield	0-4	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4, A-2	0-5	80-95	75-90	50-80	25-65	10-20	1-6
	4-24	Loam, gravelly loam, gravelly sandy loam.	SM, ML, GM, CL-ML	A-4, A-2, A-1	0-5	60-95	55-90	35-80	15-65	10-20	1-6
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hollis	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-15	75-100	65-95	40-85	25-70	<20	NP-3
	4-19	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
CtD*:											
Chatfield	0-4	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4, A-2	0-5	80-95	75-90	50-80	25-65	10-20	1-6
	4-24	Loam, gravelly loam, gravelly sandy loam.	SM, ML, GM, CL-ML	A-4, A-2, A-1	0-5	60-95	55-90	35-80	15-65	10-20	1-6
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hollis	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-15	75-100	65-95	40-85	25-70	<20	NP-3
	4-19	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
Cu	0-22	Hemic material---	Pt	A-8	0	---	---	---	---	---	---
Chocorua	22-63	Gravelly loamy sand, loamy fine sand.	SP, SM	A-1, A-2, A-3	0	100	60-100	30-80	0-30	---	NP
DeA, DeB	0-9	Loamy fine sand	SP-SM, SM	A-1, A-2, A-3, A-4	0	95-100	80-100	40-75	5-40	---	NP
Deerfield	9-20	Loamy sand, sand, coarse sand.	SM, SP-SM	A-1, A-2, A-3	0	95-100	80-100	40-75	5-30	---	NP
	20-60	Sand, fine sand, coarse sand.	SP, SM	A-1, A-2, A-3	0	95-100	65-100	30-75	3-30	---	NP
Dp*.											
Dumps											
Gw	0-61	Hemic material---	Pt	A-8	0	---	---	---	---	---	---
Greenwood											

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
HsA, HsB, HsC, HsD---------- Hinckley	0-3	Loamy sand-------	SM, SP-SM	A-1, A-2, A-4	0-5	80-95	75-85	30-80	5-50	<20	NP
	3-21	Gravelly loamy sand, loamy fine sand, very gravelly loamy coarse sand.	SM, GM, GP-GM, SP-SM	A-1, A-2, A-3	0-20	50-95	30-85	15-70	2-30	<20	NP
	21-60	Stratified very gravelly loamy fine sand to cobbly coarse sand.	SP, SP-SM, GP, GP-GM	A-1, A-2	5-30	20-65	20-50	10-40	0-20	<10	NP
LeA---------- Leicester Variant	0-8	Loam----------	ML, SM	A-2, A-4	0-5	70-95	70-90	55-80	30-60	---	NP
	8-36	Very fine sandy loam, loam, gravelly fine sandy loam.	ML, SM, GM	A-2, A-4	5-10	70-90	60-85	45-75	25-55	---	NP
	36-65	Channery fine sandy loam, very channery fine sandy loam, very channery sandy loam.	SM, GM	A-1, A-2	5-25	60-75	50-65	30-50	15-35	---	NP
LsA---------- Leicester Variant	0-8	Stony loam	SM, ML	A-2, A-4	5-15	70-95	70-90	45-85	25-70	<25	NP-5
	8-36	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-10	70-90	60-85	40-75	20-55	---	NP
	36-65	Channery fine sandy loam, very channery fine sandy loam, very channery sandy loam.	SM, GM	A-1, A-2	5-25	60-75	50-65	30-50	15-35	---	NP
LtA*, LtB*: Leicester-------	0-9	Loam----------	SM, ML	A-2, A-4	0-10	70-95	70-90	45-85	25-70	<25	NP-5
	9-22	Fine sandy loam, loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-10	70-90	60-85	40-75	25-55	<25	NP-5
	22-60	Fine sandy loam, sandy loam, gravelly sandy loam.	SM, GM	A-2, A-4	5-15	65-90	55-85	35-70	20-45	---	NP
Walpole---------	0-5	Sandy loam-------	SM	A-2, A-4	0-5	90-100	85-100	70-100	30-50	<25	NP-3
	5-18	Fine sandy loam, sandy loam, gravelly sandy loam.	SM	A-2, A-4	0-5	85-100	60-100	40-95	25-50	---	NP
	18-60	Gravelly loamy sand, gravelly sand, sand.	SP, SM, GP, GP-GM	A-1, A-2, A-3	0-20	55-100	50-100	25-90	0-25	---	NP

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
LvA*, LvB*:											
Leicester-------	0-9	Stony loam-------	SM, ML	A-2, A-4	5-15	70-95	70-90	45-85	25-70	<25	NP-5
	9-22	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-10	70-90	60-85	40-75	20-55	---	NP
	22-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, GM	A-2, A-4	5-15	65-90	55-85	35-70	20-45	---	NP
Walpole---------	0-5	Stony sandy loam	SM	A-2, A-4	5-10	90-100	85-100	70-100	30-50	<25	NP-3
	5-18	Fine sandy loam, sandy loam, gravelly sandy loam.	SM	A-2, A-4	0-5	85-100	60-100	40-95	25-50	---	NP
	18-60	Gravelly loamy sand, gravelly sand, sand.	SP, SM, GP, GP-GM	A-1, A-2, A-3	0-20	55-100	50-100	25-90	0-25	---	NP
MoB, MoC, MoD---- Montauk	0-2	Fine sandy loam	ML, SM, SM-SC, CL-ML	A-4, A-2, A-1	0	80-100	75-95	45-95	20-85	<20	NP-4
	2-26	Fine sandy loam, gravelly sandy loam, silt loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1	0-5	60-100	55-95	35-90	15-80	<20	NP-4
	26-60	Sandy loam, loamy sand, gravelly sandy loam.	SM, SP-SM, GM, GP-GM	A-2, A-1, A-4, A-3	0-5	60-100	55-95	20-80	10-50	<15	NP-2
MtB, MtC, MtD---- Montauk	0-2	Stony fine sandy loam.	SM, ML, SM-SC, CL-ML	A-1, A-2, A-4	5-10	65-80	60-75	30-75	15-70	<20	NP-4
	2-26	Fine sandy loam, silt loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-1, A-2, A-4	0-5	60-100	55-95	35-90	15-80	<20	NP-4
	26-60	Sandy loam, loamy sand, gravelly sandy loam.	SM, SP-SM, GM, GP-GM	A-1, A-2, A-4, A-3	0-5	60-100	55-95	20-80	10-50	<15	NP-2
NnA, NnB--------- Ninigret	0-9	Very fine sandy loam.	SM, ML	A-4	0	95-100	90-100	70-95	40-65	<25	NP-3
	9-23	Fine sandy loam, sandy loam, very fine sandy loam.	SM	A-2, A-4	0	95-100	90-100	65-85	20-50	<25	NP-3
	23-67	Loamy sand, sand, gravelly sand.	SP, SM, GP	A-1, A-2, A-3	0-20	45-100	30-90	25-65	0-30	---	NP
Oc, Om---------- Occum	0-9	Fine sandy loam	SM, ML	A-2, A-4	0	95-100	70-100	45-80	25-55	<25	NP-3
	9-25	Sandy loam, fine sandy loam.	SM	A-2, A-4	0	95-100	70-100	45-80	25-50	<25	NP-3
	25-60	Stratified loamy fine sand to very gravelly coarse sand.	SM, SP-SM	A-1, A-2	0-5	65-100	40-100	25-65	5-25	---	NP

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
PbB, PbC, PbD---- Paxton	0-5	Fine sandy loam	SM, MC SM-SC	A-2, A-4	0-10	80-95	75-90	20-85	30-65	<30	NP-10
	5-24	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	65-90	50-85	25-65	<30	NP-10
	24-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	60-85	50-75	20-60	<30	NP-10
PfB, PfC, PfD, PfE---------- Paxton	0-5	Stony fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-20	80-95	75-90	60-85	30-65	<30	NP-10
	5-24	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-20	70-90	65-90	50-85	25-65	<30	NP-10
	24-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-85	50-75	20-60	<30	NP-10
PhB---------- Pennichuck	0-9	Channery fine sandy loam.	ML, SM	A-1, A-2, A-4	0-10	70-95	65-90	40-85	20-65	---	NP
	9-24	Channery fine sandy loam, channery sandy loam, channery loam.	SM, GM	A-1, A-2, A-4	5-15	45-85	40-75	30-70	15-50	---	NP
	24-36	Very channery fine sandy loam, very channery sandy loam.	SM, GM, GP-GM, SP-SM	A-1, A-2	15-30	40-60	20-55	10-45	5-35	---	NP
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
PhC---------- Pennichuck	0-9	Channery fine sandy loam.	ML, SM	A-1, A-2, A-4	0-10	70-95	65-90	40-85	20-65	---	NP
	9-24	Channery fine sandy loam, channery sandy loam, channery loam.	SM, GM	A-1, A-2, A-4	5-15	45-85	40-75	30-70	15-50	---	NP
	24-36	Very channery fine sandy loam, very channery sandy loam.	SM, GM, GP-GM, SP-SM	A-1, A-2	15-30	40-60	20-55	10-45	5-35	---	NP
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
PhD---------- Pennichuck	0-5	Channery fine sandy loam.	ML, SM	A-1, A-2, A-4	0-10	70-95	65-90	40-85	20-65	---	NP
	5-24	Channery fine sandy loam, channery sandy loam, channery loam.	SM, GM	A-1, A-2, A-4	5-15	45-85	40-75	30-70	15-50	---	NP
	24-36	Very channery fine sandy loam, very channery sandy loam.	SM, GM, GP-GM, SP-SM	A-1, A-2	15-30	40-60	20-55	10-45	5-35	---	NP
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
PiA, PiB---------- Pipestone	0-9	Loamy sand, sand.	SP, SM, SP-SM	A-2-4, A-3	0	95-100	90-100	60-80	0-20	---	NP
	9-22	Sand, loamy sand, fine sand.	SP-SM, SP, SM	A-2-4, A-3	0	95-100	90-100	60-80	0-15	---	NP
	22-61	Sand, fine sand, coarse sand.	SP-SM, SP	A-3, A-2-4	0	95-100	90-100	50-80	0-10	---	NP

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Pr*. Pits											
PtA, PtB---------- Pittstown Variant	0-10	Loam----------	ML, SM	A-2, A-4	0-5	80-100	70-95	50-85	30-60	25-40	NP
	10-19	Very fine sandy loam, loam, gravelly fine sandy loam.	ML, SM	A-2, A-4	0-10	65-95	50-90	40-80	20-55	20-35	NP
	19-60	Very fine sandy loam, fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	0-10	65-95	50-90	35-75	15-50	20-30	NP
Pu---------- Pootatuck	0-8	Fine sandy loam	SM, ML	A-2, A-4	0	95-100	80-100	55-95	30-75	<25	NP-4
	8-38	Sandy loam, fine sandy loam.	SM	A-2, A-4	0	95-100	80-100	55-85	30-50	<20	NP-2
	38-63	Sand, loamy sand, gravelly sand.	SP-SM, SM	A-1, A-2	0	70-100	50-100	30-45	5-20	---	NP
Qr*. Quarries											
RbA---------- Ridgebury	0-9	Loam----------	SM, ML	A-1, A-2, A-4	0-5	80-100	75-90	40-90	20-70	---	NP
	9-19	Sandy loam, gravelly loam.	SM, ML	A-1, A-2, A-4	0-15	65-95	55-90	40-80	20-60	---	NP
	19-60	Sandy loam, gravelly loam.	SM, ML	A-1, A-2, A-4	0-15	65-95	55-90	35-80	20-60	---	NP
ReA, ReB---------- Ridgebury	0-9	Stony loam-------	SM, ML	A-2, A-4	5-20	70-100	60-90	45-85	25-65	---	NP
	9-19	Sandy loam, gravelly loam.	SM, ML	A-1, A-2, A-4	0-15	65-95	55-90	40-80	20-60	---	NP
	19-60	Sandy loam, gravelly loam.	SM, ML	A-1, A-2, A-4	0-15	65-95	55-90	35-80	20-60	---	NP
Rp---------- Rippowam	0-6	Fine sandy loam	SM, ML	A-2, A-4	0	95-100	80-100	55-95	30-75	<25	NP-4
	6-33	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	95-100	80-100	55-85	30-50	<20	NP-2
	33-60	Loamy sand, coarse sand, gravelly sand.	SP-SM, SM	A-1, A-2	0	70-100	50-100	30-45	5-20	---	NP
Sm---------- Saco Variant	0-10	Silt loam--------	ML, OL	A-4	0	100	100	90-100	70-90	20-40	NP-10
	10-28	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	90-100	60-90	20-40	NP-10
	28-60	Sand, fine sand	SM, SP-SM	A-1, A-2, A-3	0	90-100	85-100	45-75	5-25	---	NP
Sn---------- Saugatuck	0-12	Loamy sand-------	SM	A-2-4	0	100	100	50-70	15-30	---	NP
	12-37	Sand----------	SP-SM, SM	A-3, A-2-4	0	85-100	100	80-95	5-15	---	NP
	37-60	Sand----------	SP, SP-SM	A-3	0	85-100	100	80-95	0-10	---	NP
So---------- Scarboro	0-9	Mucky loamy sand,	SM, SP-SM	A-1, A-2,	0	95-100	85-100	45-85	5-50	---	NP
	9-20	Loamy sand, fine sand, sand.	SM, SP-SM	A-1, A-2, A-3	0	95-100	85-100	45-80	5-35	---	NP
	20-38	Loamy sand, sand, coarse sand.	SM, SP-SM, SP	A-1, A-2, A-3	0	95-100	70-100	30-80	2-35	---	NP
	38-63	Stratified loamy fine sand to gravelly coarse sand.	SP, SM, SP-SM	A-1, A-2, A-3	0	70-100	35-100	15-80	0-35	---	NP

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Sr---------- Scarboro	0-9	Stony mucky loam sand.	SM, SP-SM	A-1, A-2, A-3, A-4	5-15	95-100	75-90	35-75	5-50	---	NP
	9-20	Loamy sand, fine sand, sand.	SM, SP-SM	A-1, A-2, A-3	0	95-100	85-100	45-80	5-35	---	NP
	20-38	Loamy sand, sand, coarse sand.	SM, SP-SM, SP	A-1, A-2, A-3	0	95-100	70-100	30-80	2-35	---	NP
	38-63	Stratified loamy fine sand to gravelly coarse sand.	SP, SM, SP-SM	A-1, A-2, A-3	0	70-100	35-100	15-80	0-35	---	NP
SsA, SsB, SsC---- Scituate	0-9	Fine sandy loam	SM, ML	A-2, A-4, A-1	0-5	80-95	70-90	40-85	20-65	<20	NP-4
	9-22	Fine sandy loam, sandy loam, loam.	SM, ML	A-2, A-4, A-1	0-15	70-95	60-90	35-85	20-65	<20	NP-4
	22-60	Loamy sand, gravelly loamy coarse sand.	SM	A-1, A-2, A-4	5-30	75-90	65-85	40-80	15-50	---	NP
StA, StB, StC---- Scituate	0-9	Stony fine sandy loam.	SM, ML	A-2, A-4, A-1	10-20	70-90	60-85	35-80	20-65	<20	NP-4
	9-22	Fine sandy loam, loam, sandy loam.	SM, ML	A-2, A-4, A-1	0-15	70-95	60-90	35-85	20-65	<20	NP-4
	22-60	Loamy sand, gravelly loamy coarse sand.	SM	A-1, A-2, A-4	5-30	75-90	65-85	40-80	15-80	---	NP
Su---------- Suncook	0-5	Loamy fine sand	SM	A-2	0	95-100	85-100	65-70	15-35	---	NP
	5-61	Stratified loamy fine sand to coarse sand.	SP, SM	A-2, A-3	0	90-100	70-100	20-80	0-35	---	NP
UdA*. Udipsamments											
Ur*. Urban land											
WdA, WdB, WdC, WdD---------- Windsor	0-4	Loamy sand-------	SM	A-2, A-1	0	95-100	85-100	35-85	20-35	---	NP
	4-12	Loamy sand, loamy fine sand, sand.	SW-SM, SM, SP-SM	A-2, A-1	0	95-100	85-100	45-95	10-30	---	NP
	12-60	Sand, fine sand	SP-SM, SM	A-2, A-3, A-1	0	90-100	75-100	40-95	5-20	---	NP
WnC*: Windsor---------	0-4	Loamy sand-------	SM	A-2, A-1	0	95-100	85-100	35-85	20-35	---	NP
	4-12	Loamy sand, loamy fine sand, sand.	SW-SM, SM, SP-SM	A-2, A-1	0	95-100	85-100	45-95	10-30	---	NP
	12-60	Sand, fine sand	SP-SM, SM	A-2, A-3, A-1	0	90-100	75-100	40-95	5-20	---	NP
Urban land.											
WoA, WoB---------- Woodbridge	0-7	Loam----------	SM, ML, SM-SC	A-2, A-4	0-10	85-95	70-90	60-85	30-65	<30	NP-10
	7-25	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	75-90	65-90	50-85	25-65	<30	NP-10
	25-60	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-85	50-75	20-60	<30	NP-10

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
WvB, WvC---------- Woodbridge	0-7	Stony loam-------	SM, ML, SM-SC	A-2, A-4	5-20	85-95	70-90	60-85	30-65	<30	NP-10
	7-25	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	75-95	65-90	50-85	25-60	<30	NP-10
	25-60	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-90	50-75	25-60	<30	NP-10

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm3	In/hr	In/in	pH				Pct
AgA, AgB----------	0-6	4-10	1.10-1.20	2.0-6.0	0.13-0.25	4.5-6.5	Low----------	0.28	3	1-5
Agawam	6-11	1-10	1.20-1.40	2.0-6.0	0.11-0.21	4.5-6.5	Low----------	0.37		
	11-24	1-3	1.30-1.40	2.0-20	0.11-0.18	4.5-6.5	Low----------	0.28		
	24-37	1-2	1.30-1.40	6.0-20	0.01-0.09	4.5-6.5	Low----------	0.17		
	37-60	<1	1.30-1.50	6.0-20	0.01-0.09	4.5-6.5	Low----------	0.10		
BaA, BaB----------	0-3	4-15	0.95-1.15	0.6-2.0	0.18-0.25	4.5-7.3	Low----------	0.49	3	1-5
Belgrade	3-32	4-15	1.10-1.40	0.6-2.0	0.16-0.20	4.5-7.3	Low----------	0.64		
	32-65	2-20	1.20-1.40	0.06-6.0	0.06-0.20	5.1-7.3	Low----------	0.64		
BdA, BdB, BdC----	0-11	2-12	1.00-1.15	0.6-2.0	0.10-0.24	5.1-7.3	Low----------	0.28	3	2-6
Bernardston	11-22	2-12	1.25-1.50	0.6-2.0	0.04-0.18	5.1-7.3	Low----------	0.37		
Variant	22-60	1-10	1.75-2.05	0.06-0.2	0.04-0.16	5.1-6.5	Low----------	0.28		
BeC, BeD----------	0-11	2-12	1.00-1.15	0.6-2.0	0.10-0.24	5.1-7.3	Low----------	0.28	3	---
Bernardston	11-22	2-12	1.25-1.50	0.6-2.0	0.04-0.18	5.1-7.3	Low----------	0.37		
Variant	22-60	1-10	1.75-2.05	0.06-0.2	0.04-0.16	5.1-6.5	Low----------	0.28		
Bg----------	0-12	5-10	1.20-1.50	0.6-2.0	0.20-0.25	5.6-7.3	Low----------	0.49	3	3-6
Binghamville	12-28	5-10	1.20-1.50	0.2-2.0	0.18-0.22	5.1-7.3	Low----------	0.49		
	28-60	5-20	1.20-1.50	0.06-0.2	0.18-0.22	5.6-7.3	Low----------	0.49		
BoA*, BpA*.										
Borohemists										
CaB, CaC, CaD----	0-4	1-8	0.90-1.20	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.24	3	1-6
Canton	4-19	1-8	1.20-1.50	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.37		
	19-60	1-5	1.30-1.50	6.0-20	0.04-0.08	3.6-6.0	Low----------	0.17		
CmB, CmC, CmD,										
CmE----------	0-4	1-8	0.90-1.20	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.24	3	---
Canton	4-19	1-8	1.20-1.50	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.37		
	19-60	1-5	1.30-1.60	6.0-20	0.04-0.08	3.6-6.0	Low----------	0.17		
CnC----------	0-4	1-8	0.90-1.20	2.0-6.0	0.13-0.17	3.6-6.0	Low----------	0.24	3	---
Canton	4-19	1-8	1.20-1.50	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.37		
	19-60	1-5	1.30-1.60	6.0-20	0.04-0.08	3.6-6.0	Low----------	0.17		
CnD----------	0-4	1-8	0.90-1.20	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.24	3	---
Canton	4-19	1-8	1.20-1.50	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.37		
	19-60	1-5	1.30-1.60	6.0-20	0.04-0.08	3.6-6.0	Low----------	0.17		
CoC*:										
Canton----------	0-4	1-8	0.90-1.20	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.24	3	1-6
	4-19	1-8	1.20-1.50	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.37		
	19-60	1-5	1.30-1.50	6.0-20	0.04-0.08	3.6-6.0	Low----------	0.17		
Urban land.										
CpB*, CpC*, CpD*:										
Chatfield-------	0-4	7-18	1.10-1.40	0.6-6.0	0.12-0.16	4.5-6.0	Low----------	0.20	3	2-6
	4-24	7-18	1.20-1.50	0.6-6.0	0.08-0.15	4.5-6.0	----------	----		
	24	---	---	---	---	---	----------	----		
Hollis----------	0-4	3-10	1.10-1.40	0.6-6.0	0.10-0.24	4.5-6.0	Low----------	0.24	2	2-5
	4-19	1-8	1.30-1.55	0.6-6.0	0.06-0.18	4.5-6.0	Low----------	0.32		
	19	---	---	---	---	---	----------	----		
Canton----------	0-4	1-8	0.90-1.20	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.24	3	1-6
	4-19	1-8	1.20-1.50	2.0-6.0	0.13-0.20	3.6-6.0	Low----------	0.37		
	19-60	1-5	1.30-1.50	6.0-20	0.04-0.08	3.6-6.0	Low----------	0.17		

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
CsB*, CsC*:										
Chatfield-------	0-4	7-18	1.10-1.40	0.6-6.0	0.12-0.16	4.5-6.0	Low----------	0.20	3	2-6
	4-24	7-18	1.20-1.50	0.6-6.0	0.08-0.15	4.5-6.0	----------	----		
	24	---	---	---	---	---	----------	----		
Hollis----------	0-4	3-10	1.10-1.40	0.6-6.0	0.10-0.24	4.5-6.0	Low----------	0.24	2	2-5
	4-19	1-8	1.30-1.55	0.6-6.0	0.06-0.18	4.5-6.0	Low----------	0.32		
	19	---	---	---	---	---	----------	----		
CtD*:										
Chatfield-------	0-4	7-18	1.10-1.40	0.6-6.0	0.12-0.16	4.5-6.0	Low----------	0.20	3	2-6
	4-24	7-18	1.20-1.50	0.6-6.0	0.08-0.15	4.5-6.0	----------	----		
	24	---	---	---	---	---	----------	----		
Hollis----------	0-4	3-10	1.10-1.40	0.6-6.0	0.10-0.24	4.5-6.0	Low----------	0.24	2	2-5
	4-19	1-8	1.30-1.55	0.6-6.0	0.06-0.18	4.5-6.0	Low----------	0.32		
	19	---	---	---	---	---	----------	----		
Rock outcrop.										
Cu----------	0-22	---	0.10-0.30	0.6-6.0	0.20-0.25	3.6-4.4	Low----------	----	---	---
Chocorua	22-63	1-5	1.20-1.50	>6.0	0.01-0.11	4.5-6.0	Low----------	----		
DeA, DeB----------	0-9	2-7	1.00-1.20	6.0-20	0.07-0.13	4.5-6.5	Low----------	0.17	5	1-4
Deerfield	9-20	1-7	1.20-1.45	6.0-20	0.01-0.13	4.5-6.5	Low----------	0.15		
	20-60	0-5	1.40-1.50	>20	0.01-0.08	4.5-6.5	Low----------	0.15		
Dp*.										
Dumps										
Gw----------	0-61	---	0.10-0.25	0.6-6.0	0.45-0.55	3.6-5.5	----------	----		
Greenwood										
HsA, HsB, HsC,										
HsD----------	0-3	4-8	0.90-1.10	6.0-20	0.05-0.20	3.6-6.0	Low----------	0.20	3	2-7
Hinckley	3-21	1-5	1.20-1.40	6.0-20	0.01-0.10	3.6-6.0	Low----------	0.17		
	21-60	0-3	1.30-1.50	>20	0.01-0.06	3.6-6.0	Low----------	0.10		
LeA----------	0-8	2-10	1.00-1.25	0.6-6.0	0.10-0.23	5.1-7.3	Low----------	0.28	3	3-8
Leicester	8-36	2-10	1.35-1.60	0.6-6.0	0.07-0.19	5.1-7.3	Low----------	0.32		
Variant	36-65	2-8	1.45-1.70	0.6-20	0.04-0.12	5.1-7.3	Low----------	0.24		
LsA----------	0-8	3-10	1.00-1.25	0.6-6.0	0.06-0.28	4.5-6.0	Low----------	0.20	3	3-8
Leicester	8-36	3-10	1.35-1.60	0.6-6.0	0.05-0.16	4.5-6.0	Low----------	0.32		
Variant	36-65	2-7	1.45-1.70	0.6-6.0	0.04-0.16	4.5-6.0	Low----------	0.24		
LtA*, LtB*:										
Leicester-------	0-9	3-10	1.00-1.25	0.6-6.0	0.06-0.24	4.5-6.0	Low----------	0.28	3	3-8
	9-22	3-10	1.35-1.60	0.6-6.0	0.05-0.20	4.5-6.0	Low----------	0.32		
	22-60	2-7	1.45-1.70	0.6-6.0	0.04-0.16	4.5-6.0	Low----------	0.24		
Walpole---------	0-5	2-6	1.00-1.25	2.0-6.0	0.10-0.23	4.5-6.0	Low----------	0.20	3	2-8
	5-18	2-6	1.30-1.55	2.0-6.0	0.07-0.18	4.5-6.0	Low----------	0.28		
	18-60	0-2	1.40-1.65	>6.0	0.01-0.13	4.5-6.0	Low----------	0.17		
LvA*, LvB*:										
Leicester-------	0-9	3-10	1.00-1.25	0.6-6.0	0.06-0.28	4.5-6.0	Low----------	0.20	3	3-8
	9-22	3-10	1.35-1.60	0.6-6.0	0.05-0.16	4.5-6.0	Low----------	0.32		
	22-60	2-7	1.45-1.70	0.6-6.0	0.04-0.16	4.5-6.0	Low----------	0.24		
Walpole---------	0-5	2-6	1.00-1.25	2.0-6.0	0.10-0.23	4.5-6.0	Low----------	0.20	---	2-8
	5-18	2-6	1.30-1.55	2.0-6.0	0.07-0.18	4.5-6.0	Low----------	0.28		
	18-60	0-2	1.40-1.65	>6.0	0.01-0.13	4.5-6.0	Low----------	0.17		
MoB, MoC, MoD----	0-2	6-18	1.00-1.25	0.6-6.0	0.16-0.20	3.6-6.0	Low----------	0.32	3	2-6
Montauk	2-26	6-18	1.30-1.60	0.6-6.0	0.10-0.16	3.6-6.0	Low----------	0.24		
	26-60	1-18	1.70-1.90	0.06-0.6	0.02-0.08	3.6-6.0	Low----------	0.24		

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
MtB, MtC, MtD---- Montauk	0-2	6-18	1.00-1.25	0.6-6.0	0.11-0.15	3.6-6.0	Low----------	0.17	3	2-6
	2-26	6-18	1.30-1.60	0.6-6.0	0.10-0.16	3.6-6.0	Low----------	0.24		
	26-60	1-18	1.70-1.90	0.06-0.6	0.02-0.16	3.6-6.0	Low----------	0.24		
NnA, NnB---------- Ninigret	0-9	3-7	1.00-1.25	2.0-6.0	0.13-0.25	4.5-6.0	Low----------	0.28	3	2-8
	9-23	3-7	1.35-1.60	2.0-6.0	0.06-0.18	4.5-6.0	Low----------	0.32		
	23-67	0-2	1.45-1.70	2.0-6.0	0.01-0.13	4.5-6.0	Low----------	0.10		
Oc, Om---------- Occum	0-9	2-6	1.05-1.30	2.0-6.0	0.11-0.24	4.5-6.5	Low----------	0.20	5	2-6
	9-25	2-6	1.20-1.45	2.0-6.0	0.10-0.22	4.5-6.5	Low----------	0.20		
	25-60	0-2	1.30-1.55	>6.0	0.01-0.13	4.5-6.5	Low----------	0.17		
PbB, PbC, PbD---- Paxton	0-5	3-12	1.00-1.25	0.6-2.0	0.08-0.23	4.5-6.5	Low----------	0.24	3	2-5
	5-24	3-12	1.35-1.60	0.6-2.0	0.06-0.20	4.5-6.5	Low----------	0.32		
	24-60	3-12	1.70-2.00	<0.2	0.05-0.12	4.5-6.5	Low----------	0.24		
PfB, PfC, PfD, PfE---------- Paxton	0-5	3-12	1.00-1.25	0.6-6.0	0.08-0.23	4.5-6.5	Low----------	0.20	3	2-5
	5-24	3-12	1.35-1.60	0.6-6.0	0.06-0.20	4.5-6.5	Low----------	0.32		
	24-60	3-12	1.70-2.00	<0.2	0.05-0.12	4.5-6.5	Low----------	0.24		
PhB, PhC---------- Pennichuck	0-9	5-10	1.00-1.20	0.6-2.0	0.07-0.23	5.6-7.3	Low----------	0.20	3	2-6
	9-24	5-10	1.20-1.40	0.6-2.0	0.05-0.17	5.6-7.3	Low----------	0.32		
	24-36	5-10	1.30-1.60	0.6-2.0	0.02-0.14	5.6-7.3	Low----------	0.24		
	36	---	---	---	---	---	----------	----		
PhD---------- Pennichuck	0-5	5-10	1.00-1.20	0.6-2.0	0.07-0.23	5.6-7.3	Low----------	0.20	3	2-6
	5-24	5-10	1.20-1.40	0.6-2.0	0.05-0.17	5.6-7.3	Low----------	0.32		
	24-36	5-10	1.30-1.60	0.6-2.0	0.02-0.14	5.6-7.3	Low----------	0.24		
	36	---	---	---	---	---	----------	----		
PiA, PiB---------- Pipestone	0-9	2-12	1.20-1.60	6.0-20	0.07-0.10	4.5-7.3	Low----------	0.17	5	3-4
	9-22	2-12	1.20-1.60	6.0-20	0.06-0.09	4.5-7.3	Low----------	0.17		
	22-61	2-12	1.20-1.60	>20	0.05-0.07	5.1-7.3	Low----------	0.17		
Pr*. Pits										
PtA, PtB---------- Pittstown Variant	0-10	2-12	1.10-1.30	0.6-2.0	0.10-0.24	5.1-7.3	Low----------	0.24	3	2-6
	10-19	2-12	1.30-1.60	0.6-2.0	0.05-0.21	5.1-7.3	Low----------	0.37		
	19-60	1-10	1.75-2.05	0.06-0.2	0.04-0.18	5.1-6.5	Low----------	0.24		
Pu---------- Pootatuck	0-8	2-6	1.10-1.35	0.6-6.0	0.11-0.24	4.5-6.5	Low----------	0.20	3	2-6
	8-38	1-6	1.20-1.45	0.6-6.0	0.09-0.18	4.5-6.5	Low----------	0.20		
	38-63	0-2	1.25-1.50	>6.0	0.01-0.13	4.5-6.5	Low----------	0.17		
Qr*. Quarries										
RbA---------- Ridgebury	0-9	3-10	1.00-1.30	0.6-6.0	0.06-0.24	4.5-6.0	Low----------	0.24	3	4-7
	9-19	2-8	1.60-1.90	0.6-6.0	0.04-0.20	4.5-6.0	Low----------	0.32		
	19-60	2-8	1.80-2.00	<0.2	0.01-0.05	4.5-6.0	Low----------	0.24		
ReA, ReB---------- Ridgebury	0-9	3-10	1.00-1.30	0.6-6.0	0.06-0.24	4.5-6.0	Low----------	0.20	3	---
	9-19	2-8	1.60-1.90	0.6-6.0	0.04-0.20	4.5-6.0	Low----------	0.32		
	19-60	2-8	1.80-2.00	<0.2	0.01-0.05	4.5-6.0	Low----------	0.24		
Rp---------- Rippowam	0-6	2-6	1.10-1.35	0.6-6.0	0.11-0.24	4.5-6.5	Low----------	0.20	3	3-8
	6-33	1-6	1.20-1.45	0.6-6.0	0.09-0.18	4.5-6.5	Low----------	0.20		
	33-60	0-2	1.25-1.50	>6.0	0.01-0.13	4.5-6.5	Low----------	0.17		
Sm---------- Saco Variant	0-10	4-10	1.10-1.40	0.6-2.0	0.17-0.30	5.1-6.5	Low----------	0.49	5	3-20
	10-28	2-10	1.20-1.50	0.6-2.0	0.15-0.26	5.1-6.5	Low----------	0.64		
	28-60	1-5	1.30-1.60	>6.0	0.01-0.07	5.1-6.5	Low----------	0.17		
Sn---------- Saugatuck	0-12	2-12	0.60-1.60	6.0-20	0.10-0.12	4.5-5.5	Low----------	0.15	3	2-7
	12-37	2-12	1.75-2.00	0.06-0.2	0.02-0.04	4.5-5.5	Low----------	0.15		
	37-60	2-12	1.50-1.65	6.0-20	0.05-0.07	5.1-6.5	Low----------	0.15		

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
So	0-9	1-7	0.70-1.00	>6.0	0.10-0.23	4.5-6.0	Low	0.17		
Scarboro	9-20	1-5	1.15-1.35	>6.0	0.04-0.13	4.5-6.0	Low	0.17		
	20-38	0-2	1.35-1.55	>6.0	0.02-0.13	4.5-6.0	Low	0.10		
	38-63	0-2	1.35-1.55	>6.0	0.01-0.13	4.5-6.0	Low	0.10		
Sr	0-9	1-7	0.70-1.00	>6.0	0.08-0.20	4.5-6.0	Low	0.17		
Scarboro	9-20	1-5	1.15-1.35	>6.0	0.04-0.13	4.5-6.0	Low	0.17		
	20-38	0-2	1.35-1.55	>6.0	0.02-0.13	4.5-6.5	Low	0.10		
	38-63	0-2	1.35-1.55	>6.0	0.01-0.13	4.5-6.5	Low	0.10		
SsA, SsB, SsC	0-9	4-10	1.00-1.30	2.0-6.0	0.11-0.21	3.6-6.0	Low	0.24	3	2-6
Scituate	9-22	2-9	1.25-1.50	2.0-6.0	0.09-0.16	3.6-6.0	Low	0.24		
	22-60	2-9	1.70-1.90	0.06-0.2	0.01-0.07	3.6-6.0	Low	0.24		
StA, StB, StC	0-9	4-10	1.00-1.30	2.0-6.0	0.09-0.18	3.6-6.0	Low	0.17	3	---
Scituate	9-22	2-9	1.25-1.50	2.0-6.0	0.09-0.16	3.6-6.0	Low	0.24		
	22-60	2-9	1.70-1.90	0.06-0.2	0.01-0.07	3.6-6.0	Low	0.24		
Su	0-5	1-3	1.10-1.30	>6.0	0.07-0.15	4.5-6.5	Low	0.12	5	2-5
Suncook	5-61	0-3	1.20-1.50	>6.0	0.01-0.13	4.5-6.5	Low	0.17		
	42-60	0-3	1.20-1.50	>6.0	0.01-0.13	4.5-6.5	Low	0.12		
UdA*.										
Udipsamments										
Ur*.										
Urban land										
WdA, WdB, WdC, WdD	0-4	1-3	1.00-1.20	>6.0	0.08-0.12	4.5-6.0	Low	0.17	5	2-4
Windsor	4-12	0-3	1.30-1.55	>6.0	0.02-0.12	4.5-6.0	Low	0.17		
	12-60	0-2	1.40-1.65	>6.0	0.01-0.08	4.5-6.5	Low	0.17		
WnC*:										
Windsor	0-4	1-3	1.00-1.20	>6.0	0.08-0.12	4.5-6.0	Low	0.17	5	2-4
	4-12	0-3	1.30-1.55	>6.0	0.02-0.12	4.5-6.0	Low	0.17		
	12-60	0-2	1.40-1.65	>6.0	0.01-0.08	4.5-6.5	Low	0.17		
Urban land.										
WoA, WoB, WvB, WvC	0-7	3-12	1.00-1.25	0.6-2.0	0.08-0.23	4.5-6.0	Low	0.24	3	2-6
Woodbridge	7-25	3-12	1.35-1.60	0.6-2.0	0.06-0.20	4.5-6.0	Low	0.32		
	25-60	3-12	1.70-2.00	<0.2	0.05-0.12	4.5-6.5	Low	0.24		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	
					Ft			In		
AgA, AgB---------- Agawam	B	None--------	---	---	>6.0	---	---	>60	---	Low.
BaA, BaB---------- Belgrade	B	None--------	---	---	1.5-3.5	Apparent	Nov-Apr	>60	---	High.
BdA, BdB, BdC, BeC, BeD--------- Bernardston Variant	C	None--------	---	---	1.5-2.5	Perched	Feb-Apr	>60	---	Moderate.
Bg---------- Binghamville	D	None--------	---	---	0.5-1.5	Apparent	Nov-Jun	>60	---	High.
BoA*, BpA*. Borohemists										
CaB, CaC, CaD, CmB, CmC, CmD, CmE, CnC, CnD---- Canton	B	None--------	---	---	>6.0	---	---	>60	---	Low.
CoC*: Canton----------	B	None--------	---	---	>6.0	---	---	>60	---	Low.
Urban land.										
CpB*, CpC*, CpD*: Chatfield--------	B	None--------	---	---	>6.0	---	---	20-40	Hard	Moderate.
Hollis----------	C/D	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate.
Canton----------	B	None--------	---	---	>6.0	---	---	>60	---	Low.
CsB*, CsC*: Chatfield--------	B	None--------	---	---	>6.0	---	---	20-40	Hard	Moderate.
Hollis----------	C/D	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate.
CtD*: Chatfield--------	B	None--------	---	---	>6.0	---	---	20-40	Hard	Moderate.
Hollis----------	C/D	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate.
Rock outcrop.										
Cu---------- Chocorua	D	None--------	---	---	+1-0.5	Apparent	Jan-Dec	>60	---	High.
DeA, DeB---------- Deerfield	B	None--------	---	---	1.5-3.0	Apparent	Dec-Apr	>60	---	Moderate.
Dp*. Dumps										
Gw---------- Greenwood	D	None--------	---	---	+1-1.0	Apparent	Sep-Jun	>60	---	High.
HsA, HsB, HsC, HsD---------- Hinckley	A	None--------	---	---	>6.0	---	---	>60	---	Low.

See footnote at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	
					Ft			In		
LeA---- Leicester Variant	C	None	---	---	0-1.0	Apparent	Nov-May	>60	---	High.
LsA---- Leicester Variant	C	None	---	---	0-1.0	Apparent	Nov-May	>60	---	High.
LtA*, LtB*, LvA*, LvB*:										
Leicester----	C	None	---	---	0-1.5	Apparent	Nov-May	>60	---	High.
Walpole----	C	None	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High.
MoB, MoC, MoD, MtB, MtC, MtD---- Montauk	C	None	---	---	2.0-2.5	Perched	Feb-May	>60	---	Moderate.
NnA, NnB---- Ninigret	B	None	---	---	1.5-3.0	Apparent	Nov-Apr	>60	---	Moderate.
Oc---- Occum	B	Frequent	Brief	Nov-Apr	4.0-6.0	Apparent	Nov-Apr	<60	---	Moderate.
Om---- Occum	B	Rare	Very brief	Nov-Apr	4.0-6.0	Apparent	Nov-Apr	<60	---	Moderate.
PbB, PbC, PbD, PfB, PfC, PfD, PfE---- Paxton	C	None	---	---	1.5-2.5	Perched	Feb-Mar	>60	---	Moderate.
PhB, PhC, PhD---- Pennichuck	B	None	---	---	>6.0	---	---	20-40	Hard	Low.
PiA, PiB---- Pipestone	A	None	---	---	0.5-1.5	Apparent	Oct-Jun	>60	---	Moderate.
Pr*. Pits										
PtA, PtB---- Pittstown Variant	C	None	---	---	1.0-2.0	Perched	Nov-Apr	>60	---	High.
Pu---- Pootatuck	B	Frequent	Brief	Nov-Apr	1.5-3.0	Apparent	Nov-Apr	>60	---	Moderate.
Qr*. Quarries										
RbA, ReA, ReB---- Ridgebury	C	None	---	---	0-1.5	Perched	Nov-May	>60	---	High.
Rp---- Rippowam	C	Frequent	Brief	Nov-Apr	0-1.5	Apparent	Nov-May	>60	---	High.
Sm---- Saco Variant	D	Frequent	Brief	Nov-May	0-0.5	Apparent	Oct-May	>60	---	High.
Sn---- Saugatuck	C	None	---	---	+1-2.0	Perched	Dec-Jun	>60	---	Moderate.
So---- Scarboro	D	None	---	---	+1-1.0	Apparent	Jan-Dec	>60	---	High.
Sr---- Scarboro	D	None	---	---	+1-1.0	Apparent	Jan-Dec	>60	---	High.

See footnote at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	
					Ft			In		
SsA, SsB, SsC, StA, StB, StC---- Scituate	C	None--------	---	---	1.5-3.0	Perched	Nov-May	>60	---	Moderate.
Su---------- Sunqook	A	Common------	Brief-----	Mar-May	3.0-6.0	Apparent	Jan-Apr	>60	---	Low.
UdA*. Udipsamments										
Ur*. Urban land										
WdA, WdB, WdC, WdD---------- Windsor	A	None--------	---	---	>6.0	---	---	>60	---	Low.
WnC*: Windsor----------	A	None--------	---	---	>6.0	---	---	>60	---	Low.
Urban land.										
WoA, WoB, WvB, WvC---------- Woodbridge	C	None--------	---	---	1.5-3.0	Perched	Nov-May	>60	---	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series]

Soil name	Family or higher taxonomic class
Agawam	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Typic Dystrochrepts
Belgrade	Coarse-silty, mixed, mesic Aquic Dystric Eutrochrepts
Bernardston Variant	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Binghamville	Coarse-silty, mixed, nonacid, mesic Typic Haplaquepts
Borohemists	Borohemists
Canton	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Typic Dystrochrepts
Chatfield	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Chocorua	Sandy or sandy-skeletal, mixed, dysic Terric Borohemists
Deerfield	Mixed, mesic Aquic Udipsamments
Greenwood	Dysic Typic Borohemists
Hinckley	Sandy-skeletal, mixed, mesic Typic Udorthents
Hollis	Loamy, mixed, mesic Lithic Dystrochrepts
Leicester	Coarse-loamy, mixed, acid, mesic Aeric Haplaquepts
Leicester Variant	Coarse-loamy, mixed, acid, mesic Typic Haplaquepts
Montauk	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Ninigret	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Aquic Dystrochrepts
Occum	Coarse-loamy, mixed, mesic Fluventic Dystrochrepts
Paxton	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Pennichuck	Loamy-skeletal, mixed, mesic Dystric Eutrochrepts
Pipestone	Sandy, mixed, mesic Entic Haplaquods
Pittstown Variant	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Pootatuck	Coarse-loamy, mixed, mesic Fluvaquentic Dystrochrepts
*Ridgebury	Coarse-loamy, mixed, mesic Aeric Fragiaquepts
Rippowam	Coarse-loamy, mixed, nonacid, mesic Aeric Fluvaquents
Saco Variant	Coarse-silty over sandy or sandy skeletal, mixed, non-acid, mesic Typic Fluvaquent
Saugatuck	Sandy, mixed, mesic, ortstein Aeric Haplaquods
Scarboro	Sandy, mixed, mesic Histic Humaquepts
Scituate	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Suncook	Mixed, mesic Typic Udipsamments
Udipsamments	Udipsamments
Walpole	Sandy, mixed, mesic Aeric Haplaquepts
Windsor	Mixed, mesic Typic Udipsamments
Woodbridge	Coarse-loamy, mixed, mesic Typic Fragiochrepts

TABLE 17.--RELATIONSHIP AMONG DOMINANT TEXTURE, PARENT MATERIAL, AND DRAINAGE OF SOIL SERIES

Parent material	Excessively drained	Somewhat excessively drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained	Very poorly drained
Soils formed in alluvium:							
Coarse textured and moderately coarse textured	Suncook		Occum	Pootatuck		Rippowam	
Medium textured and fine textured							Saco Variant
Soils formed in glacial outwash:							
Stratified sand and gravel	Hinckley						
Medium textured over stratified sand and gravel						Walpole	
Nearly gravel free sands	Windsor			Deerfield		Pipestone, Walpole	Scarboro
Sands with a cemented layer						Saugatuck	
Medium textured			Agawam	Ninigret			
Soils formed in glacial lake sediments:							
Medium textured				Belgrade		Bingham-ville	
Soils formed in glacial till:							
Friable, coarse textured, glacial till			Canton				
Friable, moderately coarse textured glacial till		Hollis	Chatfield*			Leicester	
Firm, coarse textured glacial till			Montauk	Scituate			
Firm moderately coarse textured glacial till			Paxton	Woodbridge		Ridgebury	
Firm, medium textured glacial till			Bernards-ton Variant				
Friable, moderately coarse textured glacial till			Penni-chuck*	Pittstown Variant		Leicester Variant	
Soils formed in organic material:							
Organic deposits of variable depth and decomposition							Borohemists
Partly decomposed organic deposits more than 51 inches deep							Greenwood
Shallow, partly decomposed organic deposits 16 to 50 inches thick							Chocorua
Sandy soils formed in materials disturbed by man:		Udipsamments					

*Moderately deep.

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