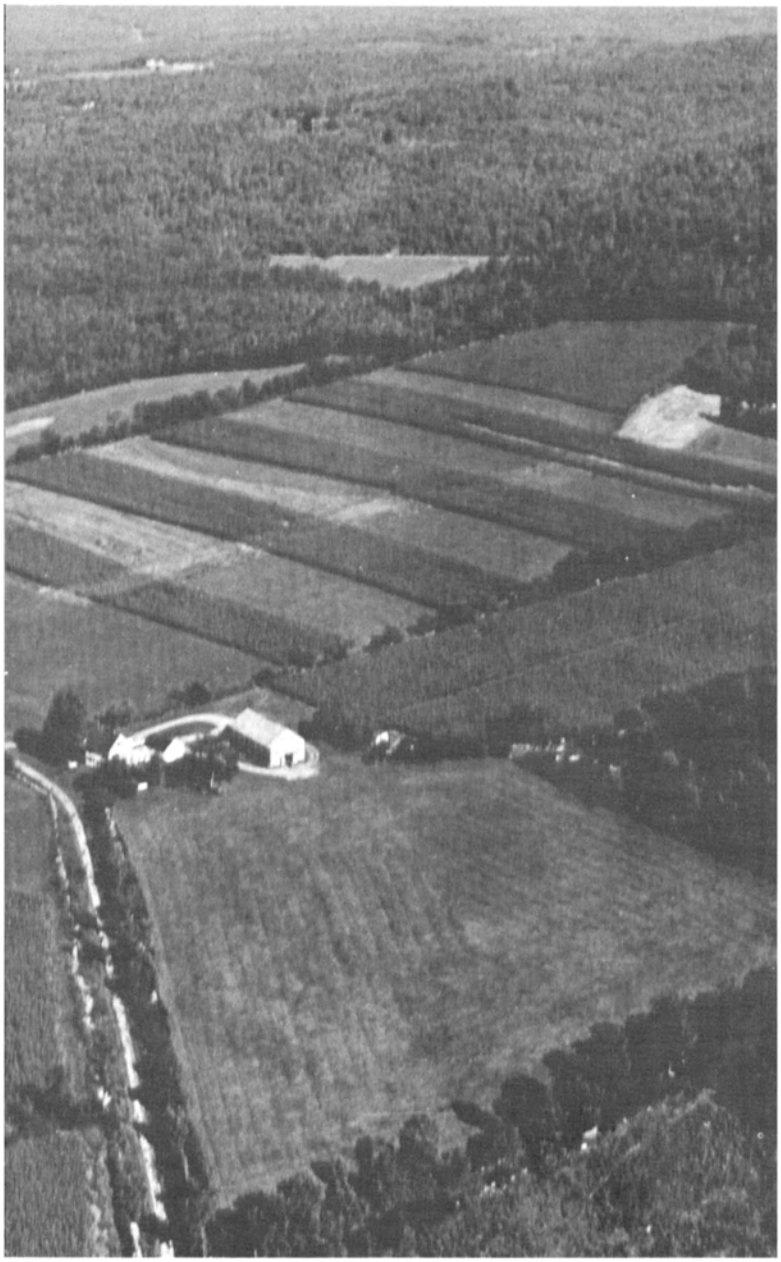
SOIL SURVEY OF

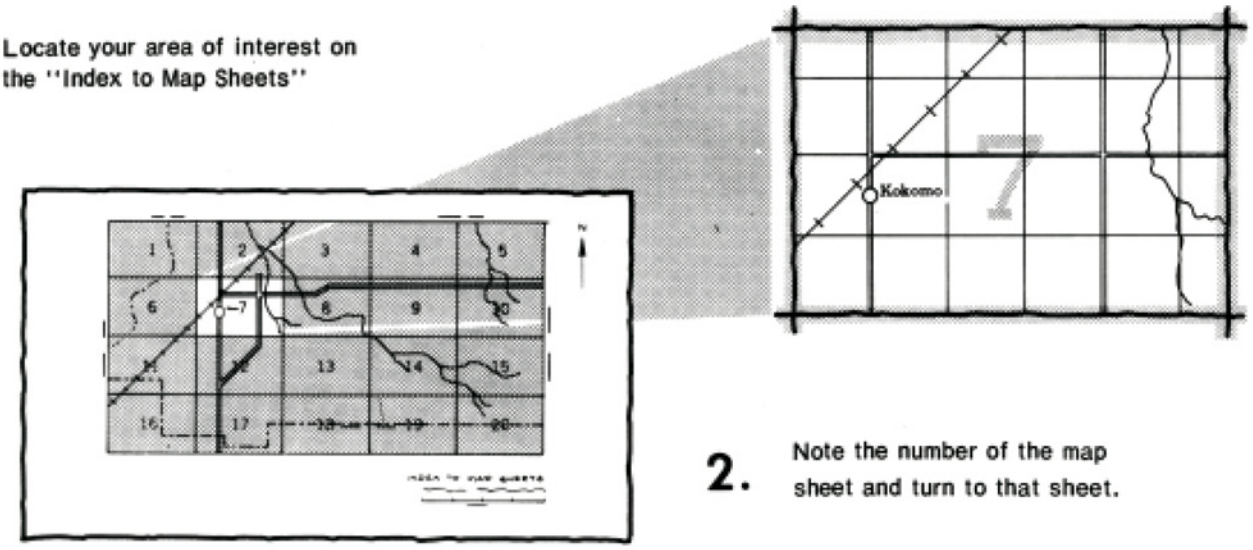


York County Maine

United States Department of Agriculture, Soil Conservation Service
in cooperation with the Maine Agricultural Experiment Station
and the Maine Soil and Water Conservation Commission

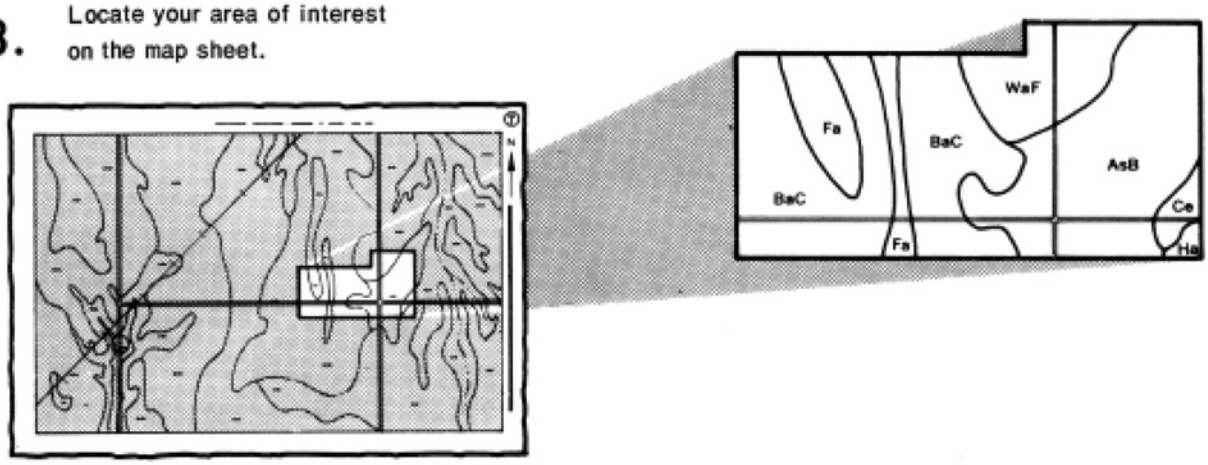
HOW TO USE

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

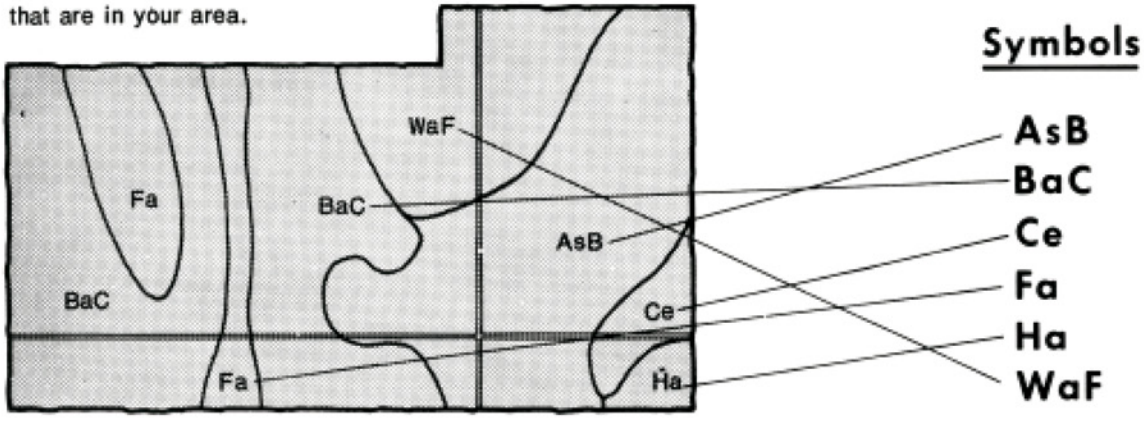


2. Note the number of the map sheet and turn to that sheet.

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

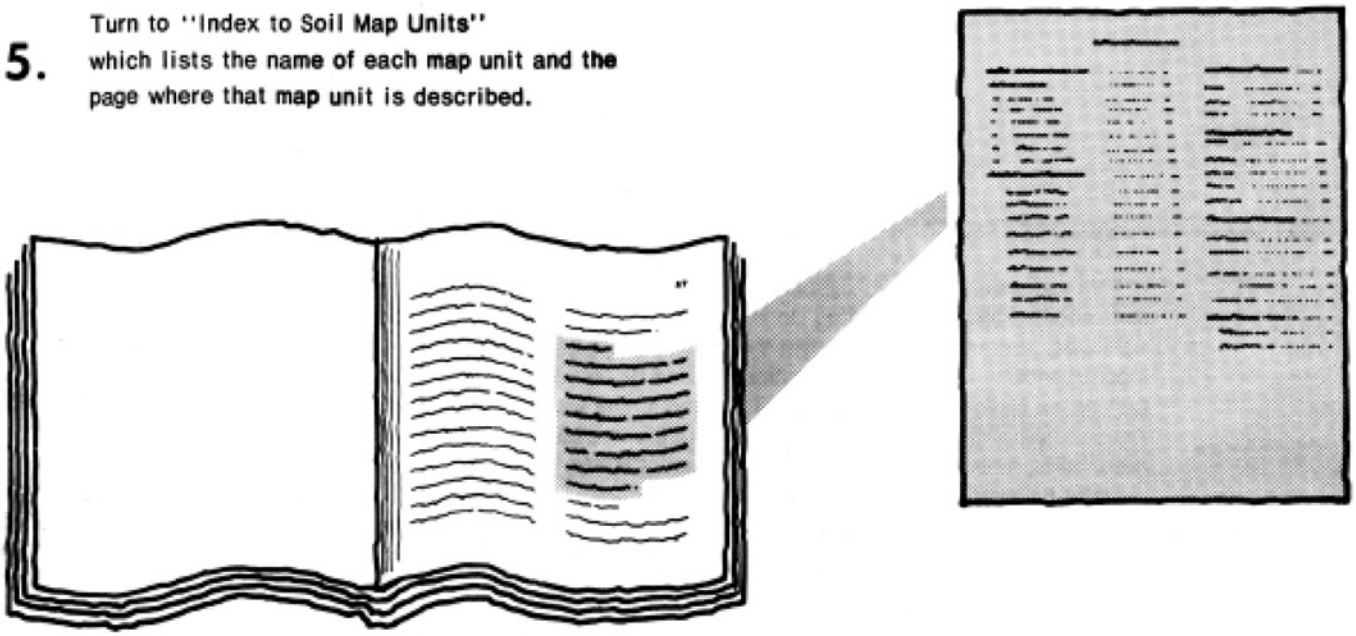


4. List the map unit symbols that are in your area.

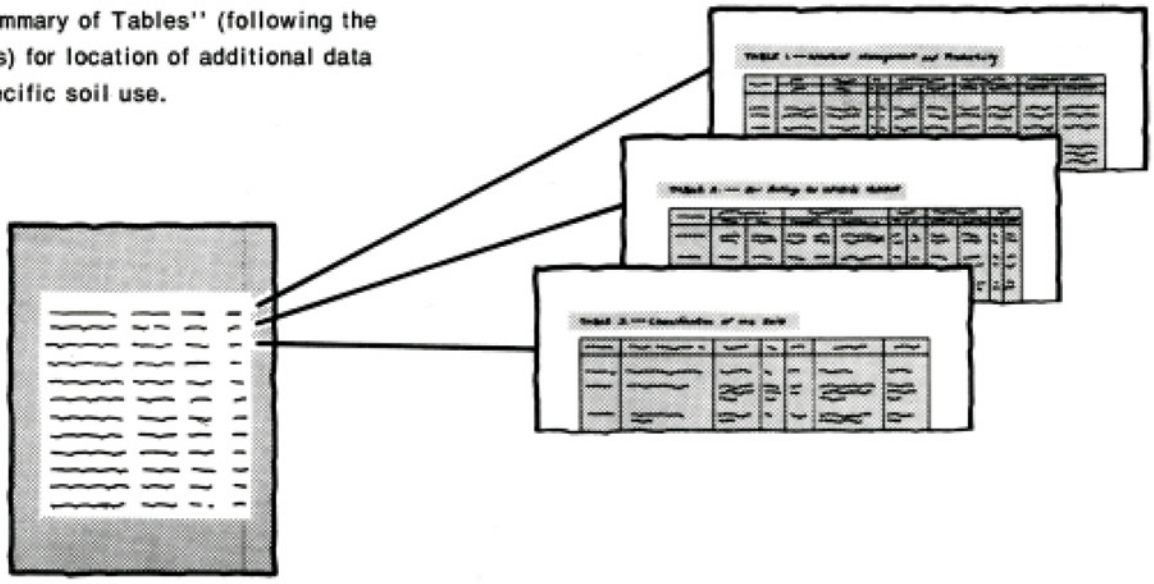


THIS SOIL SURVEY

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 1966-77. Soil names and descriptions were approved in 1978. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1977. This survey was made cooperatively by the Soil Conservation Service, the Maine Agricultural Experiment Station, and the Maine Soil and Water Conservation Commission. The survey is part of the technical assistance furnished to the York County Soil and Water 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 dairy farm on Becket and Skerry soils is within view of the White Mountains. The wooded area in the background is mainly Brayton and Westbury soils.

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Issued June 1982

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Summary of tables—Continued

Foreword

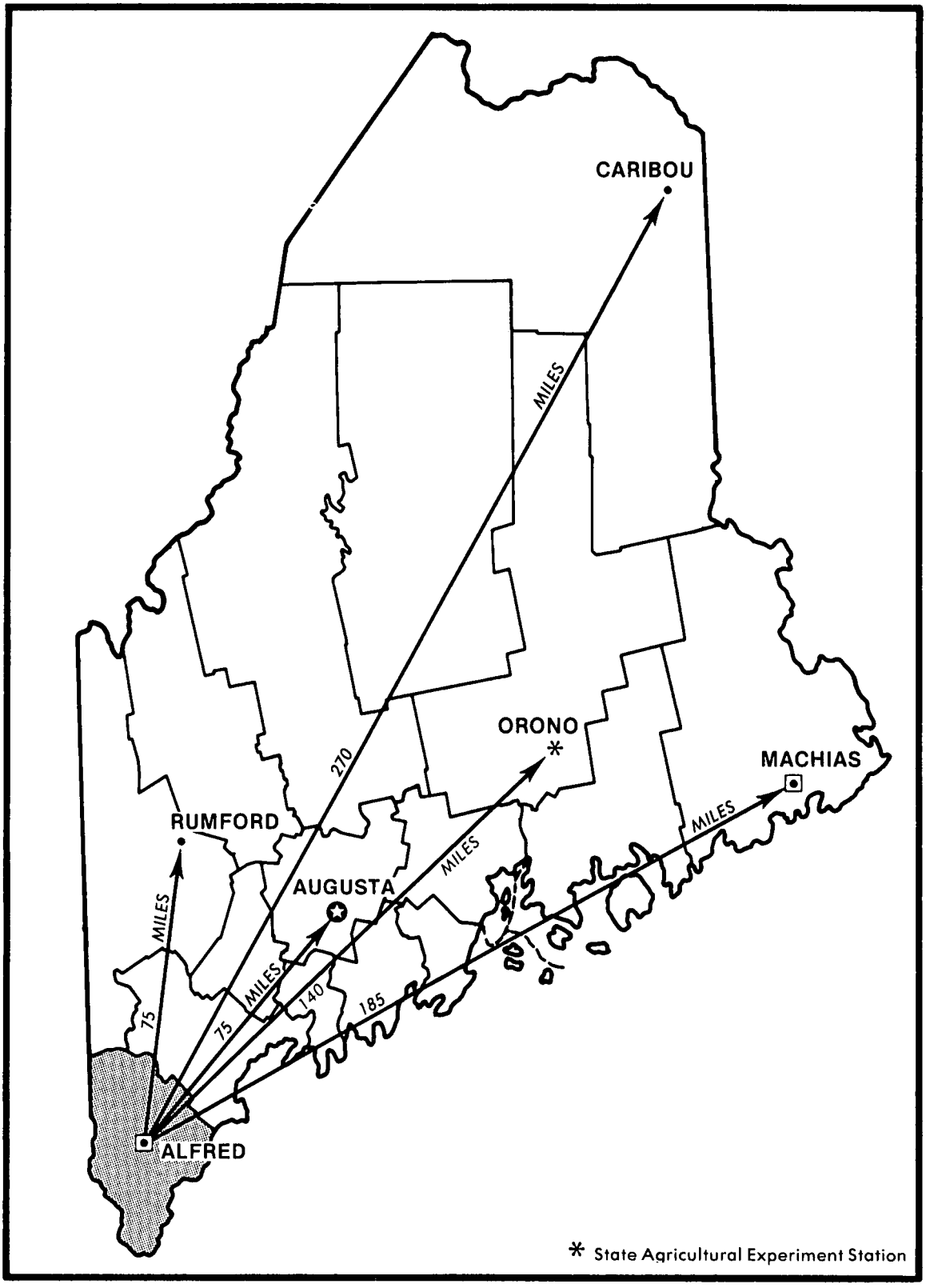
This soil survey contains information that can be used in land-planning programs in York County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of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

Eddie L. Wood
State Conservationist
Soil Conservation Service



Location of York County in Maine.

SOIL SURVEY OF YORK COUNTY, MAINE

By Lawrence R. Flewelling and Robert H. Lisante, Soil Conservation Service

Fieldwork by Lawrence R. Flewelling, Robert H. Lisante, Jonathan W. Miller, Paul A. Hughes, Jr., Dennis P. Durgin, Theodore H. Butler, and Brian F. Grisi, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
in cooperation with the Maine Agricultural Experiment Station
and the Maine Soil and Water Conservation Commission

YORK COUNTY is in the southwestern part of Maine. Alfred, the county seat, has a population of 1,211, according to the 1970 census. The county has a total area of 655,000 acres, or 1023.4 square miles. Inland waters, which include lakes, streams, ponds, and rivers, make up about 15,000 acres, or 23.4 square miles, of the county.

The county covers an area from the seaboard lowlands along the Atlantic Ocean to the foothills of the White Mountains. The Ossippee River forms the northern boundary of the county and becomes a tributary of the Saco River in the town of Cornish. The Saco River is the northeastern boundary of the county. The eastern boundary, from the town of Buxton to Old Orchard Beach, is Cumberland County. The northwest side of the county is bounded by the Salmon Falls River and Carroll County, New Hampshire, and the southwest side by the Piscataqua River.

General nature of the county

This section provides general information about York County. The section discusses the history of the county and provides data on climate and farming.

History

York County, the oldest county in the State of Maine, was incorporated in 1760, and by 1785 more than 100 settlers lived in what are now the towns of Parsonsfield, Newfield, and Shapleigh. Fishing, farming, logging, and shipbuilding were some of the major enterprises in the county prior to 1800.

In the early 1800's, the first mills and manufacturing plants in the county started operations in the towns of Sanford, Saco, and Kennebunk. Later, in 1842, the first railroad line was completed, connecting the towns of Portland, Portsmouth, Saco, Kennebunk, South Berwick, and Kittery. The line provided the major form of travel in the county until 1947, when the Maine Turnpike was opened and the automobile became the main source of transportation.

Since 1960, when the county had approximately 105,600 people, the population has increased at a rate of about 2,300 per year. The population of the county in 1975 was 140,000. Manufacturing, tourism, agricultural activities, forestry, and fishing provide the major sources of revenue for the inhabitants of the county.

Climate

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

The start and the end of the warm period in York County are influenced by the Atlantic Ocean. In winter the ground is frequently, but not continuously, covered with snow. Total annual precipitation is nearly always adequate for the common crops.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Sanford, Maine, in the period 1953 to 1975. 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 24 degrees F, and the average daily minimum temperature is 13 degrees. The lowest temperature on record, which occurred at Sanford on January 18, 1957, is -28 degrees. In summer the average temperature is 67 degrees, and the average daily maximum temperature is 81 degrees. The highest recorded temperature, which occurred at Sanford on August 2, 1975, is 101 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 (40 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.

Of the total annual precipitation, 21 inches, or 46 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 17 inches. The heaviest 1-day rainfall during the period of record was 7 inches at Sanford on September 12, 1960. Thunderstorms occur on about 20 days each year, and most occur in the summer.

Average seasonal snowfall is 91 inches. The greatest snow depth at any one time during the period of record was 63 inches. On an average of 52 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 65 percent of the time possible in summer and 55 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 10 miles per hour, in March.

Winter storms moving northeastward along the coast frequently bring rain and thawing and then snow and cold weather. In summer, sea breezes frequently moderate the temperature, particularly near the coast.

Farming

Since 1940, most of the farming enterprises in York County have been involved in the production of dairy products, poultry, apples, berries and other small fruits, vegetables, or livestock (mainly beef).

Soil, topography, and climate are the main physical factors that control the extent and type of farming in the county. For example, the main vegetable-producing areas in the county consist of nearly level, sandy and loamy soils near the coast and in the lowlands; the sloping and hilly uplands are generally used for timber, pasture, or silage crops.

The number and extent of farms in York County has decreased in the last 25 years: In 1944, the county had 2,250 farms and a total farm acreage of 195,000; current data in the county show 460 farms covering a total of 77,993 acres (*13*).

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 "Soil maps for detailed planning."

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 for broad land use planning

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each association on the general soil map is a unique natural landscape. Typically, an association consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one association can occur in other associations 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 association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Adams-Colton association

Deep, nearly level to steep, excessively drained soils formed in material deposited by glacial meltwater

Areas of these soils are mostly in the western and central parts of the county. The soils are mostly on outwash plains, kame terraces, and eskers.

This association occupies about 19 percent of the county. The association is about 49 percent Adams soils, 27 percent Colton soils, and 24 percent soils of minor extent (fig. 1).

The Adams soils have a surface layer of loamy sand and are underlain by sandy material. The Colton soils have a surface layer of gravelly loamy coarse sand and are underlain by gravelly material. Both soils have rapid or very rapid permeability.

The minor soils in this association are moderately well drained Croghan and Madawaska soils, somewhat poorly drained to poorly drained Naumburg soils, and very poorly drained Chocorua, Vassalboro, and Waskish soils. Urbanized land and gravel pits are other minor areas in this association.

The association is used mainly for woodland, but some areas are used for pasture and cultivated crops and a few areas are used for lowbush blueberries. Droughtiness is the main limitation to use of these soils for farming, making irrigation necessary in many cultivated areas. Slope is a limitation on the steeper areas.

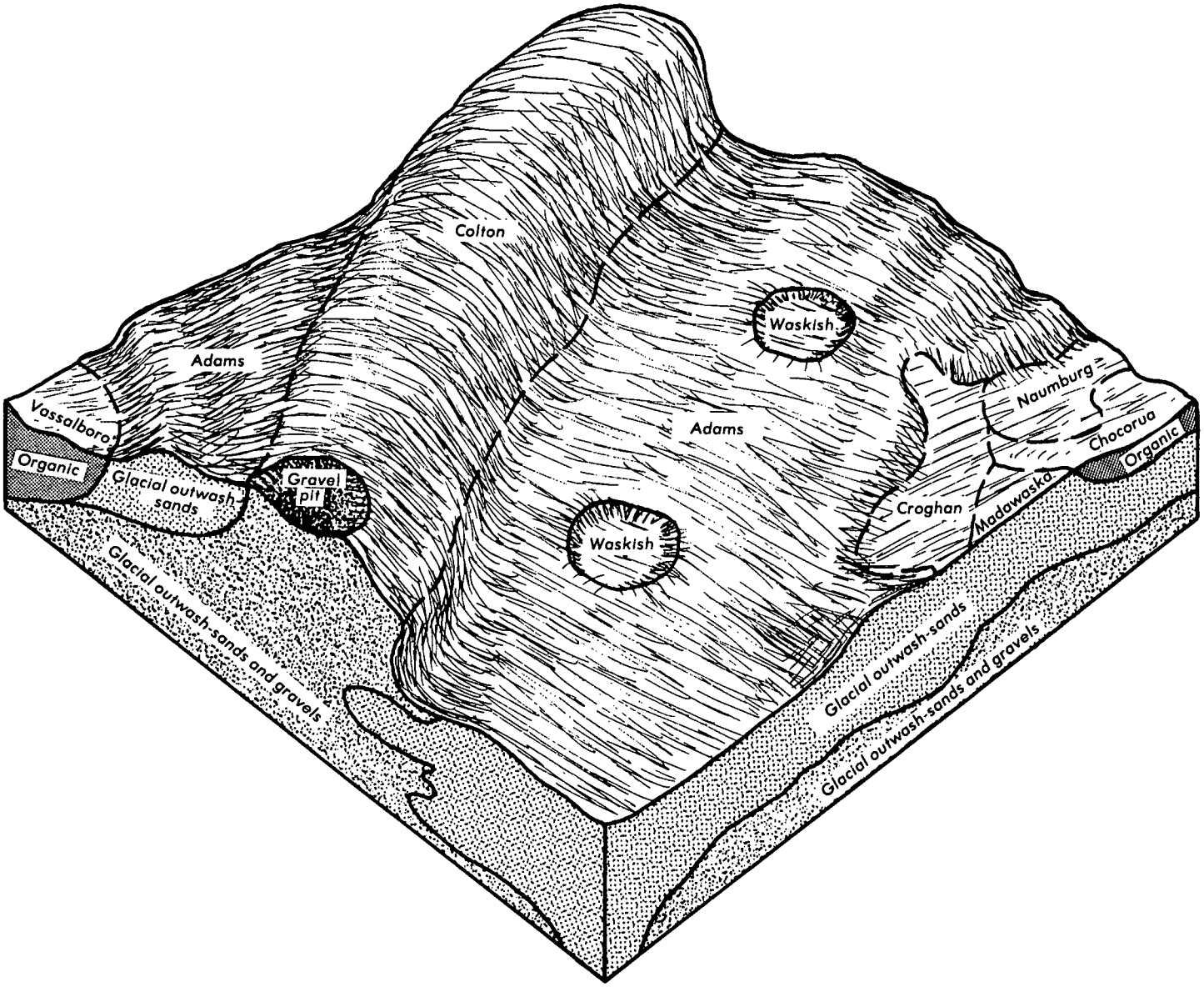


Figure 1.—Typical pattern of soils and underlying material in the Adams-Colton association.

Ground-water contamination is a hazard in areas of these soils used for onsite sewage disposal.

2. Naumburg-Croghan association

Deep, nearly level and gently sloping, poorly drained to moderately well drained soils formed in material deposited by glacial meltwater

Areas of these soils are mostly in the central and coastal parts of the county. The soils are mostly on outwash plains and deltas.

This association occupies about 16 percent of the county. The association is about 41 percent Naumburg soils, 29 percent Croghan soils, and 30 percent soils of minor extent (fig. 2).

The Naumburg soils are somewhat poorly drained to poorly drained, have a surface layer of sand, and are underlain by sandy material. The Croghan soils are moderately well drained, have a surface layer of loamy sand, and are underlain by sandy material. Both soils have a high water table during fall and spring, and both have rapid or very rapid permeability.

The minor soils in this association are excessively drained Adams soils, moderately well drained Elmwood and Madawaska soils, and very poorly drained Chocorua, Sebago, and Waskish soils.

This association is used mainly for woodland, but some areas are used for pasture and some are used for small gardens. Wetness in spring and fall and droughtiness in summer are the main limitations of these soils for farming. The main limitations for most nonfarm uses are the seasonal high water table and the rapid or very rapid permeability.

3. Skerry-Brayton-Becket association

Deep, nearly level to moderately steep, poorly drained to well drained soils formed mostly in coarse-textured, compact glacial till

Areas of these soils are mainly in the northern and western parts of the county. The soils are on drumlins and glaciated uplands.

This association occupies about 15 percent of the county. The association is about 49 percent Skerry soils, 21 percent Brayton soils, 20 percent Becket soils, and 10 percent soils of minor extent.

The Skerry soils are moderately well drained and nearly level to sloping. The Brayton soils are somewhat poorly drained to poorly drained, and nearly level to gently sloping. The Becket soils are well drained and gently sloping to moderately steep. All three soils have a surface layer of fine sandy loam and are underlain by a compact substratum. The soils have moderate permeability in the surface layer and subsoil and slow or moderately slow permeability in the substratum. The Skerry and Becket soils have a coarser textured substratum than the Brayton soils.

The minor soils in this association are well drained to somewhat excessively drained Hermon soils, somewhat excessively drained Lyman soils, and somewhat poorly drained Westbury soils.

This association is used mainly for woodland, but some large areas are used for pasture, hay, and orchards. Wetness, stoniness, and slope are the major limitations of these soils for farming. The major limitations for most nonfarm uses are slope, stoniness, wetness, and the compact substratum.

4. Marlow-Brayton-Peru association

Deep, nearly level to moderately steep, well drained to poorly drained soils formed in moderately coarse textured, compact glacial till

Areas of these soils are mostly in the southern part of the county. The soils are on drumlins and glaciated uplands.

This association occupies about 3 percent of the county. The association is about 36 percent Marlow soils, 15 percent Brayton soils, 14 percent Peru soils, and 35 percent soils of minor extent (fig. 3).

The Marlow soils are well drained, the Brayton soils are somewhat poorly drained to poorly drained, and the Peru soils are moderately well drained. All three soils have a surface layer of fine sandy loam underlain by a moderately coarse textured, compact substratum. The soils have moderate permeability in the surface layer and subsoil and slow permeability in the substratum.

The minor areas in this association are mostly somewhat excessively drained Lyman soils and somewhat poorly drained Westbury soils and small areas of exposed bedrock.

This association is used mainly for woodland, but some large areas are used for hay and pasture and others are used for orchards, strawberries, and blueberries. Slow permeability in the substratum and a seasonal perched water table are the major limitations for most uses of these soils. Slope is also a limitation in the moderately steep areas.

5. Hermon-Lyman association

Shallow and deep, gently sloping to very steep, well drained to somewhat excessively drained soils formed in friable glacial till

Areas of these soils are mostly in the central and northwestern parts of the county. A few areas are in the southern and eastern parts. The soils are on plains, hills, and ridges.

This association occupies about 22 percent of the county. The association is 50 percent Hermon soils, 25 percent Lyman soils, and 25 percent soils of minor extent (fig. 4).

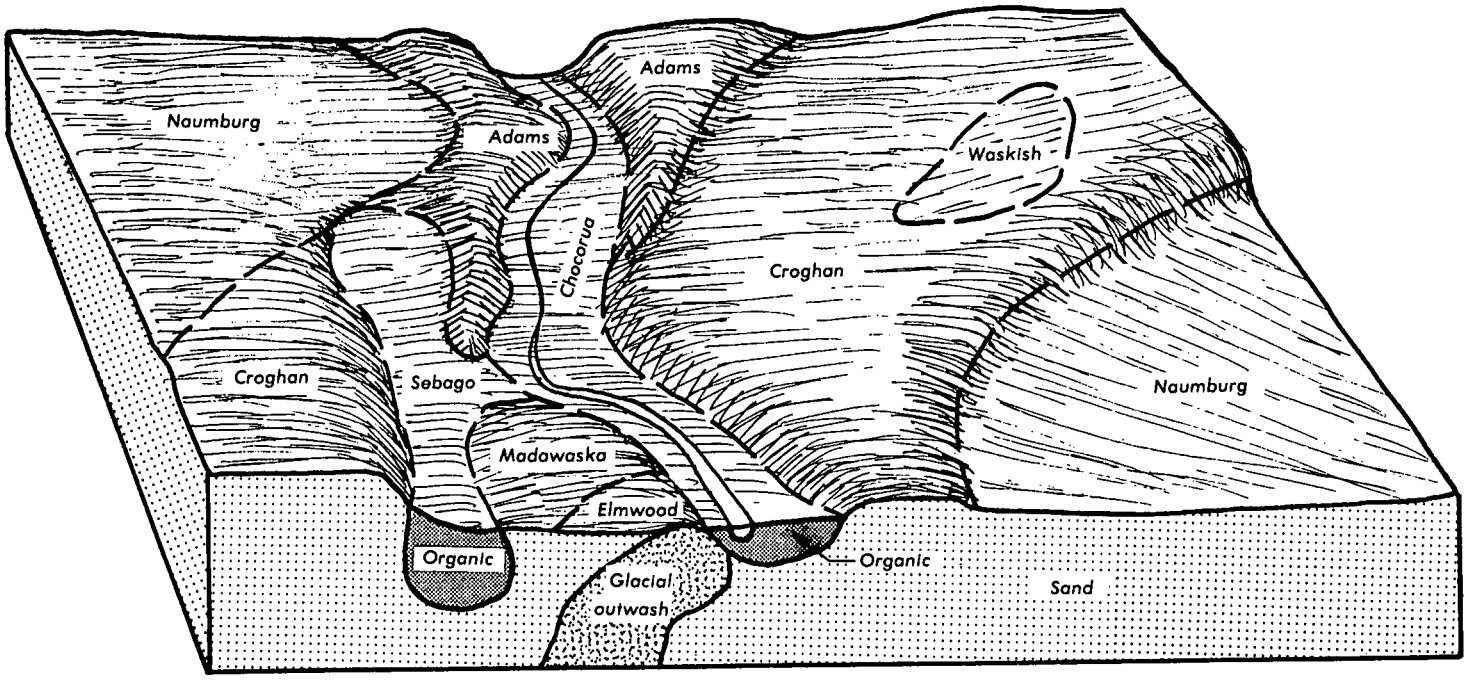


Figure 2.—Typical pattern of soils and underlying material in the Naumburg-Croghan association.

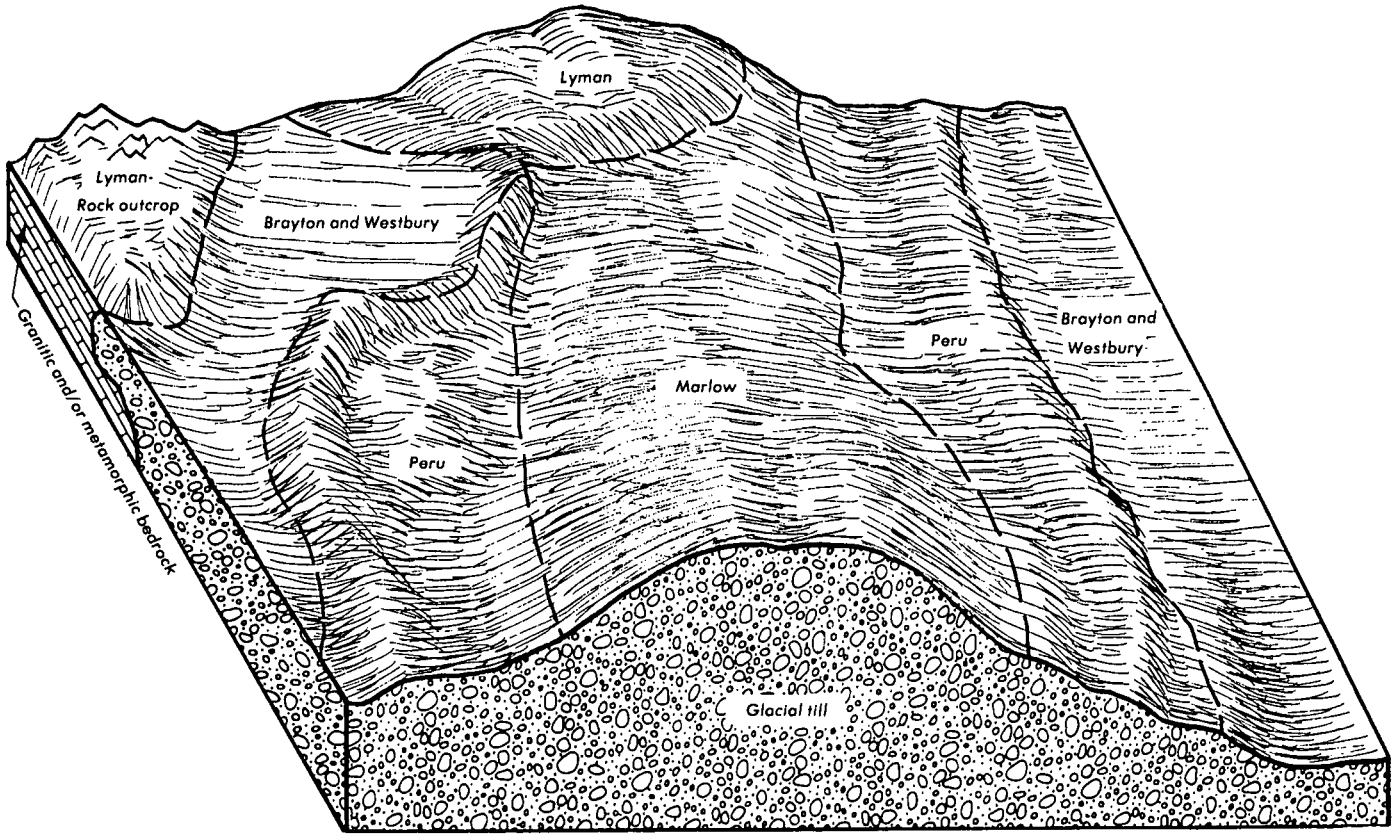


Figure 3.—Typical pattern of soils and underlying material in the Marlow-Brayton-Peru association.

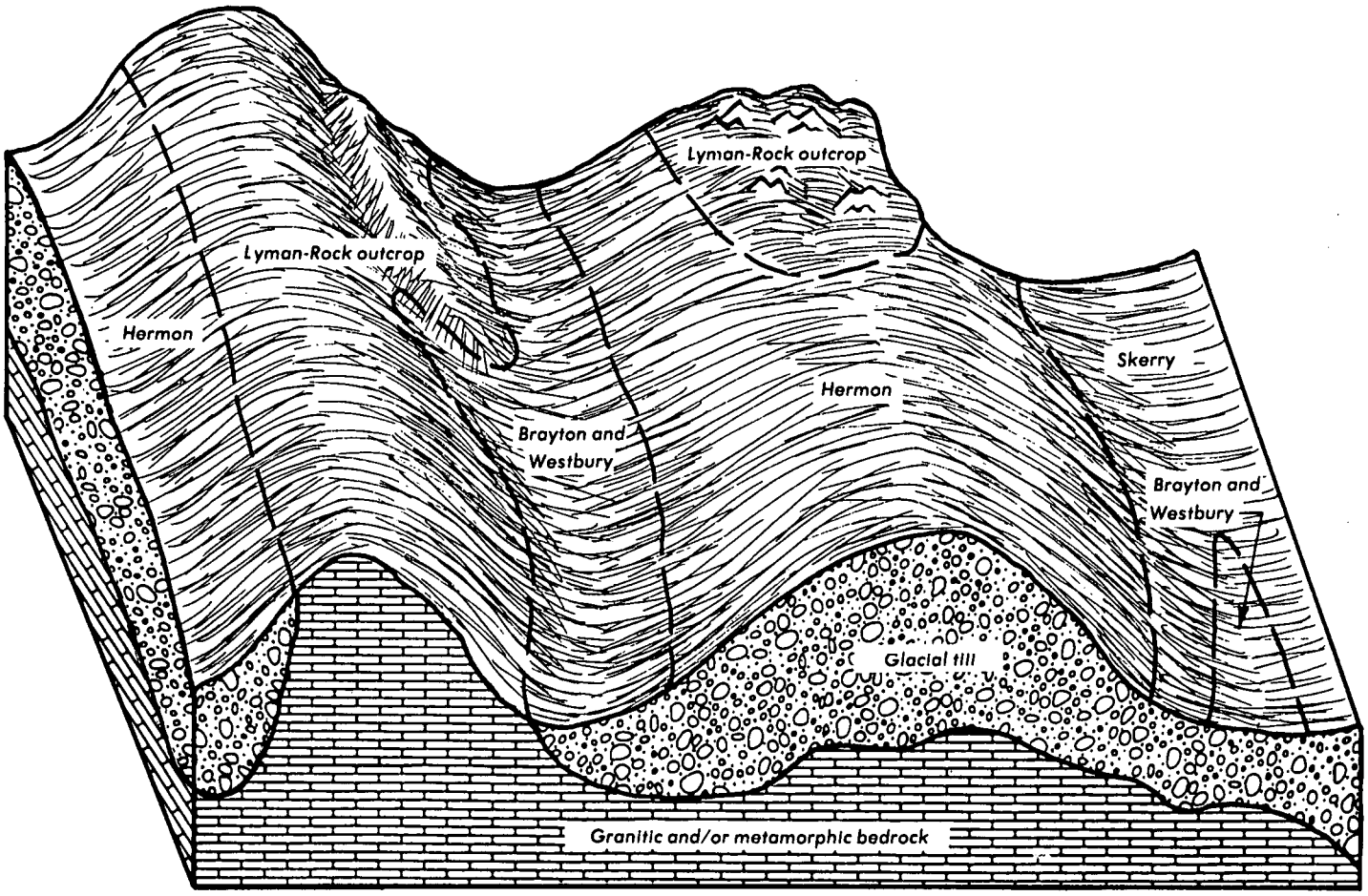


Figure 4.—Typical pattern of soils and underlying material in the Hermon-Lyman association.

The Hermon and Lyman soils are droughty during the growing season. The Hermon soils have a surface layer of fine sandy loam underlain by gravelly and sandy material. The Lyman soils have a surface layer of fine sandy loam underlain at a shallow depth by bedrock. The Hermon soils have rapid permeability, and the Lyman soils have moderately rapid permeability.

The minor areas in this association are moderately well drained Skerry soils, somewhat poorly drained Westbury soils, somewhat poorly drained to poorly drained Brayton soils, and areas of exposed bedrock.

This association is used mainly for woodland, but some areas are used for pasture and hay and a few are used for orchards. Droughtiness, rocks and stones on the surface, and the shallow depth to bedrock of the Lyman soils are the major limitations of these soils for farming; irrigation and stone removal are often necessary management practices for cultivated crops. Slope is also a limitation in the steeper areas of the association. The main limitations for most nonfarm uses are slope, rapid permeability, and the shallow depth to bedrock in the Lyman soils. Erosion on steeper areas and skid trails is a hazard in logging areas.

6. Lyman-Rock outcrop-Sebago association

Shallow, gently sloping to very steep, somewhat excessively drained soils formed in shallow glacial till; areas of bedrock exposures; and deep, level, very poorly drained soils formed in organic material

Areas of these soils are mostly in the southern coastal regions of the county. The Lyman soils and Rock outcrop are on ridges and hills, and the Sebago soils are in depressions.

This association occupies about 6 percent of the county. The association is about 50 percent Lyman soils, 25 percent Rock outcrop, 15 percent Sebago soils, and 10 percent soils of minor extent (fig. 5).

The Lyman soils are shallow, gently sloping to very steep, and somewhat excessively drained. Rock outcrop

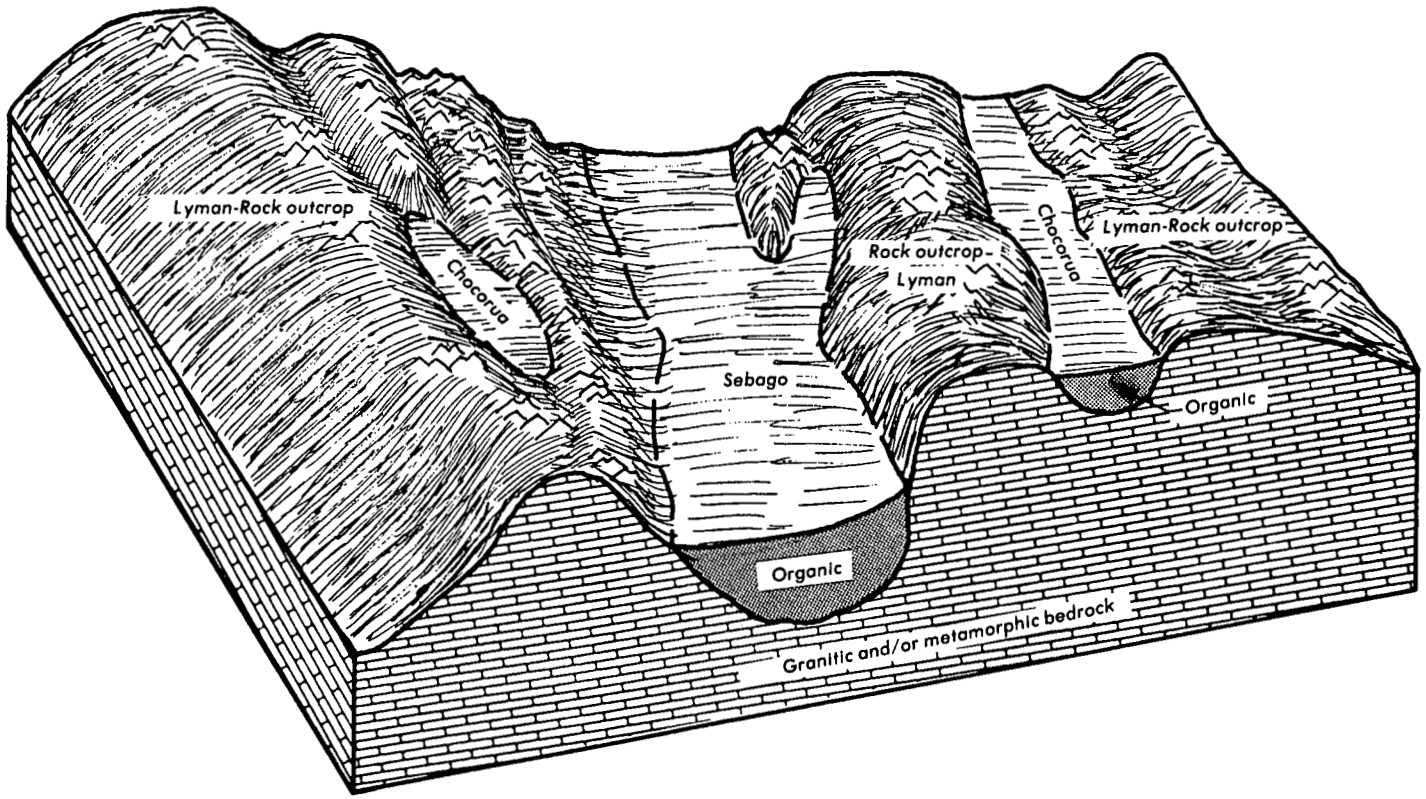


Figure 5.—Typical pattern of soils and underlying material in the Lyman-Rock outcrop-Sebago association.

consist of areas of bedrock exposures. The Sebago soils are deep, level, and very poorly drained. They are surrounded by Lyman soils and Rock outcrop. The Lyman soils have a surface layer of fine sandy loam underlain at a shallow depth by bedrock. Permeability of the Lyman soils is moderately rapid. The Sebago soils consist of organic material throughout and have moderately rapid permeability.

The minor soils in this association are very poorly drained Chocorua soils and Sulfihemists.

This association is mainly used for woodland. A few areas are used for pasture. Rocks and stones on and in the soil, droughtiness, the shallow depth to bedrock of the Lyman soils, and wetness in the Sebago soils are the main limitations of the association for farming. The main limitations for nonfarm uses are the bedrock exposures on the surface, the shallow soil depth of the Lyman soils, and the high water table and low strength of the Sebago soils.

7. Scantic-Raynham-Buxton association

Deep, nearly level to moderately steep and hilly, poorly drained to moderately well drained soils formed in marine and lacustrine sediments

Areas of these soils are in the eastern and southern parts of the county. The soils are on marine plains and lake plains.

This association occupies about 11 percent of the county. The association is about 35 percent Scantic soils, 25 percent Raynham soils, 10 percent Buxton soils, and 30 percent soils of minor extent (fig. 6).

The Scantic and Raynham soils are poorly drained and nearly level and have a seasonal high water table. The Buxton soils are moderately well drained to somewhat poorly drained and are gently sloping to moderately steep and hilly. They are wet for short periods. The Scantic and Buxton soils have a surface layer of silt loam underlain by clayey material. Both soils have moderate to moderately slow permeability in the surface layer and slow to very slow permeability below the surface layer. The Raynham soils have a surface layer of silt loam underlain by silt loam and very fine sandy loam. They have moderate to moderately slow permeability in the surface layer and subsoil and slow permeability in the substratum.

The minor areas in this association are moderately well drained Elmwood, Madawaska, and Scio soils; very poorly drained Saco soils; and urbanized areas.

The association is used mainly for hay and pasture-land, but some areas are in woodland. The high water table and poor workability of the Scantic and Raynham

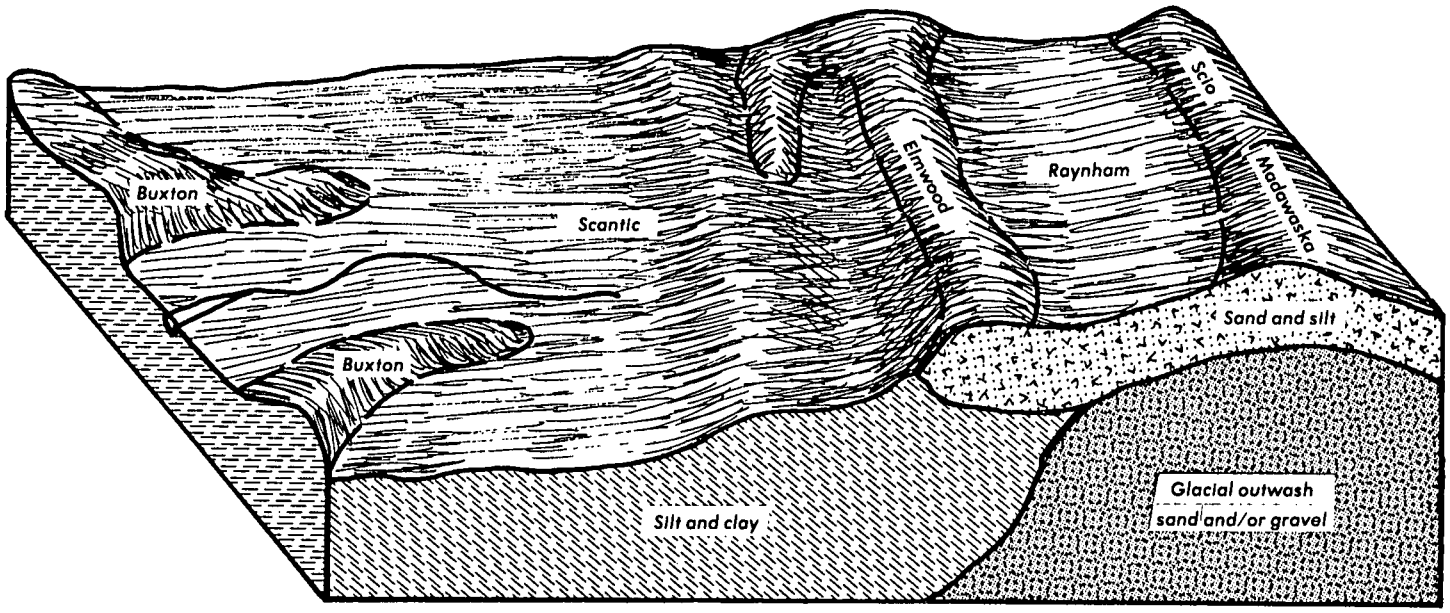


Figure 6.—Typical pattern of soils and underlying material in the Scantic-Raynham-Buxton association.

soils are the major limitations of the association for farming. Slope is a limiting factor for farming in the steeper areas. Slope, the high water table in the Scantic and Raynham soils, and slow permeability in the Scantic and Buxton soils are the main limitations for nonfarm uses.

8. Lyman-Rock outcrop-Scantic association

Shallow, gently sloping to very steep, somewhat excessively drained soils formed in glacial till; areas of bedrock exposures; and deep, nearly level, poorly drained soils formed in marine and lacustrine sediments

Areas of these soils are in the eastern and southern parts of the county. The Lyman soils and Rock outcrop are on ridges and hills, and the Scantic soils are on marine plains.

This association occupies about 6 percent of the county. The association is about 45 percent Lyman soils, 20 percent Rock outcrop, 15 percent Scantic soils, and 20 percent soils of minor extent (fig. 7).

The Lyman soils are shallow, gently sloping to very steep, and somewhat excessively drained. Rock outcrop consists of areas of bedrock exposures. The Scantic soils are deep, nearly level, and poorly drained. The Lyman soils have a surface layer of fine sandy loam and are underlain at a shallow depth by bedrock. The Scantic soils have a surface layer of silt loam and are underlain by clayey material.

The minor soils in this association are somewhat poorly drained to poorly drained Naumburg soils and very poorly drained Biddeford soils.

The association is used mainly for woodland, but some areas are used for pasture and hay. The main limitations for farm and nonfarm uses are the bedrock exposures, droughtiness, the shallow depth to bedrock in the Lyman soils, and a high water table in the Scantic soils. Slope is a limitation in the steeper areas of the association.

9. Rumney-Podunk-Ondawa association

Deep, nearly level, poorly drained to well drained soils formed in alluvium

Areas of these soils are mostly on flood plains of the Saco River. The association occupies about 1 percent of the county. The association is about 68 percent Rumney soils, 13 percent Podunk soils, 10 percent Ondawa soils, and 9 percent soils of minor extent (fig. 8).

The Rumney soils are poorly drained, the Podunk soils are moderately well drained, and the Ondawa soils are well drained. All three soils have a loamy surface layer underlain by sandy material. All are subject to flooding and have moderately rapid to very rapid permeability.

The minor soils in the association are moderately well drained Scio and Winooski soils and well drained Allagash soils.

This association is used mainly for silage corn. Some areas are used for pasture and hay. Flooding is the main limitation of the soils for farm and nonfarm uses.

10. Sulfihemists-Udipsamments association

Deep, level, very poorly drained soils formed in organic deposits; deep, undulating to rolling, excessively drained and moderately well drained soils formed in eolian deposits

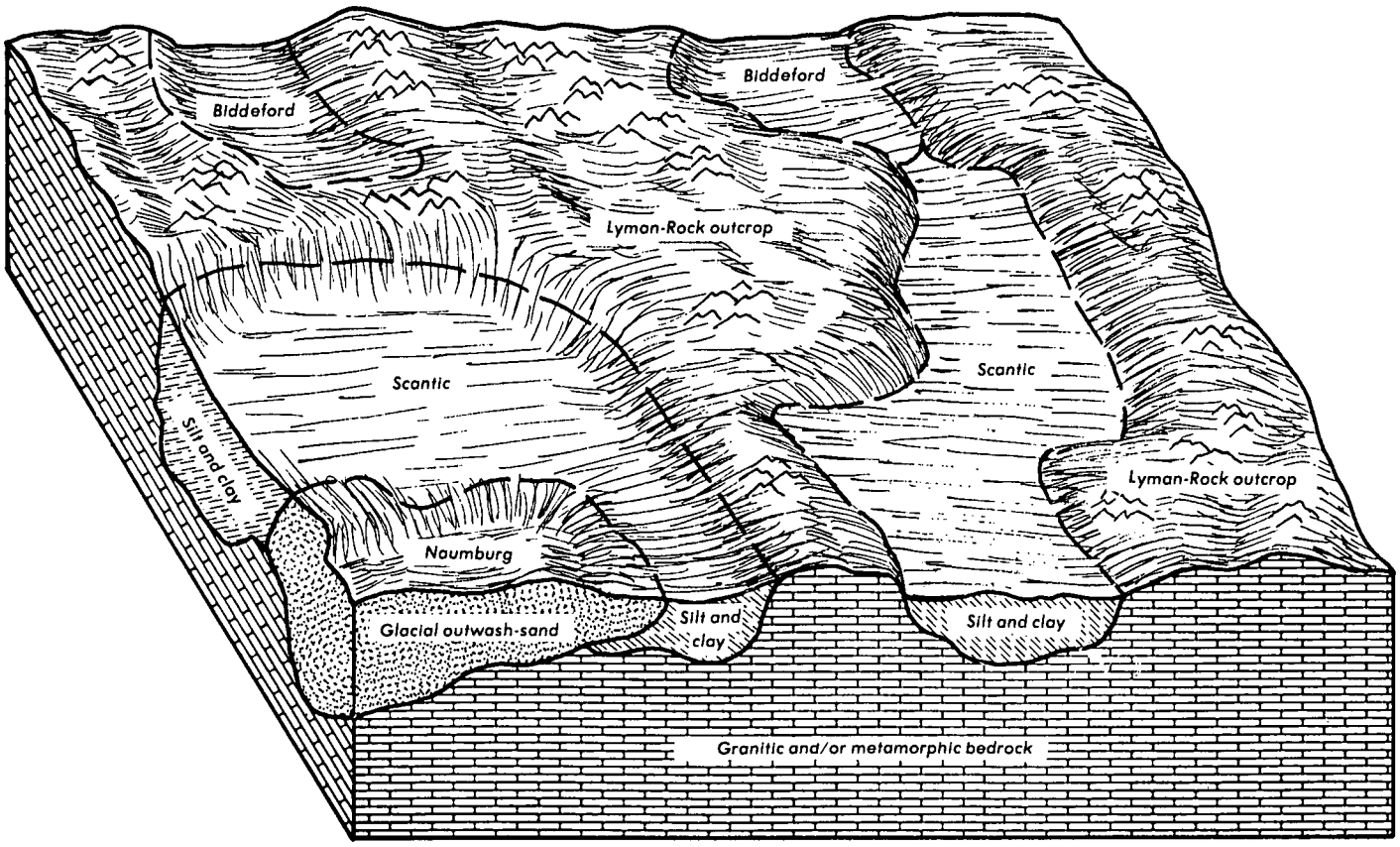


Figure 7.—Typical pattern of soils and underlying material in the Lyman-Rock outcrop-Scantic association.

Areas of these soils are along the seacoast and estuaries of streams and rivers. Sulfihemists are in tidal marshes, and Udipsamments are on stabilized dunes.

This association occupies about 1 percent of the county. The association is about 68 percent Sulfihemists, 10 percent Udipsamments, and 22 percent soils of minor extent (fig. 9).

Sulfihemists are very poorly drained and level and are flooded by tidal waters. The soils dominantly consist of organic material more than 51 inches deep. Udipsamments are excessively drained and moderately well drained soils and are undulating to rolling. They dominantly consist of fine sand and have rapid to very rapid permeability.

The minor soils in this association are very poorly drained Sebago soils, somewhat excessively drained Lyman soils, and areas of beaches and unstabilized sand dunes with no vegetation.

The areas of Sulfihemists are used for wetland wildlife habitat, and Udipsamments are used for recreation, buildings, parking lots, and roads. The hazards of storm damage or flooding on the Udipsamments are the main limitations for the use of the association.

Soil maps for detailed planning

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, a brief description of the soil profile, and a listing of the principal hazards and limitations to be considered in planning management.

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.

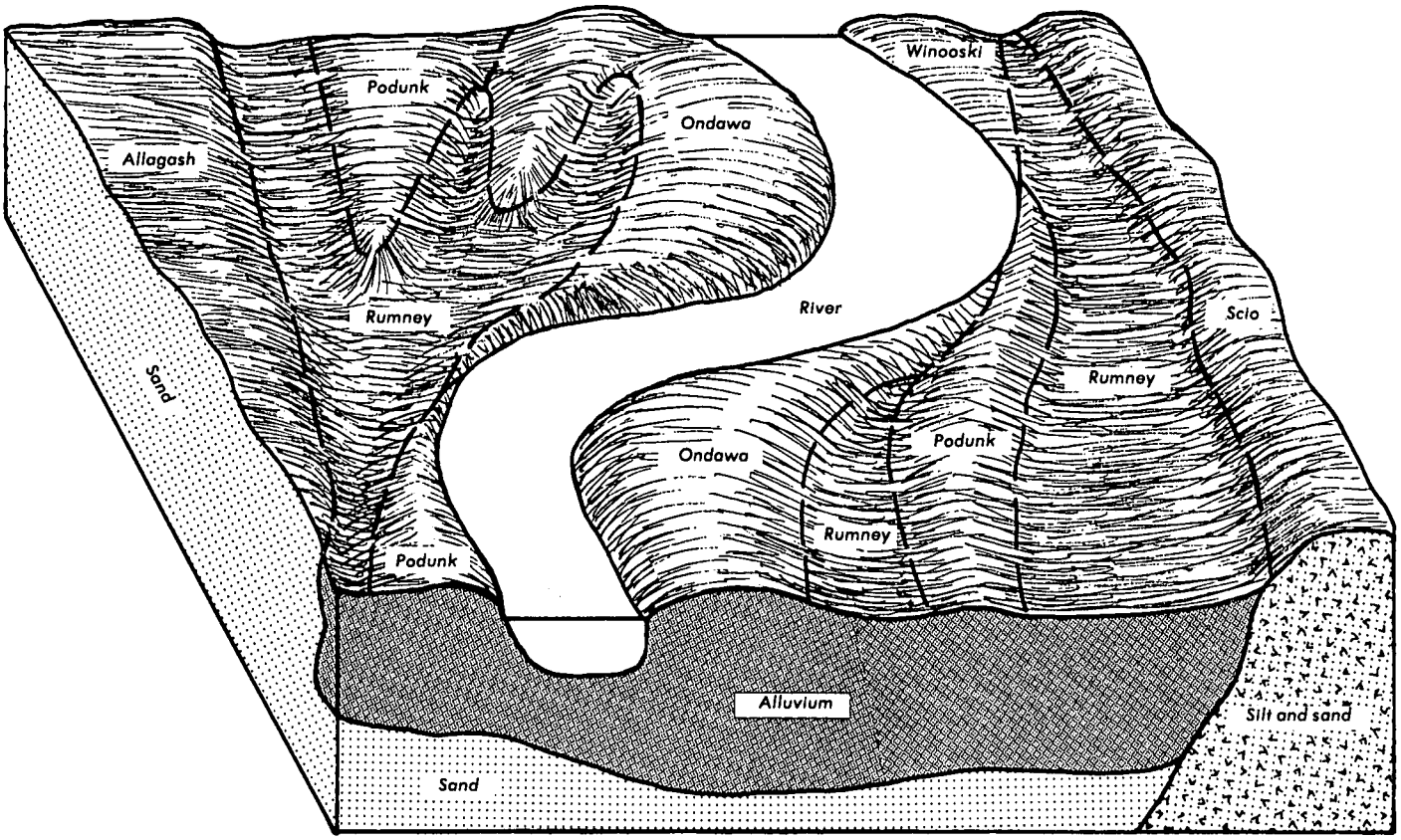


Figure 8.—Typical pattern of soils and underlying material in the Rumney-Podunk-Ondawa association.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, 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, Becket very stony fine sandy loam is one of several phases in the Becket series.

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

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. Lyman-Rock outcrop complex is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Brayton and Westbury fine sandy loam is an undifferentiated group in this survey area.

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. Dumps 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, capabili-

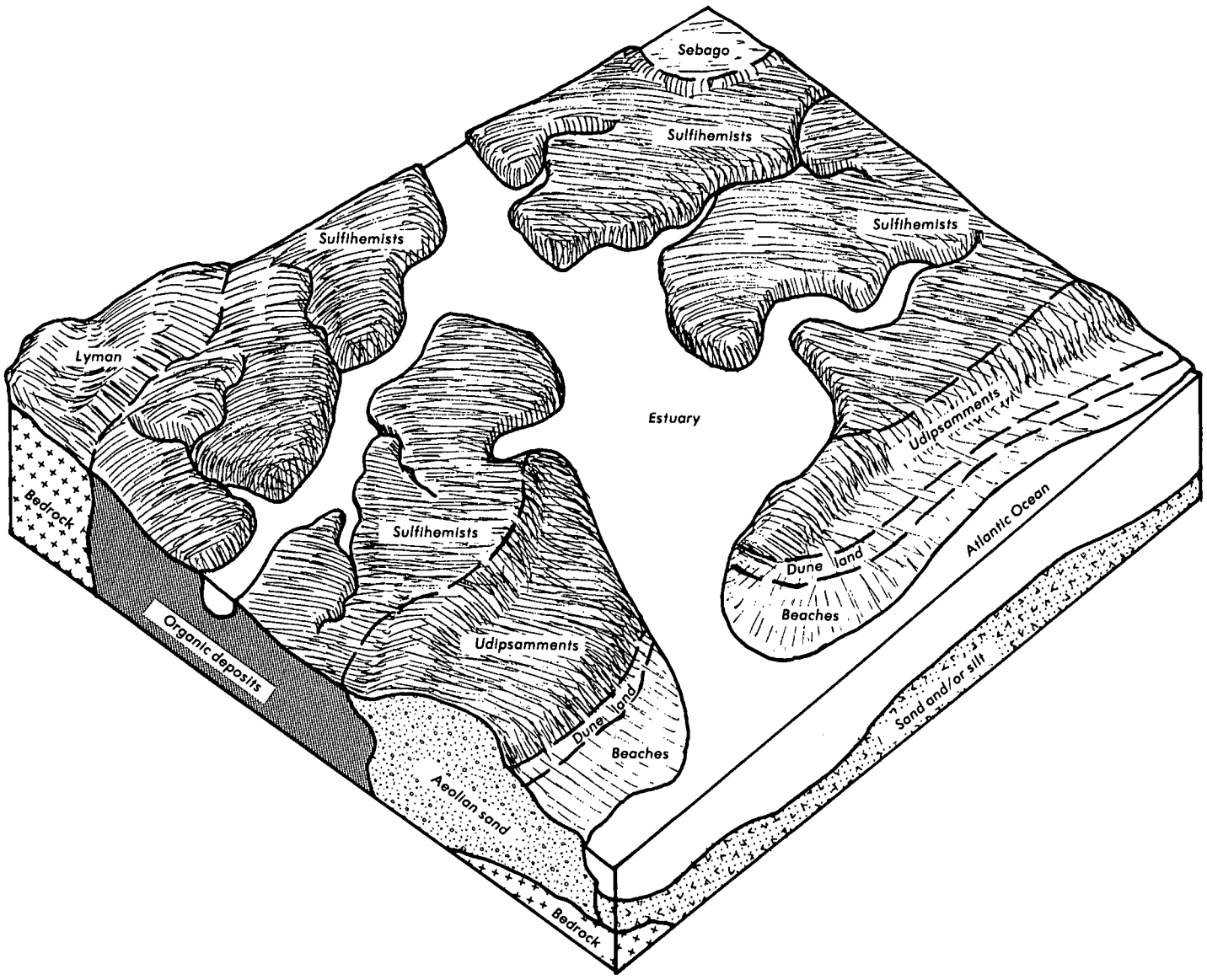


Figure 9.—Typical pattern of soils and underlying material in the Sulfihemists-Udipsamments association.

ties, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Map unit descriptions

AdB—Adams loamy sand, 0 to 8 percent slopes. This soil is nearly level to gently sloping, excessively drained, and deep. It is generally on plains and deltas. The areas are irregular in shape and range from 3 to 100 acres or more, but most range from 20 to 100 acres.

Typically, the surface layer consists of organic material 3 inches thick. The subsurface layer is gray loamy sand 3 inches thick. The subsoil is 15 inches thick. It is dark reddish brown loamy sand in the upper part and yellowish brown sand in the lower part. The substratum is light yellowish brown sand and coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of excessively drained Colton soils on plains and terraces and moderately well drained Croghan soils and somewhat poorly drained and poorly drained Naumburg soils in depressions. Also included are 1/2 acre areas of bedrock exposures, small areas of soils with a surface layer and subsoil of loamy coarse sand, and small areas

with stones on the surface. Included areas make up 5 to 20 percent of this unit.

This Adams soil has rapid or very rapid permeability. Surface runoff is slow. Tilth is good, but the available water capacity is very low. In unlimed areas the surface layer is very strongly acid or strongly acid. Natural fertility is very low. The depth to bedrock is generally 5 feet or more.

Most areas of this soil are wooded. A small acreage, mainly of the included areas of loamy coarse sand, is used for lowbush blueberry production, and some areas are used for housing.

Droughtiness and the need for irrigation make this soil poorly suited to forage and most cultivated crops. With proper management, including irrigation, this soil is suited to early-season truck crops. Increasing the content of organic matter and adequately liming and fertilizing are major management concerns.

Although the soil is mostly wooded, droughtiness and very low natural fertility limit productivity.

This soil is poorly suited for many urban uses, especially for septic sewage disposal. Rapid or very rapid permeability in the substratum causes a hazard of ground-water contamination. The instability of the substratum limits excavations in the soil. This soil is a source of poorly graded sands.

The capability subclass is IVs.

AdC—Adams loamy sand, 8 to 15 percent slopes. This soil is sloping and rolling, excessively drained, and deep. It is generally on plains and deltas. Slopes range up to several thousand feet long. Some areas are irregular in shape, and some are elongated. The areas range from 3 to 40 acres or more, but most range from 5 to 15 acres.

Typically, the surface layer consists of organic material 3 inches thick. The subsurface layer is gray loamy sand 3 inches thick. The subsoil is 15 inches thick. It is dark reddish brown loamy sand in the upper part and yellowish brown sand in the lower part. The substratum is light yellowish brown sand and coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of excessively drained Colton soils, moderately well drained Croghan soils, and somewhat poorly drained and poorly drained Naumburg soils. Also included are areas of soils that have a surface layer and subsoil of loamy coarse sand, small areas of soils that have stones on the surface, and small areas that have bedrock within 5 feet of the surface. Included areas make up 5 to 20 percent of this unit.

This Adams soil has rapid or very rapid permeability. Surface runoff is slow. Tilth is good, but the available water capacity and natural fertility are very low. In unlimed areas the surface layer is very strongly acid or strongly acid. The depth to bedrock is generally 5 feet or more.

Most areas of this soil are wooded. Some of the acreage is used for housing, and some, mainly the included areas of loamy coarse sand, is used for lowbush blueberries.

Droughtiness and the need for irrigation make this soil poorly suited to forage and cultivated crops. Cultivation of the soil results in a hazard of erosion and the need for erosion-control practices such as stripcropping and no-till planting. Increasing the content of organic matter and adequately liming and fertilizing are major management concerns for use of this soil for crops.

Although this soil is mostly wooded, droughtiness and very low natural fertility limit productivity.

This soil is poorly suited for some urban uses, especially for septic sewage disposal. The rapid or very rapid permeability causes a hazard of ground-water contamination. Slope is the main limitation of this soil as a site for housing. The instability of the substratum limits excavations in the soil. This soil is a source of poorly graded sands.

The capability subclass is VIs.

AdD—Adams loamy sand, 15 to 40 percent slopes. This soil is moderately steep and steep, excessively drained, and deep. It is generally on the sides of plains and deltas. The areas are mainly elongated. They range from 3 to 20 acres but commonly are 3 to 10 acres.

Typically, the surface layer consists of organic material 3 inches thick. The subsurface layer is gray loamy sand 3 inches thick. The subsoil is 15 inches thick. It is dark reddish brown loamy sand in the upper part and yellowish brown sand in the lower part. The substratum is light yellowish brown sand and coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of excessively drained Colton soils, somewhat poorly drained and poorly drained Naumburg soils, and very poorly drained Chocorua soils. Also included are areas of soils that have a surface layer and subsoil of loamy coarse sand, small areas that have stones on the surface, and areas with bedrock within 5 feet of the surface. Included areas make up less than 15 percent of this unit.

This Adams soil has rapid or very rapid permeability. Surface runoff is medium. Tilth is good, but the available water capacity and natural fertility are very low. In unlimed areas the surface layer is very strongly acid or strongly acid. The depth to bedrock is generally 5 feet or more.

Most areas of this soil are wooded. A few areas are used for pasture.

This soil is very poorly suited to forage and cultivated crops, mostly because the steepness of slopes makes cultivation with machinery impractical. Unvegetated areas are highly susceptible to wind and water erosion, and the soil is droughty. Very low fertility and available water capacity make the soil poorly suited for permanent pasture.

Although this soil is mostly wooded, droughtiness and very low natural fertility limit productivity. Machinery operation on this soil is difficult because of the steep slopes. Logging roads and skid trails that are constructed on the contour help to reduce erosion.

The steep slopes make this soil poorly suited for most urban uses. The hazard of erosion at construction sites makes it necessary that removal of vegetation be held to a minimum and that a temporary plant cover be established as soon as possible. The rapid permeability of the soil causes a hazard of ground-water contamination from septic disposal systems. This soil is used as a source of poorly graded sand.

The capability subclass is VIIs.

AgB—Adams-Urban land complex, 0 to 8 percent slopes. This complex consists of areas of nearly level and gently sloping, excessively drained Adams soils and urbanized areas generally on plains and deltas. Much of the acreage of the Adams soils has been altered by grading for streets, housing, commercial buildings, and similar uses. Areas of the complex range from 10 to 200 acres. The complex consists of about 50 percent Adams soils, 40 percent urbanized areas, and 10 percent included soils. The soils and urban areas are in such an intricate pattern that it was not practical to map them separately.

Typically, undisturbed areas of the Adams soils have a surface layer of very dark grayish brown loamy sand about 7 inches thick. The subsoil is 11 inches thick. It is brown to dark brown loamy sand in the upper part and yellowish brown sand in the lower part. The substratum is light yellowish brown sand and coarse sand to a depth of 60 inches or more.

Included with this complex in mapping are small areas of Colton and Croghan soils. Also included are small areas of Adams soils with slopes of 8 to 15 percent.

The Adams soils in this complex have rapid or very rapid permeability. Surface runoff on the Adams soils is slow.

Most undisturbed areas of this complex consist of Adams soils between streets, houses, apartment buildings, or commercial buildings and in yards and playgrounds. The areas are generally less than 3 acres.

The Adams soils are well suited as a site for houses and commercial buildings. Ponding on the surface late in the winter is a concern in the nearly level areas. The Adams soils are poorly suited for grasses, trees, shrubs, and vegetable gardens because of their sandy texture and droughtiness.

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

The unit is not assigned to a capability subclass.

AlB—Allagash very fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, well drained, and deep. It is generally on the tops of plains and terraces. Slopes are less than 400 feet long. Most areas of this soil are oval and range from 3 to 40 acres.

Typically, the surface layer is brown to dark brown very fine sandy loam 7 inches thick. The subsoil is 13 inches thick. The upper part is yellowish brown very fine sandy loam, and the lower part is brownish yellow and light olive brown fine sandy loam. The substratum is stratified light yellowish brown loamy fine sand and light olive brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Colton and Madawaska soils. Also included are small areas of Allagash soils with slopes of less than 3 percent. Included areas make up about 10 to 15 percent of this unit.

This Allagash soil has moderately rapid permeability to a depth of about 20 inches and rapid permeability at a depth of more than 20 inches. Surface runoff is medium. The available water capacity is moderate, and the natural fertility is low. The depth to bedrock is generally 5 feet or more. Unless limed, the surface layer is very strongly acid.

Most areas of this soil are used for cultivated crops. Some areas are wooded.

This soil is suited to cultivated crops such as corn. Controlling erosion and providing irrigation are major management concerns. Maintaining the organic matter content of the soil will help to improve tilth, increase available water capacity, and reduce runoff.

The soil is suited to pasture, but prevention of overgrazing during dry periods, the timely application of fertilizer and lime, and pasture rotation are major management needs.

This soil is suited to woodland. The available moisture and rooting depth of the soil are generally adequate for trees.

The soil is generally suitable as a site for housing and septic tank disposal. Contamination of ground water, however, is a hazard caused by the rapid permeability in the substratum.

The capability subclass is IIe.

AlC—Allagash very fine sandy loam, 8 to 15 percent slopes. This soil is sloping, well drained, and deep. It is generally on the sides of plains and terraces. Slopes are less than 200 feet long. Most areas of this soil are elongated or oval and range from 3 to 15 acres.

Typically, the surface layer is brown to dark brown very fine sandy loam 7 inches thick. The subsoil is 13 inches thick. The upper part is yellowish brown very fine sandy loam, and the lower part is brownish yellow and light olive brown fine sandy loam. The substratum is stratified light yellowish brown loamy fine sand and light olive brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Colton soils and small areas of Allagash soils with

slopes of more than 15 percent. Included areas make up about 5 to 10 percent of this unit.

This Allagash soil has moderately rapid permeability to a depth of 20 inches and rapid permeability at a depth of more than 20 inches. Surface runoff is medium. The available water capacity is moderate, and the natural fertility is low. The depth to bedrock is generally 5 feet or more. Unless limed, the surface layer is very strongly acid to slightly acid.

Most areas of this soil are used for woodland. A few areas are used for hay, pasture, or silage corn.

Slope and the hazard of erosion make this soil poorly suited to cultivated crops such as corn. Stripcropping and using crop rotations and diversions help to reduce erosion. Maintaining the organic matter content of the soil helps to improve tilth, increase available water capacity, and reduce runoff.

The soil is suited to pasture, but prevention of overgrazing during dry periods, the timely application of ferilizer and lime, and pasture rotation are major management needs.

This soil is suitable for woodland. The available moisture and rooting depth of the soil are generally adequate for trees.

Slope limits the soil as a site for housing and septic tanks. Contamination of ground water from sewage is a hazard caused by rapid permeability in the substratum.

The capability subclass is IIIe.

Ba—Beaches. This unit consists of sandy, gravelly, and cobbly coastal areas that are partially or entirely covered by water during high tides or stormy periods. The areas are narrow and range from 3 acres to about 50 acres. They have slopes that range from 0 to 8 percent. Some parts of the unit have small areas of exposed bedrock.

Beaches are used for recreational activities such as surf fishing and sunbathing, and they provide some types of wetland wildlife habitat.

The capability subclass is VIIIs.

BcB—Becket fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, well drained, and deep. It is on ridge crests. The areas range from 5 to 20 acres and are oval to circular. Stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart cover the surface of this soil.

Typically, the surface layer is dark brown fine sandy loam 6 inches thick. The subsoil is 17 inches thick. It is strong brown fine sandy loam in the upper part and yellowish brown and light olive brown sandy loam in the lower part. The substratum is very firm and brittle, olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Lyman soils on the crests of hills and ridges and moderately well drained Skerry soils on the lower parts of slopes. A few areas of this unit have small areas of soils that have a firm and brittle substratum at a depth of 40 inches or more. Also included are small areas of Becket soils with slopes of less than 3 percent and a few areas of soils that have stones less than 100 feet apart. Included areas make up about 15 percent of this unit.

This Becket soil has moderate permeability to a depth of 23 inches and moderately slow or slow permeability at a depth of more than 23 inches. Surface runoff is medium, and the available water capacity is moderate. Bedrock is generally below a depth of 5 feet, but the rooting depth is impeded by the very firm substratum. Unless limed, the surface layer is very strongly acid to slightly acid.

Most areas of this soil are used for hay, orchards, and cropland (fig. 10). Some areas of abandoned farmland have reverted to woodland.

This soil is well suited to cultivated crops. It is also well suited to fruits such as apples, strawberries, and highbush blueberries. Applying lime and fertilizer and controlling erosion are the main management concerns. Some areas require removal of stones after plowing.

The soil is well suited to pasture and hayland, but it is somewhat droughty during dry years. Applying lime and fertilizer is the main management concern.

The soil is suitable for woodland. Most wooded areas of this soil consist of volunteer species such as eastern

Figure 10.—An orchard on an area of Becket fine sandy loam, 3 to 8 percent slopes, in the town of Acton.

white pine, gray birch, juniper, aspen, and northern red oak. The main limitation of the soil for woodland management is the compact substratum, which restricts root development of tap-rooted trees such as red pine.

This soil is suitable for most urban uses. Moderately slow and slow permeability in the substratum is a limitation for septic sewage disposal. Frost action is a concern for roads and for buildings without basements, and it can be controlled by surface and subsurface drainage.

The capability subclass is IIe.

BcC—Becket fine sandy loam, 8 to 15 percent slopes. This soil is sloping, well drained, and deep. It is on the upper side slopes of ridges. The areas range from 5 to 15 acres and are oval to elongated. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the surface layer is dark brown fine sandy loam 6 inches thick. The subsoil is 17 inches thick. It is strong brown fine sandy loam in the upper part and yellowish brown and light olive brown sandy loam in the lower part. The substratum is very firm and brittle, olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Lyman soils on the crests of hills and ridges and moderately well drained Skerry soils on the lower parts of the slope. A few areas of this unit have small areas of soils that have a firm and brittle substratum at a depth of 40 inches or more. Also included are a few areas of soils that have stones on the surface less than 100 feet apart. Included areas make up about 15 percent of this unit.

This Becket soil has moderate permeability to a depth of 23 inches and moderately slow or slow permeability at a depth of more than 23 inches. Surface runoff is medium, and the available water capacity is moderate. Bedrock is generally below a depth of 5 feet, but the rooting depth is impeded by the very firm substratum. Unless limed, the surface layer is very strongly acid to slightly acid.

Most areas of this soil are used for hay, orchards, and pasture. Some areas of abandoned farmland have reverted to woodland.

Slope and the hazard of erosion make this soil poorly suited to cultivated crops. Diversions, winter cover crops, and stripcropping help to reduce erosion, and applying lime and fertilizer helps to overcome acidity and low fertility. Some areas require removal of stones after plowing.

The soil is suited to pasture and hay, but it is somewhat droughty during dry years. Applying lime and fertilizer is a main management concern.

This soil is suitable for woodland. Wooded areas of the soil generally consist of volunteer species such as eastern white pine, gray birch, juniper, aspen, and northern red oak. The main limitation of the soil is the firm and brittle substratum, which restricts root development of tap-rooted trees such as red pine.

This soil is suitable for most urban uses, but moderately slow and slow permeability in the substratum and the slope of the soil limit septic sewage disposal. Frost action limits the soil as a site for roads and buildings without basements and can be controlled by surface and subsurface drainage.

The capability subclass is IIIe.

BcD—Becket fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep, well drained, and deep. It is on side slopes of ridges. The areas range from 5 to 15 acres and are oval to elongated. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the surface layer is dark brown fine sandy loam 6 inches thick. The subsoil is 17 inches thick. It is strong brown fine sandy loam in the upper part and yellowish brown and light olive brown sandy loam in the lower part. The substratum is very firm and brittle, olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Lyman soils on hills and ridges and moderately well drained Skerry soils on the lower parts of slopes. A few areas of this unit have small areas of soils in which the firm and brittle substratum is at a depth of more than 40 inches. Also included are small areas of Becket soils with slopes of more than 25 percent and a few areas where as much as 3 percent of the surface is covered by stones. Included areas make up about 15 percent of this unit.

This Becket soil has moderate permeability to a depth of 23 inches and moderately slow or slow permeability at a depth of more than 23 inches. Surface runoff is rapid, and the available water capacity is moderate. Bedrock is generally below a depth of 5 feet, but the rooting depth is impeded by the very firm substratum. Unless limed, the surface layer is very strongly acid to slightly acid.

Most areas of this soil are used for hay and pasture. Some areas of abandoned farmland have reverted to woodland. A few areas of the soil are used for apple orchards.

Slope and the hazard of erosion make this soil poorly suited to cultivated crops. Management practices such as terracing and stripcropping are difficult to establish and maintain because of slope, and the use of equipment is limited.

Slope also limits use of the soil for pasture and hay. Liming and fertilizing help to maintain permanent pasture, and controlled grazing reduces the erosion hazard.

This soil is suitable for woodland, but management is limited by slope. Wooded areas of this soil generally consist of volunteer species such as eastern white pine, gray birch, juniper, aspen, and northern red oak. Building

logging roads and skid trails on the contour helps reduce erosion.

Slope, moderately slow and slow permeability in the substratum, and frost action limit use of this soil for most types of urban and recreational use.

The capability subclass is IVe.

BeB—Becket very stony fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, well drained, and deep. It is on the crest of ridges. The areas range from 5 to 30 acres and are oval to circular. Stones that are 1 to 1-1/2 feet in diameter cover as much as 3 percent of the surface of the soil.

Typically, the surface layer is light gray fine sandy loam 2 inches thick. The subsoil is 21 inches thick. It is strong brown fine sandy loam in the upper part and yellowish brown and light olive brown sandy loam in the lower part. The substratum is very firm and brittle, olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Lyman soils on crests of hills and ridges and moderately well drained Skerry soils on the lower parts of slopes. Also included are small areas that have few stones on the surface, small areas where more than 3 percent of the surface is covered by stones, and small areas of Becket soils that have slopes of less than 3 percent. A few areas of this unit have small areas of soils in which the firm and brittle substratum is at a depth of 40 inches or more. Included areas make up about 15 percent of this unit.

This Becket soil has moderate permeability to a depth of 23 inches and moderately slow or slow permeability at a depth of more than 23 inches. Surface runoff is medium, and the available water capacity is moderate. Bedrock is generally below a depth of 5 feet, but the rooting depth is impeded by the firm substratum. The surface layer is very strongly acid to slightly acid.

This soil is mostly in woodland. A small acreage is in pasture, and some areas are used for homesites.

This soil is poorly suited to cultivated crops and hay because the stones on the surface interfere with tillage. Some areas are suitable for unimproved pasture, but the soil has low natural fertility.

The soil is suitable for trees, but the compact substratum restricts root development of tap-rooted trees such as red pine.

This soil is poorly suited for many urban and recreational uses. The moderately slow or slow permeability of the substratum limits the soil as a site for septic sewage disposal, and lateral movement of water along the top of and through the substratum limits use for sanitary landfills. Frost action is a hazard for roads and buildings without basements and can be controlled by surface and subsurface drainage.

The capability subclass is VIs.

BeC—Becket very stony fine sandy loam, 8 to 15 percent slopes. This soil is sloping, well drained, and deep. It is on side slopes of ridges. The areas range from 3 to 40 acres and are oval to elongated. Stones that are 1 to 1-1/2 feet in diameter cover as much as 3 percent of the surface.

Typically, the surface layer is light gray fine sandy loam 2 inches thick. The subsoil is 21 inches thick. It is strong brown fine sandy loam in the upper part and yellowish brown and light olive brown sandy loam in the lower part. The substratum is very firm and brittle, olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Lyman soils on crests of hills and ridges and moderately well drained Skerry soils and somewhat poorly drained and poorly drained Brayton soils on the lower parts of slopes. Also included are small areas that have few stones on the surface and small areas where more than 3 percent of the surface is covered by stones. A few areas of this unit have small areas of soils in which the firm and brittle substratum is at a depth of 40 inches or more. Included areas make up about 15 percent of this unit.

This Becket soil has moderate permeability to a depth of 23 inches and moderately slow or slow permeability at a depth of more than 23 inches. Surface runoff is medium, and the available water capacity is moderate. Bedrock is generally below a depth of 5 feet, but rooting depth is impeded by the firm substratum.

This soil is mostly in woodland. Many areas were once cleared of trees, partially cleared of stones, and used as permanent pasture.

This soil is poorly suited to cultivated crops and hay because the stones on the surface interfere with tillage. Some areas are suitable for unimproved pasture, but the soil has low natural fertility.

The soil is suitable for woodland, but the compact substratum restricts root development of tap-rooted trees such as red pine.

This soil is poorly suited for most urban and recreational uses because of the stones on the surface and moderately slow or slow permeability in the substratum. Lateral movement of water along the top of and through the substratum limits the soil as a site for sanitary landfills. Frost action is a hazard for roads and buildings without basements and can be controlled by surface and subsurface drainage.

The capability subclass is VIs.

BeD—Becket very stony fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep, well drained, and deep. It is on the side slopes of ridges. The areas range from 5 to 40 acres and are oval to elongated. Stones that are 1 to 1-1/2 feet in diameter cover as much as 3 percent of the surface.

Typically, the surface layer is light gray fine sandy loam 2 inches thick. The subsoil is 21 inches thick. It is strong brown fine sandy loam in the upper part and yellowish brown and light olive brown sandy loam in the lower part. The substratum is very firm and brittle, olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Lyman soils on crests of hills and ridges and moderately well drained Skerry soils and somewhat poorly drained and poorly drained Brayton soils on the lower parts of slopes. Also included are small areas that have few stones on the surface, small areas where more than 3 percent of the surface is covered by stones, and small areas of Becket soils that have slopes of more than 25 percent. A few areas of this unit have small areas of soils in which the firm and brittle substratum is at a depth of 40 inches or more. Included areas make up about 15 percent of this unit.

This Becket soil has moderate permeability to a depth of 23 inches and moderately slow or slow permeability at a depth of more than 23 inches. Surface runoff is rapid, and the available water capacity is moderate. Bedrock is generally below a depth of 5 feet, but the rooting depth is impeded by the firm substratum.

This soil is mostly in woodland. A small acreage is in pasture. Many of the areas now in woodland were once partially cleared of stones and used for pasture.

This soil is very poorly suited to cultivated crops and hayland because of the moderately steep slopes and stones on the surface. Some areas are suitable for unimproved pasture, but the soil has low natural fertility.

The soil is suitable for woodland. The slope of the soil limits the use of equipment.

This soil is poorly suited for most urban and recreational uses because of the moderately steep slopes, stones on the surface, and moderately slow or slow permeability of the substratum. Lateral movement of water along the top of and through the substratum limits the soil as a site for sanitary landfills. Frost action is a hazard for roads and buildings without basements.

The capability subclass is VIs.

Bm—Biddeford mucky peat. This soil is level, very poorly drained, and deep. It is in depressional areas in lowlands. Slopes range from 0 to 1 percent. Most areas of this soil are oval or elongated and range from 3 to 100 acres.

Typically, this soil has a surface layer of mucky peat 14 inches thick. The subsurface layer, subsoil, and substratum are mottled, greenish gray silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained Scantic soils. At slightly higher elevations some areas of this unit in the towns of South Berwick and York have a subsoil and substratum of silt loam to very fine sandy loam. Some areas in the towns of Eliot and Kittery have a surface layer thicker than 16 inches. Also included are a few areas of soils that have a surface layer of silt loam about 10 inches thick. Included areas comprise about 15 percent of this unit.

This Biddeford soil has moderately rapid permeability in the surface layer, moderately slow permeability in the subsurface layer, and slow to very slow permeability in the substratum. Surface runoff is very slow, and some areas have water ponded on the surface. The available water capacity is high, but rooting depth is impeded by a high water table. The depth to bedrock is generally more than 5 feet.

Most areas of this soil are in meadows and shrub swamps or wooded swamps. These areas are used primarily by migratory waterfowl. The meadows consist of reed grasses, cattails, and sedges. The shrub and wooded swamps consist of alders, willows, red maple, elm, gray birch, and hemlock. A few areas of this soil are used for pasture. Hay is cut from such areas only in dry growing seasons.

Wetness makes the cleared areas of this soil poorly suited for cultivated crops, commercial timber production, and urban and recreational uses. Most areas do not have adequate outlets to provide drainage for crops. Open areas are better suited to unimproved pasture or wetland wildlife habitat.

The capability subclass is VIw.

BrB—Brayton and Westbury fine sandy loams, 0 to 8 percent slopes. This unit consists of nearly level to gently sloping, deep soils on hills and ridges. Areas of this unit consist of poorly drained and somewhat poorly drained Brayton soils or somewhat poorly drained Westbury soils, or both. The soils are mapped together because they have no major differences in use and management. The areas range from 3 to 15 acres. The Brayton soils make up about 70 percent of the mapped acreage of this unit, the Westbury soils 25 percent, and included soils 5 percent. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the Brayton soils have a surface layer of dark brown fine sandy loam 7 inches thick. The subsoil is mottled, grayish brown fine sandy loam 4 inches thick. The substratum is very firm, mottled, olive and grayish brown fine sandy loam to a depth of 60 inches or more.

Typically, the Westbury soils have a surface layer of dark brown fine sandy loam 7 inches thick. The subsoil is mottled, dark reddish brown and yellowish brown fine sandy loam 16 inches thick. The substratum is firm, mottled, yellowish brown sandy loam and fine sandy loam to a depth of 60 inches or more.

Included with this unit in mapping are areas of Skerry soils on small knolls. Also included are small areas of

poorly drained soils that have a substratum of gravelly loamy sand and that are in slightly concave areas near the base of hills and ridges.

The Brayton soils have moderate permeability to a depth of 11 inches and slow permeability at a depth of more than 11 inches. Surface runoff is slow. The available water capacity is low. The depth to bedrock is generally 5 feet or more. A perched water table is near the surface for 7 to 9 months of the year, including the first part of the growing season. Unless limed, the surface layer is very strongly acid to slightly acid.

The Westbury soils have moderate permeability to a depth of 23 inches and slow permeability at a depth of more than 23 inches. Surface runoff is slow. The available water capacity is moderate. The depth to bedrock is generally 5 feet or more. A perched water table is near the surface of the soil during winter and early spring. Unless limed, the surface layer is extremely acid to very strongly acid.

Most areas of this unit are in pasture. A small acreage is cultivated, and a few areas have reverted to woodland.

A seasonal high water table and firm substratum make the soils in this unit poorly suited to cultivated crops, pasture, or hay.

The soils are suitable for trees, but the high water table, especially in the Brayton soils, is a major management concern.

The high water table also limits the soils for most urban uses, especially for disposal of septic tank wastes and as a site for homes with basements. Frost action is a hazard for roads and foundations.

The capability subclass is IIIw.

BsB—Brayton and Westbury very stony fine sandy loams, 0 to 8 percent slopes. This unit consists of nearly level to gently sloping, deep soils on hills and ridges. Areas of this unit consist of poorly drained and somewhat poorly drained Brayton soils or somewhat poorly drained Westbury soils, or both. The soils are mapped together because they have no major differences in use and management. The areas range from 3 to 50 acres. Stones that are 1 to 1-1/2 feet in diameter cover as much as 3 percent of the surface. The Brayton soils make up about 60 percent of the mapped acreage of this unit, the Westbury soils 25 percent, and included soils 15 percent.

Typically, the Brayton soils have a mat of deciduous leaves and twigs 1 inch thick over a surface layer of very dark grayish brown fine sandy loam 5 inches thick. The subsoil is mottled, grayish brown fine sandy loam 6 inches thick. The substratum is very firm, mottled, olive and grayish brown fine sandy loam to a depth of 60 inches or more.

Typically, the Westbury soils have a mat of deciduous leaves and twigs 1 inch thick. The surface layer, subsurface layer, and subsoil are very dark gray and mottled grayish brown, dark reddish brown, and yellowish brown fine sandy loam 23 inches thick. The substratum is firm, mottled, yellowish brown sandy loam and fine sandy loam to a depth of 60 inches or more.

Included with this unit in mapping are small areas of poorly drained and very poorly drained soils that have a substratum of gravelly loamy sand or that are extremely stony. These soils are in depressions and drainageways near the base of hills and ridges. Also included are areas of moderately well drained Skerry and Peru soils on small knolls or mounds on the upper part of the slopes and a few small areas of soils with slopes of as much as 12 percent that are on the sides of hills and ridges. Included areas make up about 15 percent of this map unit.

The Brayton soils have moderate permeability to a depth of 11 inches and slow permeability at a depth of more than 11 inches. Surface runoff is slow. The available water capacity is low. The depth to bedrock is generally 5 feet or more. A perched water table is near the surface for 7 to 9 months of the year, including the first part of the growing season.

The Westbury soils have moderate permeability to a depth of 23 inches and slow permeability at a depth of more than 23 inches. Surface runoff is slow. The available water capacity is moderate. The depth to bedrock is generally 5 feet or more. A perched water table is near the surface during winter and early spring.

Most areas of this unit are in woodland. A small acreage is in pasture. Many areas of the Westbury soils were used for unimproved pasture, but almost all of these have reverted to woodland.

The seasonal high water table and stone cover make this unit very poorly suited to cultivated crops, pasture, or hay.

These Brayton and Westbury soils are suitable for many tree species, but the high water table, especially in the Brayton soils, is a major management concern.

The high water table also limits the soils for most urban uses, especially for disposal of septic tank wastes and as a site for homes with basements. Frost action is a hazard for roads and foundations.

The capability subclass is VIIs.

BuB—Buxton silt loam, 3 to 8 percent slopes. This soil is gently sloping, somewhat poorly drained, and deep. It is on lake plains. Slopes are mostly less than 200 feet long. Areas of this soil are oval or finger-shaped and mostly range from 3 to 20 acres.

Typically, the surface layer is dark brown silt loam 7 inches thick. The subsoil is 30 inches thick. The upper part is yellowish brown and mottled, light olive brown silt loam and mottled, light brownish gray silty clay loam. The lower part is firm, mottled, olive gray and grayish

brown silty clay. The substratum is firm, mottled, olive gray silty clay to a depth of 60 inches or more.

Included with this soil in mapping are areas of poorly drained Scantic soils and very poorly drained Biddeford soils in small depressions. Also included are areas of soils that are mottled throughout the subsoil, soils with stones on the surface, and soils along drainageways that have slopes of more than 8 percent. Included areas make up 10 to 20 percent of this unit.

This Buxton soil has moderate or moderately slow permeability in the surface layer and upper part of the subsoil and slow or very slow permeability in the lower part of the subsoil and in the substratum. A seasonal high water table is at a depth of 10 to 15 inches. Surface runoff is medium, and the available water capacity is high. Root growth is restricted by the seasonal high water table and the firm part of the subsoil. Unless limed, the surface layer is strongly acid to slightly acid.

Most areas of this soil are used for pasture and silage corn. Some areas have reverted to woodland.

Wetness makes this soil poorly suited to cultivated crops. The surface layer dries slowly after rains and is sticky when wet. If the soil is cultivated when it is too wet, clods which are hard when dry form on the surface, making tillage difficult. This soil is not easily tile drained, because there is very slow movement of water into the tile. Surface drainage and land smoothing are sometimes more effective methods of drainage. If the soil is cultivated, green manure crops, cover crops, and minimum tillage help to improve tilth and reduce erosion.

This soil is generally suitable for pasture, but it is poorly suited for such plants as alfalfa and bromegrass. Frost heaving of tap-rooted plants is a hazard in this soil. Prevention of grazing when the soil is wet, land smoothing when new seedlings are established, the application of fertilizer and lime, and pasture rotation are the main pasture management needs.

This soil is suitable for trees. Seasonal wetness is a limitation for woodland management and restricts the use of harvesting equipment for short periods. The uprooting of some trees is a hazard during windy periods where tall trees are left standing after heavy cutting.

The high water table and slow to very slow permeability limit this soil for disposal of septic tank effluent. The water table and frost action are hazards for roads and roadfill.

The capability subclass is IIw.

BuC—Buxton silt loam, 8 to 15 percent slopes. This soil is sloping, somewhat poorly drained, and deep. It is on the tops and sides of lake plains. Slopes are mostly less than 200 feet long. Areas of this soil are oval or finger-shaped and mostly range from 4 to 30 acres.

Typically, the surface layer is dark brown silt loam 7 inches thick. The subsoil is 30 inches thick. The upper part is yellowish brown and mottled, light olive brown silt loam and mottled, light brownish gray silty clay loam. The lower part is firm, mottled, olive gray and grayish brown silty clay. The substratum is firm, mottled, olive gray silty clay to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained soils in small depressions and moderately well drained Scio soils on plains. Also included are areas of soils that are mottled throughout the subsoil or only at a depth of more than 24 inches, areas where bedrock is exposed at the surface or that are shallow to bedrock, and areas on terraces of soils with a surface layer of sandy loam. Included areas comprise 10 to 20 percent of this unit.

This Buxton soil has moderate or moderately slow permeability in the surface layer and upper part of the subsoil and slow or very slow permeability in the lower part of the subsoil and in the substratum. A seasonal high water table is at a depth of 10 to 15 inches. Surface runoff is medium, and the available water capacity is high. Root growth is restricted by the seasonal high water table and the firm part of the subsoil. Unless limed, the surface layer is strongly acid to slightly acid.

Most areas of this soil are used for pasture and hay (fig. 11). Some areas have reverted to woodland.

The hazard of erosion and wetness make this soil poorly suited to cultivated crops. Practices such as using diversions and stripcropping are difficult to establish and maintain because slopes are steep and short.

This soil is generally suitable for pasture, but it is poorly suited for such plants as alfalfa and bromegrass. Frost heaving of tap-rooted plants is a hazard. Prevention of grazing when the soil is wet, the application of fertilizer and lime, and pasture rotation are major pasture management needs.

The soil is suitable for trees. The main limitations for woodland management are the steep slopes and hazard of erosion. The use of harvesting equipment is restricted for short periods when the soil is wet. The uprooting of trees during windy periods is a hazard where tall trees are left standing after heavy cutting.

The steep slopes, high water table, slow to very slow permeability, and frost action limit the soil for many urban and recreational uses, especially for disposal of septic tank effluent.

The capability subclass is IIIe.

BuD—Buxton silt loam, 15 to 25 percent slopes. This soil is moderately steep and hilly, moderately well drained and somewhat poorly drained, and deep. It is on the sides of lake plains. Slopes are mostly less than 300 feet long. Areas of this soil are irregularly shaped and mainly range from 5 to 40 acres.

Typically, the surface layer is dark brown silt loam 7 inches thick. The subsoil is 30 inches thick. The upper part is yellowish brown and mottled, light olive brown silt loam and mottled, light brownish gray silty clay loam.

Figure 11.—An area of pasture on Buxton silt loam, 8 to 15 percent slopes.

The lower part is firm, mottled, olive gray and grayish brown silty clay. The substratum is firm, mottled, olive gray silty clay to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained Scantic soils in depressional areas and moderately well drained Scio soils on plains. Also included are areas of soils with slopes of more than 25 percent and soils that are mottled only at a depth of more than 24 inches. Included areas comprise 10 to 15 percent of this unit.

This Buxton soil has moderate or moderately slow permeability in the surface layer and upper part of the subsoil and slow or very slow permeability in the lower part of the subsoil and in the substratum. A seasonal high water table is at a depth of 10 to 15 inches. Surface runoff is rapid, and the available water capacity is high. Root growth is restricted by the seasonal high water table and the firm part of the subsoil. Unless limed, the surface layer is strongly acid to slightly acid.

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

Slope and the hazard of erosion make this soil poorly suited to cultivated crops. The use of management practices such as diversions, waterways, and stripcropping is limited by the steep slopes.

The soil is poorly suited to pasture. Frost heaving of tap-rooted plants such as alfalfa is a hazard. Prevention of grazing when the soil is too wet, the timely application of fertilizer and lime, and pasture rotation are the main pasture management needs.

This soil is suitable for woodland. The main limitations for woodland management are slope and the hazard of erosion. Establishing logging roads and skid trails on the contour of the soil helps to reduce erosion. The use of harvesting equipment is restricted for short periods when the soil is wet, and the uprooting of trees is a hazard during windy periods where tall trees are left standing after heavy cutting.

The steep slopes, slow to very slow permeability, seasonal high water table, and frost action limit this soil for most urban uses.

The capability subclass is IVe.

Ch—Chocorua peat. This nearly level, very poorly drained, deep soil is in depressions in plains and up-

lands. The areas range from 5 to 100 acres and are irregular in shape. Slopes range from 0 to 2 percent.

Typically, the surface layer of this soil is a very dusky red to dark reddish brown organic layer 32 inches thick. The substratum is dark grayish brown loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of very poorly drained Sebago soils that are near the middle of larger areas of Chocorua soils. Also included are small areas of open water and marsh and small areas of soils that have a substratum of sandy loam or silt loam. Included soils make up about 20 percent of this unit.

This Chocorua soil has moderate to moderately rapid permeability in the organic layer and rapid permeability in the substratum. Surface runoff is very slow, and some areas have water ponded on the surface. The available water capacity is high. The water table is at or near the surface most of the year and restricts the rooting depth of the soil. The soil is extremely acid or very strongly acid throughout.

Most areas of this soil consist of swamps and bogs with low-growing shrubs, reeds, and sedges. These areas commonly have a tree canopy of red maple, eastern white pine, eastern hemlock, speckled alder, and black spruce.

This soil is well suited to wetland plants, but wetness and low strength limit the soil for most other uses.

The capability subclass is VIIIw.

CoB—Colton gravelly loamy coarse sand, 0 to 8 percent slopes. This soil is nearly level to gently sloping, excessively drained, and deep. It is generally on terraces. Slopes range up to 1,000 feet long. Most areas are oval or irregular in shape and range from 3 acres to several hundred acres.

Typically, the surface layer is 3 inches of organic material underlain by a 2-inch-thick subsurface layer of gray gravelly loamy coarse sand. The subsoil is 16 inches thick. The upper part is dark reddish brown gravelly loamy coarse sand, and the lower part is yellowish brown gravelly coarse sand. The substratum is light yellowish brown very gravelly coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Adams, Chocorua, Hermon, and Naumburg soils. Also included are areas of moderately well drained and sandy and gravelly soils. Some areas of this unit have gravel pits that are less than 1 acre each. Included areas make up 5 to 20 percent of this unit.

Colton soils have rapid to very rapid permeability to a depth of 21 inches and very rapid permeability at a depth of more than 21 inches. Surface runoff is slow. The available water capacity and natural fertility are very low. The depth to bedrock and to the seasonal high water table is generally more than 5 feet. Unless limed, the surface layer is extremely acid or very strongly acid.

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

The very low available water capacity, very low fertility, very strong acidity, and rapid to very rapid permeability make this soil poorly suited for farming. Using manure or green-manure crops increases the organic matter content, improves tilth, and increases the available water capacity. If cultivated, this soil can be worked very early in the year. Applications of fertilizer and lime and pasture rotation are the main pasture management needs.

This soil is suitable for trees, but droughtiness during unusually dry seasons is a limitation for growth.

Rapid permeability in the substratum of this soil causes a hazard of ground-water pollution from septic sewage disposal systems, sewage lagoons, and sanitary landfills. The sides of shallow excavations in the soil are unstable and tend to cave in.

The capability subclass is IIIs.

CoC—Colton gravelly loamy coarse sand, 8 to 15 percent slopes. This soil is sloping and rolling, excessively drained, and deep. It is generally on terraces, kames, and eskers. Most areas are irregular in shape and range from 3 acres to several hundred acres.

Typically, the surface layer is 3 inches of organic material underlain by a 2-inch-thick subsurface layer of gray gravelly loamy coarse sand. The subsoil is 16 inches thick. The upper part is dark reddish brown gravelly loamy coarse sand, and the lower part is yellowish brown gravelly coarse sand. The substratum is light yellowish brown very gravelly coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Adams, Chocorua, Hermon, and Naumburg soils. Also included are areas of moderately well drained and sandy and gravelly soils. Some areas of this unit have gravel pits that are less than 1 acre each. Included areas make up 5 to 20 percent of this unit.

This Colton soil has rapid to very rapid permeability to a depth of 21 inches and very rapid permeability at a depth of more than 21 inches. Surface runoff is slow. The available water capacity and natural fertility are very low. The depth to bedrock and to the seasonal high water table is more than 5 feet. Unless limed, the surface layer is extremely acid or very strongly acid.

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

Slope, very low available water capacity, low fertility, strong acidity, and rapid to very rapid permeability make this soil poorly suited to farming. Extensive erosion-control practices are usually needed when using the soil for cultivated crops. Using manure or green-manure crops increases the organic matter, improves tilth, and increases the available water capacity. If cultivated, the soil can be worked very early in the year.

This soil is suitable for trees, but droughtiness during unusually dry seasons is a limitation for growth.

Slope limits this soil for many urban uses. Very rapid permeability in the substratum of this soil causes a hazard of ground-water contamination from septic sewage disposal systems, sewage lagoons, and sanitary landfills. The sides of shallow excavations in this soil are unstable and tend to cave in.

The capability subclass is IVs.

CoD—Colton gravelly loamy coarse sand, 15 to 25 percent slopes. This soil is moderately steep and hilly, excessively drained, and deep. It is mainly on kames and eskers. Some areas are on the sides of terraces. Most areas are irregular in shape and range from 3 acres to several hundred acres.

Typically, the surface layer is 3 inches of organic material underlain by a 2-inch-thick subsurface layer of gray gravelly loamy coarse sand. The subsoil is 16 inches thick. The upper part is dark reddish brown gravelly loamy coarse sand, and the lower part is yellowish brown gravelly coarse sand. The substratum is light yellowish brown very gravelly coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Adams, Chocorua, and Sebago soils. Some areas of this unit have gravel pits that are less than 1 acre each. Included areas make up 5 to 20 percent of this unit.

This Colton soil has rapid to very rapid permeability to a depth of 21 inches and very rapid permeability at a depth of more than 21 inches. Surface runoff is slow. The available water capacity and natural fertility are very low. The depth to bedrock and to the seasonal high water table is more than 5 feet. Unless limed, the surface layer is extremely acid or very strongly acid.

Slope, very low available water capacity, low fertility, strong acidity, and rapid to very rapid permeability make this soil very poorly suited to farming. The few areas that are used for permanent pasture have low yields because of the very low fertility and are hard to manage. The erosion hazard is severe on this soil if the soil is used for cultivated crops, and erosion-control practices are difficult to install and maintain.

This soil is suitable for trees, and most areas are used for woodland, but droughtiness during unusually dry seasons is a limitation for growth. Placing logging roads and skid trails on the contour helps to reduce erosion.

Slope limits this soil for many urban uses. The rapid to very rapid permeability causes a hazard of ground-water contamination from waste disposal systems. The sides of shallow excavations in this soil are unstable and tend to cave in.

The capability subclass is VIs.

CoE—Colton gravelly loamy coarse sand, 25 to 45 percent slopes. This soil is steep, excessively drained, and deep. It is mainly on kames and eskers. The areas are irregular in shape and range up to 100 acres.

Typically, the surface layer is 3 inches of organic material underlain by a 2-inch-thick subsurface layer of gray gravelly loamy coarse sand. The subsoil is 16 inches thick. The upper part is dark reddish brown gravelly loamy coarse sand, and the lower part is yellowish brown gravelly coarse sand. The substratum is light yellowish brown very gravelly coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of excessively drained Adams soils. Also included are small areas of soils with slopes of more than 45 percent and areas of soils that have a cobbly surface layer. Some areas of this unit have gravel pits that are less than 1 acre each. Included areas make up 5 to 20 percent of this unit.

This Colton soil has rapid to very rapid permeability to a depth of 21 inches and very rapid permeability at a depth of more than 21 inches. Surface runoff is slow. The available water capacity and natural fertility are very low. The depth to bedrock and to the seasonal high water table is more than 5 feet. Unless limed, the surface layer is extremely acid or very strongly acid.

Steep slopes, very low available water capacity, low fertility, strong acidity, and rapid to very rapid permeability make this soil very poorly suited for farming. The hazard of erosion on this soil is severe if the soil is used for cultivated crops, and erosion-control practices are extremely difficult to install and maintain.

The soil is suitable for trees, and most areas are wooded, but droughtiness limits growth during unusually dry seasons. Slope is the main limitation for woodland management. Placing skid trails and logging roads on the contour reduces erosion.

Slope limits this soil for many urban uses. The rapid to very rapid permeability causes a hazard of ground-water contamination from waste disposal systems.

The capability subclass is VIIs.

CrB—Croghan loamy sand, 0 to 8 percent slopes. This soil is nearly level to gently sloping, moderately well drained, and deep. It is generally on outwash plains and deltas. The areas range from 3 to 40 acres and are irregular in shape.

Typically, the surface layer is very dark grayish brown loamy sand 7 inches thick. The subsoil is 21 inches thick. The upper part is strong brown and yellowish brown loamy coarse sand. The lower part is mottled, yellowish brown and light olive brown coarse sand. The substratum is mottled, light yellowish brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Adams soils that are slightly higher on the landscape than this Croghan soil. Also included are somewhat poorly drained and poorly drained Naumburg soils in

narrow drainageways and depressions and a few areas of exposed bedrock. Included areas make up about 15 percent of this unit.

This Croghan soil has very rapid permeability. Surface runoff is slow. A seasonal high water table is at a depth of about 17 inches. Natural fertility, organic matter content, and available water capacity are very low. Unless limed, the surface layer is very strongly acid to medium acid.

Most of this soil is in woodland. Many areas are used for pasture or crops, and a minor acreage is used for gardens.

The seasonal high water table makes this soil poorly suited for cultivated crops. Use of the soil for crops is also limited by the low natural fertility and low available water capacity. Increasing the organic matter content by use of green-manure crops, using cover crops, supplying fertilizer and lime, and irrigating where feasible during the growing season are the main management needs.

The soil is poorly suited for pasture mainly because of the very low fertility and low available water capacity. Applying fertilizer is the main management need.

This soil is suitable for trees, but productivity is limited by the sandy texture of the soil. The use of harvesting equipment is restricted during wet periods.

The high water table and very rapid permeability restrict this soil for most urban uses, especially in areas used for septic sewage disposal, where ground-water contamination is a hazard. Sloughing of the sides of excavation is also a hazard in this soil.

The capability subclass is IIIw.

CuB—Croghan-Urban land complex, 0 to 8 percent slopes. This complex consists of moderately well drained Croghan soils and urbanized areas. Many of the soils in the complex have been altered by grading for streets, housing, commercial buildings, and similar uses (fig. 12). The complex is on nearly level and gently sloping outwash plains and deltas. Areas range from about 5 to 60 acres. The Croghan soils make up about 55 percent of this complex, the urbanized areas about 30 percent, and included soils about 15 percent. The soils and urban areas are so intermingled that it was not practical to map them separately.

Figure 12.—An area of Croghan-Urban land complex, 0 to 8 percent slopes.

Typically, the undisturbed areas of Croghan soils have a surface layer of very dark grayish brown loamy sand 7 inches thick. The subsoil is 21 inches thick. The upper part is strong brown and yellowish brown loamy coarse sand. The lower part is mottled, yellowish brown and light olive brown coarse sand. The substratum is mottled, light yellowish brown sand to a depth of 60 inches or more.

Included with this complex in mapping are areas of excessively drained Adams soils and somewhat poorly drained and poorly drained Naumburg soils.

The Croghan soils have very rapid permeability and slow surface runoff. They have very low available water capacity. A seasonal high water table is about 17 inches below the surface of the Croghan soils.

Most undisturbed areas of this complex consist of Croghan soils in small areas between streets, houses, apartment buildings, and commercial buildings and in yards and playgrounds.

The Croghan soils are limited for use as building sites by the seasonal high water table and slope. The instability of the substratum limits the soils as a site for pipelines and sewerlines and causes instability in the sides of excavations.

The Croghan soils have fair to poor suitability for grasses, trees, and shrubs. Droughtiness is the main limitation. The very low available water capacity limits the soils for vegetable gardens.

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

The complex is not assigned to a capability subclass.

Dm—Dumps. This unit consists of areas used for the accumulation of general refuse. Examples are areas containing town dumps, sewage sludge, tannery wastes, and sawdust piles. The areas range from 3 to about 20 acres and are nearly level to very steep. Included with this unit in mapping are approach roads and small parking areas.

Examination and identification of material in this unit are impractical. An onsite investigation is needed to determine the potential of the area for any proposed use.

This unit is not assigned to a capability subclass.

EmB—Elmwood fine sandy loam, 0 to 8 percent slopes. This soil is nearly level to gently sloping, moderately well drained, and deep. It is generally on outwash plains. Slopes are 200 to 300 feet long. Areas of this soil are variable in shape and range from 3 to 30 acres.

Typically, the surface layer is 2 inches of organic material underlain by very dark grayish brown fine sandy loam 2 inches thick. The subsoil is 18 inches thick. The upper part is yellowish brown and light olive brown fine sandy loam. The lower part is mottled, light brownish gray very fine sandy loam. The substratum is mottled, firm, olive gray silty clay to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Buxton and Scio soils on side slopes of plains. Also included are small areas of poorly drained soils. Included soils make up about 10 to 20 percent of this unit.

This Elmwood soil has moderately rapid permeability to a depth of 22 inches and slow to very slow permeability at a depth of more than 22 inches. A seasonal high water table is at a depth of about 1 to 3 feet. The depth to bedrock is more than 5 feet. Available water capacity is high, and surface runoff is slow. Unless limed, the surface layer is very strongly acid to slightly acid.

Most areas of this soil are used for hay and pasture. Some areas are used for row crops and woodland.

This soil is suitable for cultivated crops, especially corn, beans, small grains, and potatoes. Controlling wetness and adding lime and fertilizer are the main management concerns.

This soil is suitable for pasture. Adding fertilizer and lime and using pasture rotations are the main management needs.

The soil is suitable for trees. Selective cutting protects the remaining trees against uprooting during windy periods.

The seasonal high water table and frost action limit this soil as a site for homes and roads. The water table also limits the soil for septic sewage disposal, and slow permeability in the substratum makes the soil better suited to use for sewage lagoons than for septic systems.

The capability subclass is IIw.

EmC—Elmwood fine sandy loam, 8 to 15 percent slopes. This soil is sloping, moderately well drained, and deep. It is generally on outwash plains. Slopes are 200 to 300 feet long. Areas of this soil are variable in shape and range from 3 to 30 acres.

Typically, the surface layer is 2 inches of organic material underlain by very dark grayish brown fine sandy loam 2 inches thick. The subsoil is 18 inches thick. The upper part is yellowish brown and light olive brown fine sandy loam. The lower part is mottled, light brownish gray very fine sandy loam. The substratum is mottled, firm, olive gray silty clay to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Buxton and Scio soils on side slopes of plains. Also included are small areas of poorly drained soils. Included soils make up about 10 to 20 percent of this unit.

This Elmwood soil has moderately rapid permeability to a depth of 22 inches and slow to very slow permeability at a depth of more than 22 inches. A seasonal high water table is at a depth of about 1 to 3 feet. The depth to bedrock is more than 5 feet. Available water capacity is high, and surface runoff is medium. Unless limed, the surface layer is very strongly acid to slightly acid.

Most areas of this soil are used for hay, pasture, and woodland. Some small areas are used for row crops.

Erosion and wetness make this soil poorly suited for cultivated crops. Using erosion-control practices, such as stripcropping, establishing diversions, and no-till farming, and adding lime and fertilizer are the main management concerns.

This soil is suitable for pasture. Adding fertilizer and lime and using pasture rotations are the main management needs.

The soil is suitable for trees. Selective cutting protects the remaining trees against uprooting during windy periods.

Slope, the seasonal high water table, and slow to very slow permeability in the substratum limit the soil as a site for septic sewage disposal. The main limitations of the soil as a site for homes, buildings with basements, and roads are frost action and wetness.

The capability subclass is IIIe.

HeB—Hermon fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, well drained and somewhat excessively drained, and deep. It is on the crests and side slopes of till plains, ridges, and hills. The areas range from 3 to 30 acres and are oval to circular. Stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart cover the surface of the soil.

Typically, the surface layer of this soil is dark brown fine sandy loam 6 inches thick. The subsoil is 21 inches thick. The upper part is strong brown gravelly fine sandy loam. The lower part is yellowish brown gravelly sandy loam and light olive brown gravelly loamy coarse sand. The substratum is pale olive gravelly loamy coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of soils that have a surface layer of sandy loam. Also included are a few small areas of moderately well drained soils. Included soils make up about 10 percent of this unit.

This Hermon soil has rapid permeability. Surface runoff is slow, and the available water capacity is low to moderate. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is extremely acid to strongly acid.

Most areas of this soil are used for pasture and hay, but a few areas of abandoned farmland have reverted to woodland.

Drougtiness during the growing season makes this soil poorly suited for cultivated crops. In most areas it is necessary to remove stones after plowing.

The soil is suitable for pasture and hay, but it is somewhat droughty during dry summers. Adding lime and fertilizer is the main management need.

This soil is suitable for trees, but growth is restricted by droughtiness in some years. The wooded areas of this soil generally consist of volunteer species such as common juniper, eastern white pine, gray birch, northern red oak, and quaking aspen.

Rapid permeability limits the soil as a site for waste disposal facilities, especially for sewage lagoons and sanitary landfills, because of a hazard of pollution to ground water. The rapid permeability also limits use of the soil as material for dams and embankments. The soil is generally suitable as a site for buildings and local roads and streets.

The capability subclass is IIs.

HeC—Hermon fine sandy loam, 8 to 15 percent slopes. This soil is sloping, well drained and somewhat excessively drained, and deep. It is on the side slopes of plains, ridges, hills, and moraines. The areas range from 3 to 20 acres and are oval or elongated. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the surface layer of this soil is dark brown fine sandy loam 6 inches thick. The subsoil is 21 inches thick. The upper part is strong brown gravelly fine sandy loam. The lower part is yellowish brown gravelly sandy loam and light olive brown gravelly loamy coarse sand. The substratum is pale olive gravelly loamy coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of soils that have a surface layer of sandy loam. Also included are a few small areas of moderately well drained soils. Included soils make up about 10 percent of this unit.

This Hermon soil has rapid permeability. Surface runoff is medium, and the available water capacity is low to moderate. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is extremely acid to strongly acid.

Most areas of this soil are used for pasture and hay, but a few areas of abandoned farmland have reverted to woodland.

Slope, erosion, and droughtiness during the growing season make this soil poorly suited for cultivated crops.

The soil is suitable for pasture and hay, but it is droughty during dry years. Adding lime and fertilizer is the main management need.

This soil is suitable for trees, but growth is restricted by droughtiness in some years. Wooded areas of this soil generally consist of volunteer species such as common juniper, eastern white pine, gray birch, northern red oak, and quaking aspen.

Slope and rapid permeability limit the soil as a site for waste disposal facilities, especially for sewage lagoons and sanitary landfills, because of a hazard of pollution to ground water. The rapid permeability also limits use of the soil as material for dams and embankments. Slope limits the soil as a site for buildings and local roads and streets.

The capability subclass is IIIs.

HeD—Hermon fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep, well drained and

somewhat excessively drained, and deep. It is on the side slopes of ridges, hills, and moraines. The areas range from 3 to 20 acres and are elongated or oval. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the surface layer of this soil is dark brown fine sandy loam 6 inches thick. The subsoil is 21 inches thick. The upper part is strong brown gravelly fine sandy loam. The lower part is yellowish brown gravelly sandy loam and light olive brown gravelly loamy coarse sand. The substratum is pale olive gravelly loamy coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of soils that have a surface layer of sandy loam. Also included are a few small areas of moderately well drained soils. Included areas make up about 10 percent of this unit.

This Hermon soil has rapid permeability. Surface runoff is medium, and the available water capacity is low to moderate. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is extremely acid to strongly acid.

Most areas of this soil are used for pasture and hay. Some areas of abandoned farmland have reverted to woodland.

Slope, erosion, and droughtiness make this soil poorly suited for farming.

The soil is suitable for trees, but growth is restricted by droughtiness in some years and equipment operation is limited by slope. Wooded areas of this soil generally consist of volunteer species such as common juniper, eastern white pine, gray birch, northern red oak, and quaking aspen.

Slope limits this soil for most types of community development and nonfarm uses. The rapid permeability limits use of the soil as a source of material for embankments and dams.

The capability subclass is IVe.

HmB—Hermon very stony fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, well drained and somewhat excessively drained, and deep. It is on the crests and side slopes of plains, hills, and ridges. The areas range from 10 to 50 acres and are oval. Stones that are 1 to 1-1/2 feet in diameter cover up to 3 percent of the surface.

Typically, the surface layer is reddish gray fine sandy loam 4 inches thick. The subsoil is 23 inches thick. The upper part is brown to dark brown fine sandy loam and strong brown gravelly fine sandy loam. The lower part is yellowish brown gravelly sandy loam and light olive brown gravelly loamy coarse sand. The substratum is pale olive gravelly loamy coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of soils that have a surface layer of sandy loam. Also included are a few small areas of moderately well drained soils. Included areas make up about 15 percent of this unit.

This Hermon soil has rapid permeability. Surface runoff is slow. The available water capacity is low to moderate. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is extremely acid to strongly acid.

This soil is mostly in woodland. A small acreage is in pasture, and some areas are used for homesites.

The stones on the surface make this soil very poorly suited to farming. The soil is suitable for trees, but growth is restricted by droughtiness in some years.

Use of this soil for most types of community development and recreation requires that the stones be removed from the surface. Rapid permeability causes a hazard of polluting the ground-water supply where this soil is used for septic sewage disposal, sewage lagoons, or sanitary landfills.

The capability subclass is VIs.

HmC—Hermon very stony fine sandy loam, 8 to 15 percent slopes. This soil is sloping and rolling, well drained and somewhat excessively drained, and deep. It is on the side slopes of plains, hills, ridges, and moraines. The areas range from 10 to 50 acres and are oval or irregular in shape. Stones that are 1 to 1-1/2 feet in diameter cover as much as 3 percent of the surface.

Typically, the surface layer is reddish gray fine sandy loam 4 inches thick. The subsoil is 23 inches thick. The upper part is brown to dark brown fine sandy loam and strong brown gravelly fine sandy loam. The lower part is yellowish brown gravelly sandy loam and light olive brown gravelly loamy coarse sand. The substratum is pale olive gravelly loamy coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of soils that have a surface layer of sandy loam. Also included are a few small areas of moderately well drained soils and shallow Lyman soils. The moderately well drained soils are near the base of longer slopes, and the Lyman soils are near the top of slopes and on knolls. Included areas make up about 15 percent of this unit.

This Hermon soil has rapid permeability. Surface runoff is medium, and the available water capacity is low to moderate. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is extremely acid to strongly acid.

This soil is mostly in woodland. A small acreage is in pasture, and some areas are used for homesites.

The stones on the surface and a hazard of erosion make this soil very poorly suited for farming. The soil is suitable for trees, but droughtiness restricts growth in some years.

Slope and the stones on the surface are the main limitations of this soil for most nonfarm uses. The rapid permeability causes a hazard of polluting ground-water supplies where the soil is used for septic sewage disposal, sewage lagoons, or sanitary landfills.

The capability subclass is VIs.

HmD—Hermon very stony fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep and hilly, well drained and somewhat excessively drained,

and deep. It is on the side slopes of upland plains, hills, ridges, and moraines. The areas range from 10 to 50 acres and are oval or irregular in shape. Stones that are 1 to 1-1/2 feet in diameter cover up to 3 percent of the surface.

Typically, the surface layer is reddish gray fine sandy loam 4 inches thick. The subsoil is 23 inches thick. The upper part is brown to dark brown fine sandy loam and strong brown gravelly fine sandy loam. The lower part is yellowish brown gravelly sandy loam and light olive brown gravelly loamy coarse sand. The substratum is pale olive gravelly loamy coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of soils that have a surface layer of sandy loam. Also included are a few small areas of moderately well drained soils and shallow Lyman soils. The moderately well drained soils are near the base of longer slopes, and the Lyman soils are near the top of slopes and on knolls. In a few areas the soils have slopes of more than 25 percent. Included areas make up about 15 percent of this unit.

This Hermon soil has rapid permeability. Surface runoff is medium, and the available water capacity is low to moderate. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is extremely acid to strongly acid.

This soil is mostly in woodland. A small acreage is used for pasture.

Slope, the stones on the surface, and an erosion hazard make this soil very poorly suited to farming. This soil is suitable for trees, but growth is restricted by droughtiness in some years and slope limits equipment operation.

Slope and the stones on the surface limit this soil for most nonfarm uses. The rapid permeability causes a hazard of polluting ground-water supplies where this soil is used for septic sewage disposal, sewage lagoons, or sanitary landfills.

The capability subclass is VIs.

HnC—Hermon extremely stony fine sandy loam, 3 to 15 percent slopes. This soil is gently sloping to sloping and rolling, well drained and somewhat excessively drained, and deep. It is on the side slopes of hills, ridges, and moraines. The areas range from 5 to 100 acres and are oval or irregular in shape. Stones that are 1 to 1-1/2 feet in diameter cover about 3 to 15 percent of the surface.

Typically, the surface layer is reddish gray fine sandy loam 4 inches thick. The subsoil is 23 inches thick. The upper part is brown to dark brown fine sandy loam and strong brown gravelly fine sandy loam. The lower part is yellowish brown gravelly sandy loam and light olive brown gravelly loamy coarse sand. The substratum is pale olive gravelly loamy coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of soils that have a surface layer of sandy loam. Also included are a few small areas of moderately well drained soils and shallow Lyman soils. The moderately well drained soils are near the base of longer slopes, and the Lyman soils are near the top of slopes and on knolls. Included soils make up about 15 percent of this unit.

This Hermon soil has rapid permeability. Surface runoff is medium, and the available water capacity is low to moderate. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is extremely acid to strongly acid.

This soil is mostly in woodland. A small acreage that was in unimproved pasture has reverted to woodland.

The stones on the surface make this soil very poorly suited to farming. The soil is suitable for trees, but the stones interfere with equipment operation.

The stones also limit the soil for most nonfarm uses. The rapid permeability causes a hazard of polluting ground-water supplies where this soil is used for septic sewage disposal, sewage lagoons, or sanitary landfills.

The capability subclass is VIIs.

HnE—Hermon extremely stony fine sandy loam, 15 to 60 percent slopes. This soil is moderately steep to very steep, well drained and somewhat excessively drained, and deep. It is on the side slopes of hills, ridges, and moraines. The areas range from 10 to 100 acres and are oval or elongated. Stones that are 1 to 1-1/2 feet in diameter cover about 3 to 15 percent of the surface.

Typically, the surface layer is reddish gray fine sandy loam 4 inches thick. The subsoil is 23 inches thick. The upper part is brown to dark brown fine sandy loam and strong brown gravelly fine sandy loam. The lower part is yellowish brown gravelly sandy loam and light olive brown gravelly loamy coarse sand. The substratum is pale olive gravelly loamy coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of soils that have a surface layer of sandy loam. Also included are areas of shallow Lyman soils and a few areas where 15 to 90 percent of the surface is covered by stones. Included areas make up about 15 percent of this map unit.

This Hermon soil has rapid permeability. Surface runoff is medium, and the available water capacity is low to moderate. Bedrock is generally below a depth of 5 feet. The surface layer is extremely acid to strongly acid.

This soil is mostly in woodland. A few areas that were in unimproved pasture have reverted to woodland.

Slope and the stones on the surface make this soil very poorly suited to farming. The soil is suitable for trees, but the stones and slope interfere with the operation of equipment.

The stones and slope also limit the soil for most nonfarm uses. The rapid permeability causes a hazard of polluting ground-water supplies where the soil is used for septic sewage disposal, sewage lagoons, or sanitary landfills.

The capability subclass is VIIs.

LnB—Lyman fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, somewhat excessively drained, and shallow. It is on the tops and crests of ridges and plains. Slopes are less than 300 feet long. Most areas range from 3 to 20 acres and are oval. Intermingled areas of bedrock are exposed on the highest points and crests of this unit. They cover less than 1 percent of the surface and are commonly more than 300 feet apart. Stones that are 1 to 1-1/2 feet in diameter are embedded in the surface of the soil. They are more than 100 feet apart.

Typically, the surface layer is dark brown fine sandy loam 6 inches thick. The subsoil is 12 inches thick. It is reddish brown fine sandy loam and brown to dark brown gravelly fine sandy loam. Bedrock is at a depth of 18 inches.

Included with this soil in mapping are small areas of well drained and somewhat excessively drained Hermon soils, moderately well drained Scio and Skerry soils, and somewhat poorly drained and poorly drained Brayton soils. The Hermon soils are on the lower slopes of this unit. The Scio soils are adjacent to the lower slopes of shallow knolls. The Brayton and Skerry soils are in depressions and on the lower slopes of larger areas of this Lyman soil. Also included are small urbanized areas, areas where up to 3 percent of the surface is covered by stones, and soils that are 20 to 40 inches deep to bedrock or less than 10 inches deep to bedrock. Included areas make up about 15 percent of this unit.

This Lyman soil has moderately rapid permeability. The available water capacity is low. The rooting depth is limited by the depth to bedrock, which ranges from 10 to 20 inches. Surface runoff is slow. Unless limed, the surface layer is very strongly acid to medium acid.

Most areas of this soil are in woodland or pasture. Some areas are used for apple orchards.

An erosion hazard, droughtiness, and shallow soil depth make the soil poorly suited for farming. The bedrock exposures interfere with tillage. If the soil is cultivated, additions of manure, use of cover crops or greenmanure crops, and crop rotations with grasses and legumes will reduce runoff and conserve moisture. The main pasture management concerns are rotational grazing, timely lime and fertilizer applications, and seeding with suitable species.

This soil is suitable for most of the trees common to the area. It is poorly suited to red pine because of the shallow rooting depth. The shallow rooting depth also makes it necessary that proper cutting practices are used to reduce the hazard of uprooting stands of eastern white pine during windy periods.

The shallow depth to bedrock limits the soil for most nonfarm uses, especially for excavations.

The capability subclass is IIIe.

LnC—Lyman fine sandy loam, 8 to 15 percent slopes. This soil is sloping and rolling, shallow, and somewhat excessively drained. It is on the sides and tops of ridges and plains. Slopes are 50 to 400 feet long. Most areas range from 3 to 50 acres and are oval. Intermingled areas of bedrock are exposed on the highest points and on the crests of hills and ridges of this unit. These exposures cover less than 1 percent of the surface and are commonly more than 300 feet apart. Stones are imbedded in the surface of the soil and are more than 100 feet apart. The stones are 1 to 1-1/2 feet in diameter.

Typically, the surface layer is dark brown fine sandy loam 6 inches thick. The subsoil is 12 inches thick. It is reddish brown fine sandy loam and brown to dark brown gravelly fine sandy loam. Bedrock is at a depth of 18 inches.

Included with this soil in mapping are small areas of well drained and somewhat excessively drained Hermon soils, moderately well drained Scio and Skerry soils, and somewhat poorly drained and poorly drained Brayton soils. The Hermon soils are on the lower slopes of this unit. The Brayton and Skerry soils are in depressions. The Scio soils are adjacent to the lower slopes of knolls. Also included are small areas where as much as 3 percent of the surface is covered by stones, areas where up to 10 percent of the surface is bedrock exposures, and areas that are 20 to 40 inches deep to bedrock or less than 10 inches deep to bedrock. Included areas make up about 15 percent of the unit.

This Lyman soil has moderately rapid permeability. The available water capacity is low. The rooting zone is limited by the depth to bedrock, which ranges from 10 to 20 inches. Surface runoff is medium. Unless limed, the surface layer is very strongly acid to medium acid.

Most areas of this soil are in woodland or pasture. Some areas are used for apple orchards.

An erosion hazard, droughtiness, and shallow soil depth make this soil poorly suited for farming. The bedrock exposures interfere with tillage. If the soil is cultivated, crop rotation, stripcropping, and applying lime and fertilizer are the main management needs. The main concerns of pasture management are rotational grazing, applying lime and fertilizer, and seeding with suitable species.

The soil is suitable for most of the trees common to the area. It is poorly suited to red pine because of the shallow rooting depth. The shallow rooting depth also makes it necessary that proper cutting practices be used to prevent uprooting of stands of eastern white pine during windy periods.

The shallow depth to bedrock, the bedrock exposures, and slope limit this soil for most nonfarm uses, especially for excavation.

The capability subclass is IVe.

LnD—Lyman fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep, somewhat excessively drained, and shallow. It is on the sides of ridges and hills. Slopes are 150 to 400 feet long. Most areas

range from 5 to 20 acres and are oval. Intermingled areas of exposed bedrock are on the highest points and crests of hills and ridges in this unit. The bedrock exposures cover less than 1 percent of the surface and commonly are more than 300 feet apart. Stones that are 1 to 1-1/2 feet in diameter and more than 100 feet apart also cover the surface.

Typically, the surface layer is dark brown fine sandy loam 6 inches thick. The subsoil is 12 inches thick. It is reddish brown fine sandy loam and brown to dark brown gravelly fine sandy loam. Bedrock is at a depth of 18 inches.

Included with this soil in mapping are small areas of well drained to somewhat excessively drained Hermon soils, moderately well drained Skerry soils, and somewhat poorly drained and poorly drained Brayton soils. The Hermon soils are on the lower slopes of this unit. The Brayton and Skerry soils are in depressions and on the lower slopes of larger areas of this Lyman soil. Also included are small areas of very stony soils and soils with bedrock at a depth of 20 to 40 inches or at a depth of less than 10 inches. Included areas make up about 10 percent of the unit.

This Lyman soil has moderately rapid permeability. The available water capacity is low. The rooting depth is limited by the depth to bedrock, which ranges from 10 to 20 inches. Surface runoff is rapid. Unless limed, the surface layer is very strongly acid to medium acid.

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

Slope, a severe erosion hazard, droughtiness, and shallow soil depth make this soil unsuitable for farming. Extensive erosion-control practices, such as stripcropping, are difficult to establish and maintain.

The soil is suitable for most trees common to the area. It is poorly suited to red pine because of the shallow rooting depth. The shallow rooting depth also causes a hazard of uprooting during windy periods.

The shallow depth to bedrock, bedrock exposures, and slopes limit this soil for most nonfarm uses.

The capability subclass is VIe.

LyB—Lyman-Rock outcrop complex, 3 to 8 percent slopes. This complex consists of undulating and gently sloping, somewhat excessively drained, and shallow soils mixed with areas of exposed bedrock. The complex is on the tops of ridges, hills, and plains near the seacoast. Most areas are irregularly shaped and range from 5 to 50 acres. Slopes are 50 to 400 feet long. Stones that are 1 to 1-1/2 feet in diameter cover as much as 3 percent of the surface.

The complex consists of about 65 percent Lyman soils, 20 percent bedrock exposures, and 15 percent included soils. The soils and exposed bedrock are so intermingled that it was not practical to map them separately.

Typically, the Lyman soils have a surface layer of very dark brown and dark gray fine sandy loam 2 inches thick. The subsoil is 16 inches thick. It is dark reddish brown fine sandy loam in the upper part and brown to dark brown gravelly fine sandy loam in the lower part. Bedrock is at a depth of 18 inches.

Included with this complex in mapping are small areas of well drained and somewhat excessively drained Hermon soils; moderately well drained Croghan, Scio, and Skerry soils; and somewhat poorly drained and poorly drained Naumburg and Brayton soils. The Hermon soils are on the lower slopes of this unit. The Brayton, Croghan, and Naumburg soils are in depressions. The Scio soils are on the lower slopes of knolls. The Skerry soils are in depressional areas of the Lyman soils and on the lower slopes of some larger areas. Also included are a few small areas of extremely stony soils, urbanized areas, and soils with bedrock at a depth of 20 to 40 inches or at a depth of less than 10 inches. The areas of this complex on the Isle of Shoals have inclusions of organic soils.

The Lyman soils have moderately rapid permeability and low available water capacity. Surface runoff is slow on the Lyman soils, and the depth to bedrock is 10 to 20 inches.

Most areas of this complex are wooded. A few areas have been cleared of stones and are used for pasture. Some acreage in coastal areas is used for housing.

The bedrock exposures, shallow soil depth, droughtiness, and stone cover make this complex very poorly suited for farming.

The areas of this complex are suitable for trees, mainly sugar maple, eastern white pine, and northern red oak. The bedrock exposures and shallow depth to bedrock restrict the use of woodland equipment, and the shallow rooting depth causes a hazard of uprooting during windy periods.

The bedrock exposures and shallow soil depth limit this complex for most nonfarm uses. The moderately rapid permeability causes a hazard of pollution to ground water and shallow wells from waste disposal systems.

The capability subclass is VIs.

LyC—Lyman-Rock outcrop complex, 8 to 15 percent slopes. This complex consists of areas of sloping and rolling, somewhat excessively drained, and shallow soils mixed with areas of exposed bedrock. The complex is on the tops and sides of ridges, hills, and plains near the seacoast. Most areas are irregularly shaped and range from 5 to 100 acres. Slopes are 50 to 400 feet long. Stones that are 1 to 1-1/2 feet in diameter cover as much as 3 percent of the surface.

The complex consists of about 55 percent Lyman soils, 25 percent bedrock exposures, and 20 percent included soils. The soils and exposed bedrock are so intermingled that it was not practical to map them separately.

Typically, the Lyman soils have a surface layer of very dark brown and dark gray fine sandy loam 2 inches thick. The subsoil is 16 inches thick. It is dark reddish

brown fine sandy loam in the upper part and brown to dark brown gravelly fine sandy loam in the lower part. Bedrock is at a depth of 18 inches.

Included with this complex in mapping are small areas of well drained and somewhat excessively drained Hermon soils; moderately well drained Croghan, Scio, and Skerry soils; and somewhat poorly drained and poorly drained Naumburg and Brayton soils. The Hermon soils are on the lower slopes of this unit. The Croghan, Naumburg, and Brayton soils are in depressions. The Scio soils are on the lower slopes of knolls. The Skerry soils are in depressional areas of Lyman soils and on the lower slopes of larger, rolling areas. Also included are small urbanized areas and areas of soils with bedrock at a depth of 20 to 40 inches or at a depth of less than 10 inches. The areas of this complex on the Isle of Shoals have inclusions of organic soils.

The Lyman soils have moderately rapid permeability and low available water capacity. Surface runoff is medium. The depth to bedrock in the Lyman soils is 10 to 20 inches.

Most areas of this complex are wooded. Many areas that were cleared of stones and used for pasture have reverted to woodland, but a few areas are still used for pasture. Some acreage of this complex along the coast is used for housing.

The bedrock exposures, shallow soil depth, droughtiness, stone cover, and erosion hazard make this complex unsuitable for farming.

The areas of this complex are suitable for trees, mainly sugar maple, eastern white pine, and northern red oak. The bedrock exposures and shallow depth to bedrock restrict the use of equipment, and the shallow rooting depth causes a hazard of uprooting during windy periods.

The bedrock exposures, shallow depth, and slope limit this complex for most nonfarm uses. The moderately rapid permeability causes a hazard of pollution to ground water and shallow wells.

The capability subclass is VIs.

LyE—Lyman-Rock outcrop complex, 15 to 80 percent slopes. This complex consists of areas of moderately steep to very steep, somewhat excessively drained, and shallow soils mixed with areas of exposed bedrock. The complex is on the sides of ridges and hills mainly in the town of York. Most areas are irregularly shaped and range from 5 to 200 acres. Slopes are 100 to 400 feet long. Stones that are 1 to 1-1/2 feet in diameter cover as much as 15 percent of the surface.

The complex consists of about 50 percent Lyman soils, 35 percent bedrock exposures, and 15 percent included soils. The soils and exposed bedrock are so intermingled that it was not practical to map them separately.

Typically, the Lyman soils have a surface layer of very dark brown and dark gray fine sandy loam 2 inches thick. The subsoil is 16 inches thick. It is dark reddish brown fine sandy loam in the upper part and brown to dark brown gravelly fine sandy loam in the lower part. Bedrock is at a depth of 18 inches.

Included with this complex in mapping are small areas of well drained and somewhat excessively drained Hermon soils, moderately well drained Skerry soils, and somewhat poorly drained and poorly drained Brayton soils. The Hermon soils are on the lower slopes of this complex. The Skerry and Brayton soils are in depressions and on the lower slopes. Also included are areas of soils with bedrock at a depth of 20 to 40 inches or at a depth of less than 10 inches.

The Lyman soils have moderately rapid permeability and low available water capacity. Surface runoff is rapid. The depth to bedrock in the Lyman soils is 10 to 20 inches.

Almost all areas of this complex are wooded. Most of the areas that were cleared have reverted to woodland. A few areas are used for recreational sites, such as ski slopes, scenic overlooks, and nature trails.

Slope, the stones on the surface, shallow soil depth, droughtiness, and the bedrock exposures make this unsuitable for most uses other than woodland. Although the complex has such species as white oak, eastern white pine, sugar maple, and northern red oak, it has poor potential for woodland productivity.

The capability subclass is VIIs.

MaB—Madawaska fine sandy loam, 0 to 8 percent slopes. This soil is nearly level to gently sloping, moderately well drained, and deep. It is generally on outwash plains and terraces. Slopes are 200 to 500 feet long. Areas of this soil are variable in shape and range from 3 to 30 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam 9 inches thick. The subsurface layer is pinkish gray fine sandy loam 1 inch thick. The subsoil is reddish brown and mottled, yellowish brown fine sandy loam 13 inches thick. The substratum is mottled, pale olive and light brownish gray fine sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Allagash soils, moderately well drained Croghan soils, and somewhat poorly drained and poorly drained Naumburg soils. Also included are 1- to 2-acre areas where the surface layer has been removed for use as topsoil. These areas are shown on the soil map by a "severely eroded spot" symbol. Included areas make up about 10 to 15 percent of this unit.

This Madawaska soil has moderately rapid permeability to a depth of 23 inches and rapid permeability at a depth of more than 23 inches. Surface runoff is slow, and the available water capacity is moderate. The depth to bedrock is generally 5 feet or more. A seasonal high water table is at a depth of about 1 to 3 feet. Unless limed, the surface layer is very strongly acid to medium acid.

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

This soil is suitable for cultivated crops, but controlling wetness from the seasonal high water table is a major management concern. Lime and fertiiizer are needed on this soil, and erosion-control practices, such as contour farming, are needed on some of the more sloping areas.

The soil is suitable for pasture and hay. Fertilizer, lime, and pasture rotations are the main management needs.

This soil is suitable for trees. The main management concern is the hazard of uprooting during windy periods.

The seasonal high water table and frost action limit the soil for most nonfarm uses, but many areas are suitable for recreational development.

The capability subclass is IIw.

MrB—Marlow fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, well drained, and deep. It is on the top of ridges. The areas are elongated or oval and generally range from 5 to 20 acres. Slopes are commonly 200 to 400 feet long. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the surface layer is dark brown fine sandy loam 9 inches thick. The subsoil is 20 inches thick. The upper part is strong brown and yellowish brown fine sandy loam; the lower part is light olive brown gravelly sandy loam. The substratum is very firm and brittle, olive gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat poorly drained and poorly drained Brayton soils and somewhat poorly drained Westbury soils, both of which are in depressions, and small areas of moderately well drained Peru soils on lower slopes and in depressions. Also included are areas of Marlow soils that have slopes of less than 3 percent and a few areas of Marlow soils where as much as 3 percent of the surface is covered by stones. Included areas make up about 15 percent of this unit.

This Marlow soil has moderate permeability above the substratum and slow permeability within it. Surface runoff is medium, and the available water capacity is moderate. The rooting depth is impeded by the substratum. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is very strongly acid to medium acid.

Most areas of this soil are used for hay, orchards, and crops. Some areas of abandoned farmland have reverted to woodland. Some of the acreage is used for homesites.

This soil is suitable for farming and for apples, strawberries, and highbush blueberries. Erosion is a hazard in areas without plant cover and is the major management concern. Some areas require removal of stones after plowing.

The soil is suitable for trees, but the substratum restricts development of tap-rooted trees such as red pine. Wooded areas of this soil generally consist of volunteer species such as eastern white pine, gray birch, juniper, aspen, and northern red oak.

Slow permeability in the substratum is the main limitation of this soil for most urban and recreational uses. The soil is suitable for picnic areas, paths, and trails.

The capability subclass is IIe.

MrC2—Marlow fine sandy loam, 8 to 15 percent slopes, eroded. This soil is sloping, well drained, and deep. It is near the top of ridges. Areas are oval and generally range from 5 to 15 acres, but some are as much as 50 acres. Slopes are commonly 200 to 400 feet long. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the surface layer is dark brown fine sandy loam 9 inches thick. The subsoil is 12 inches thick. The upper part is yellowish brown fine sandy loam, and the lower part is light olive brown gravelly sandy loam. The substratum is very firm and brittle, olive gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Becket soils on the lower slopes of some units and moderately well drained Peru soils on the lower slopes and in depressions. Also included in mapping are a few areas of Marlow soils where as much as 3 percent of the surface is covered by stones. Included areas make up about 15 percent of this unit.

This Marlow soil has moderate permeability above the substratum and slow permeability within it. Surface runoff is medium, and the available water capacity is moderate. The rooting depth is impeded by the substratum. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is very strongly acid to medium acid.

Most areas of this soil are used for hay, orchards, and crops. Some areas of abandoned farmland have reverted to woodland. Some of the acreage is used for homesites.

Slope and a hazard of erosion make this soil poorly suited for cultivated crops, but the soil is suitable for apples, strawberries, and highbush blueberries and for hay and pasture. Applying fertilizer and lime and using pasture rotations are the main pasture management needs.

This soil is suitable for most of the common trees, but the substratum restricts rooting of tap-rooted trees such as red pine. Wooded areas of this soil generally consist of volunteer species such as eastern white pine, gray birch, juniper, aspen, and northern red oak.

The slow permeability of the substratum and slope limit this soil for most urban and recreational uses.

The capability subclass is IVe.

MrD2—Marlow fine sandy loam, 15 to 25 percent slopes, eroded. This soil is moderately steep, well drained, and deep. It is on side slopes of ridges. The slopes are commonly 300 to 400 feet long. Areas are oval to elongated, and some are dissected by drainageways. The areas generally range from 5 to 15 acres but are as much as 50 acres. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the surface layer is dark brown fine sandy loam 9 inches thick. The subsoil is 12 inches thick. The upper part is yellowish brown fine sandy loam, and the lower part is light olive brown gravelly sandy loam. The substratum is very firm and brittle, olive gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Becket soils on the lower slopes of some units and moderately well drained Peru soils on lower slopes and in depressions. Also included in mapping are areas of Marlow soils that have slopes of more than 25 percent and a few areas of Marlow soils where as much as 3 percent of the surface is covered by stones. Included areas make up about 15 percent of this unit.

This Marlow soil has moderate permeability above the substratum and slow permeability within it. Surface runoff is rapid, and the available water capacity is moderate. The rooting depth is impeded by the substratum. Bedrock is generally below a depth of 5 feet. Unless limed, the surface layer is very strongly acid to medium acid.

Areas of this soil are used mostly for hay, orchards, and pasture. Some areas have reverted to woodland.

Slope and an erosion hazard make this soil poorly suited for farming and orchards. Extensive erosion-control practices, such as terracing and contour farming, are needed on this soil but are difficult to establish and maintain. Timely applications of fertilizer and lime and using pasture rotations are the main pasture management needs.

This soil is suitable for the common trees, but the substratum restricts development of tap-rooted trees such as red pine, and slope limits equipment operation.

Slope and slow permeability in the substratum limit the soil for most types of urban and recreational use.

The capability subclass is VIe.

MvB—Marlow very stony fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, well drained, and deep. It is on the top of ridges. The areas are elongated or oval and generally range from 5 to 20 acres. Slopes are commonly 200 to 400 feet long. The surface is covered by stones that average about 20 inches in diameter and are about 10 to 30 feet apart.

Typically, the surface layer is dark brown fine sandy loam 2 inches thick. The subsoil is 27 inches thick. The upper part is strong brown and yellowish brown fine sandy loam; the lower part is light olive brown gravelly sandy loam. The substratum is very firm and brittle, olive gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of moderately well drained Peru soils on lower slopes and in depressions and somewhat poorly drained and poorly drained Brayton soils and somewhat poorly drained Westbury soils in depressions. Also included are areas of Marlow soils that have slopes of less than 3 percent. Included areas make up about 15 percent of this unit.

This Marlow soil has moderate permeability above the substratum and slow permeability within it. Surface runoff is medium, and the available water capacity is moderate. The rooting depth is impeded by the substratum. Bedrock is generally below a depth of 5 feet.

This soil is mostly in woodland. A small amount is in pasture, and some of the acreage is used for homesites.

The stones on the surface make this soil very poorly suited for farming and orchards. Erosion is a hazard in areas with no plant cover.

The soil is suitable for most trees common to the area, but the substratum restricts development of tap-rooted trees such as red pine.

Slow permeability in the substratum and the stones on the surface limit the soil for most types of urban and recreational use. The soil is suitable, however, for picnic areas, paths, and trails.

The capability subclass is VIs.

MvC—Marlow very stony fine sandy loam, 8 to 15 percent slopes. This soil is sloping, well drained, and deep. It is near the top of ridges. The areas are oval and generally range from 10 to 30 acres. Slopes are commonly 200 to 300 feet long. The surface is covered by stones that average 20 inches in diameter and are about 10 to 30 feet apart.

Typically, the surface layer is dark brown fine sandy loam 2 inches thick. The subsoil is 27 inches thick. The upper part is strong brown and yellowish brown fine sandy loam; the lower part is light olive brown gravelly sandy loam. The substratum is very firm and brittle, olive gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Becket soils on the lower slopes of some units and moderately well drained Peru soils on lower slopes and in depressions. Included areas make up about 15 percent of this unit.

This Marlow soil has moderate permeability above the substratum and slow permeability within it. Surface runoff is medium, and the available water capacity is moderate. The rooting depth is impeded by the substratum. Bedrock is generally below a depth of 5 feet.

This soil is mostly in woodland. A small amount is in pasture. Some of the acreage is used for homesites.

The stones on the surface make this soil very poorly suited for cultivated crops, hay, and orchards, but the soil is suitable for unimproved pasture.

The soil is suitable for most trees common to the area, but the substratum restricts development of tap-rooted trees such as red pine.

Slow permeability in the substratum, stones on the surface, and slope limit the soil for most types of urban and recreational use.

The capability subclass is VIs.

MvD—Marlow very stony fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep, well drained, and deep. It is on the side slopes of ridges. Slopes are commonly 200 to 400 feet long. The areas are elongated or oval and generally range from 5 to 20

acres. A few areas are dissected by drainageways. The surface is covered by stones that average about 20 inches in diameter and are about 10 to 30 feet apart.

Typically, the surface layer is dark brown fine sandy loam 2 inches thick. The subsoil is 27 inches thick. The upper part is strong brown and yellowish brown fine sandy loam; the lower part is light olive brown gravelly sandy loam. The substratum is very firm and brittle, olive gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Becket soils on the lower slopes of some units, moderately well drained Peru soils on lower slopes and in depressions, and somewhat poorly drained to poorly drained Brayton soils and somewhat poorly drained Westbury soils in depressions. Also included are areas of Marlow soils that have slopes of more than 25 percent. Included areas make up about 15 percent of this unit.

This Marlow soil has moderate permeability above the substratum and slow permeability within it. Surface runoff is rapid, and the available water capacity is moderate. The rooting depth is impeded by the substratum. Bedrock is generally below a depth of 5 feet.

Slope and the stones on the surface make this soil very poorly suited for cultivated crops, hay, pasture, and orchards.

The soil is suitable for most trees common to the area, but the substratum restricts development of tap-rooted trees such as red pine. Slope limits the use of equipment.

Slope, slow permeability in the substratum, and stones on the surface limit this soil for most types of urban and recreational use.

The capability subclass is VIs.

Na—Naumburg sand. This soil is nearly level, poorly drained and somewhat poorly drained, and deep. It is on low-lying areas on plains and deltas. The surface is characterized by depressions and by mounds that are about 7 to 10 inches high. The areas of the soil are irregular in shape and range from 5 to 500 acres, but most are about 50 acres. Slopes range from 0 to 3 percent.

Typically, this soil has a surface layer of mottled, light brownish gray sand 5 inches thick. The subsoil is mottled and dark reddish brown, dark reddish gray, and yellowish brown sand 23 inches thick. The substratum is mottled, grayish brown and brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of moderately well drained Croghan soils and soils with gravelly layers. Also included, near the town of Kennebunk, are a few areas of soils with a loamy substratum. In a few areas the surface layer is sandy loam or loamy sand, and in a few others the surface layer has been removed for use as topsoil. The areas where the surface layer has been removed range from 1 to 2 acres and are shown on the soil map by a "severely eroded spot" symbol. Included areas make up about 15 percent of this unit.

This Naumburg soil has rapid permeability and low available water capacity. Surface runoff is very slow. The depth to bedrock is generally 5 feet or more. The water table in the soil is at or near the surface during winter and spring and drops to a depth of 3 feet or more during summer. The fluctuating water table and cemented parts in the subsoil restrict the rooting depth. Unless limed, the surface layer is extremely acid or very strongly acid.

Most areas of this soil are used for woodland. Some small areas are used for grass and pasture.

Wetness, low available water capacity, and acidity make this soil poorly suited for farming.

The soil is suitable for trees, but the use of harvesting equipment is restricted during wet seasons and uprooting is a hazard during windy periods.

The seasonal high water table and rapid permeability limit this soil for most urban uses and cause a hazard of ground-water contamination if the soil is used for septic sewage disposal.

The capability subclass is IVw.

On—Ondawa fine sandy loam. This soil is nearly level, well drained, and deep. It is on flood plains of major rivers and streams. The areas are elongated and range from about 2 to 7 acres. Slopes are 0 to 3 percent.

Typically, the surface layer is very dark grayish brown fine sandy loam 9 inches thick. The subsoil is yellowish brown and light olive brown very fine sandy loam 21 inches thick. The substratum is very pale brown sand and light yellowish brown fine sand to a depth of 60 inches or more.

Included with this soil in mapping are a few small, concave areas of Podunk soils. Also included are areas of soils in small, narrow strips next to streams and rivers that have a surface layer of loamy sand and small areas of Ondawa soils with short side slopes of 3 to 6 percent. Included areas make up about 15 percent of this unit.

This Ondawa soil has moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Surface runoff is medium. The available water capacity is high. This soil is subject to flooding less than once in every 2 years. The seasonal water table is commonly at a depth of more than 5 feet. Unless limed, the surface layer is medium acid or slightly acid.

Most areas of this soil are used for crops, especially silage corn and hay. A few areas are idle or in woodland.

This soil is suitable for cultivated crops. The hazard of flooding is a limitation, but in most years flooding ends in April and is unlikely to occur during the growing season. The main management needs are using cover crops, returning crop residue to the soil, plowing after the peak runoff period, and adding manure to the soil.

The soil is suitable for hay and pasture in most years, but flooding is a limitation. Fencing is needed to keep dairy animals away from the streambanks to reduce erosion. Pasture rotations and adding fertilizer and lime are the main pasture management needs.

This soil is suitable for trees, but flooding is a hazard to new seedlings.

Flooding restricts use of this soil for residential and industrial development. Some areas of the soil are suitable for recreation.

The capability class is I.

PeB—Peru fine sandy loam, 0 to 8 percent slopes. This soil is nearly level to gently sloping, moderately well drained, and deep. It is in areas near the top of ridges. The areas are irregular in shape and range from 5 to 10 acres. They have stones on the surface that are 1 to 1-1/2 feet in diameter and more than 100 feet apart.

Typically, the surface layer of this soil is dark grayish brown fine sandy loam 9 inches thick. The subsoil is yellowish brown and mottled, light olive brown fine sandy loam 11 inches thick. The substratum is firm and brittle, mottled, olive and olive gray gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Westbury and Brayton soils mainly in seep spots. Also included are small areas of Peru soils with slopes of more than 8 percent and other areas where as much as 3 percent of the surface is covered by stones. Included areas comprise about 15 percent of this unit.

This Peru soil has moderate permeability in the surface layer and subsoil and slow permeability in the substratum. Surface runoff is medium, and the available water capacity is moderate. Water from adjacent, higher areas on the ridges tends to collect on this soil. The seasonal high water table is at a depth of about 15 to 24 inches. The rooting depth is impeded by the substratum. Unless limed, the surface layer is strongly acid or medium acid.

Most areas of this soil are used for hay or crops. A few areas of abandoned farmland have reverted to woodland, a use to which the soil is suited.

The soil is suitable for cultivated crops, but it warms up late in the spring and tile drainage commonly is needed to overcome the wetness. Stone removal is necessary in some areas after plowing.

This soil is suitable for pasture. The main limitations are seasonal wetness and the moderate available water capacity. Special care is needed to prevent grazing when the soil is too wet in order to avoid compaction and punching of the sod. The timely application of fertilizer and lime and the selection of suitable forage species are additional management needs.

The slow permeability of the substratum and the seasonal high water table limit the soil for most nonfarm uses, especially for septic sewage disposal. Frost action is a hazard for roads and foundations.

The capability subclass is IIw.

Pg—Pits, gravel. This unit consists of excavations from which the soil and underlying material, mainly gravel and sand, have been removed. Most of the pits are on plains and terraces; a few are on uplands. The areas are circular or irregular in shape and range from 3 to 60 acres. The bottoms of most pits are nearly level or gently sloping, and the sides are very steep.

This unit is not assigned to a capability subclass.

Po—Podunk and Winooski soils. The soils in this unit are nearly level, moderately well drained, and deep and are on flood plains. The Podunk soils are in strips near streams and rivers throughout the county. The Winooski soils are in elongated areas near the Saco River, mainly between Steepe Falls and Bar Mills. The areas of this unit range from 3 to 15 acres. Slopes range from 0 to 3 percent.

This unit consists of about 60 percent Podunk soils, 25 percent Winooski soils, and 15 percent included soils. Some of the areas consist mainly of Podunk soils, some of Winooski soils, and some of both. The soils were mapped together because they have no major differences in use and management and in a few areas are so intermingled that it was not practical to map them separately.

Typically, the surface layer of the Podunk soils is dark brown silt loam 8 inches thick. The subsoil is 10 inches thick. It is light olive brown loam and is mottled in the lower part. The substratum extends to a depth of 60 inches or more. It is mottled, light olive brown and olive and ranges from very fine sandy loam to fine sand.

Typically, the surface layer of the Winooski soils is very dark grayish brown very fine sandy loam 11 inches thick. The substratum extends to a depth of 60 inches or more. It is dark yellowish brown to light olive brown very fine sandy loam and silt loam and is mottled below a depth of 16 inches.

Included with these soils in mapping are small areas of well drained Ondawa soils and poorly drained Rumney soils. The Ondawa soils are on slightly higher convex areas nearer to the stream or river. The Rumney soils are in depressions and narrow drainageways.

These Podunk and Winooski soils have moderately rapid permeability. Surface runoff is slow, and the available water capacity is high. The soils are commonly flooded for brief periods, especially in the spring. The seasonal water table is between depths of 1 and 3 feet when the soils are not flooded. Unless limed, the surface layer in the Podunk soils is very strongly acid to slightly acid and in Winooski soils is strongly acid to slightly acid.

Most areas of this unit are used for crops, especially silage corn and hay. A few areas are used for potatoes, and a few are in woodland.

Flooding and seasonal wetness are major limitations for cultivated crops on these soils, but the soils are suitable for crops in most years. Additions of manure, using cover crops, and returning crop residue to the soil increase the organic matter content of the soil and help maintain tilth.

These soils are suitable for pasture and hay in most years. Fencing is needed to keep dairy animals away from the streambanks to reduce erosion. Pasture rota-

tion, fertilization, and liming are the main pasture management needs.

These soils are suitable for trees. The main management concern is the damage to new seedlings from flooding.

Flooding restricts these Podunk and Winooski soils for most nonfarm uses. Some areas near streams and rivers are suitable for recreation but need protection from streambank erosion.

The capability subclass is IIw.

Ra—Raynham silt loam. This soil is nearly level, poorly drained, and deep. It is on plains. Most areas of this soil are irregular in shape and range from 10 acres to more than 100 acres. Slopes range from 0 to 3 percent.

Typically, the surface layer is very dark gray silt loam 3 inches thick. The subsurface layer is mottled, light olive gray silt loam 3 inches thick. The subsoil is 16 inches thick. It is friable, mottled, light brownish gray silt loam in the upper part and firm, mottled, olive silt loam in the lower part. The substratum is firm, mottled, olive silt loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of very poorly drained soils and somewhat poorly drained soils. The very poorly drained soils are in depressions and have an organic surface layer. The somewhat poorly drained soils are on small, convex knolls. Also included, in the towns of Buxton and Saco, are a few uncultivated areas that have a thin, yellowish red or reddish brown subsoil. Also included in mapping are small areas of Scantic soils and a few areas of soils that have slopes of more than 3 percent. Included areas make up 10 to 15 percent of this unit.

This Raynham soil has moderate or moderately slow permeability in the surface layer and subsoil and slow permeability in the substratum. Surface runoff is slow. The available water capacity is high. The depth to bedrock is generally 5 feet or more. The seasonal high water table is at or near the surface for long periods during the growing season. Unless limed, the surface layer is strongly acid to slightly acid.

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

The seasonal high water table makes this soil poorly suited for cultivated crops. Drainage is needed, but it is difficult to establish in many places because of a lack of suitable outlets.

This soil is poorly suited for pasture. Compaction and punching of the sod will occur if the soil is pastured when it is too wet. Using surface drainage and choosing moisture-tolerant varieties of grasses and legumes are the main pasture management concerns.

The soil is suitable for trees. Wetness is a major limitation. The wetness restricts rooting and causes a hazard of uprooting during windy periods.

The seasonal high water table limits this soil for most nonfarm uses and causes a hazard of ground-water pollution in areas used for septic sewage disposal. The high water table and slow permeability cause a hazard of frost action in roads, streets, and other paved surfaces.

The capability subclass is IIIw.

RoC—Rock outcrop-Lyman complex, 8 to 15 percent slopes. This complex consists of sloping areas of exposed bedrock and somewhat excessively drained, shallow Lyman soils. The complex is on the tops and sides of mountains, ridges, and hills. Most areas are in the town of York and in the northwestern part of the county. The areas are oval or elongated and range from 5 to 20 acres. Slopes are 100 to 400 feet long. As much as 15 percent of the Lyman soils is covered by stones.

This complex is about 55 percent exposed bedrock, 30 percent Lyman soils, and 15 percent included soils. The soils and exposed bedrock are so intermingled that it was not practical to map them separately.

Typically, the Lyman soils have a surface layer of very dark brown fine sandy loam 1 inch thick underlain by a subsurface layer of dark gray fine sandy loam 1 inch thick. The subsoil is 16 inches thick. It is dark reddish brown fine sandy loam and brown to dark brown gravelly fine sandy loam. Bedrock is at a depth of 18 inches.

Included with this complex in mapping are small areas of extremely stony soils on the lower slopes of this complex. Also included are areas of soils with bedrock at a depth of 20 to 40 inches or at a depth of less than 10 inches. The areas of this complex on the Isle of Shoals have inclusions of organic soils. Included areas make up about 15 percent of this complex.

The Lyman soils have moderately rapid permeability. Surface runoff is medium on the Lyman soils, and the available water capacity is low. The depth to bedrock is 10 to 20 inches.

The areas of this complex are sparsely wooded and are mainly used for woodland wildlife habitat. The trees are mostly sugar maple, eastern white pine, and northern red oak. The shallow rooting depth and bedrock exposures limit the soil for woodland productivity.

The bedrock exposures, shallow depth to bedrock, and droughtiness limit the areas of this complex for farming and nonfarm uses. A few areas can be used for scenic overlooks and recreational paths and trails.

The capability subclass is VIIs.

RoE—Rock outcrop-Lyman complex, 15 to 80 percent slopes. This complex consists of moderately steep to very steep areas of exposed bedrock and somewhat excessively drained, shallow Lyman soils. The complex is on the sides of mountains, ridges, and hills. Most areas are in the towns of York and Biddeford and in the northwestern part of the county. The areas are oval or elongated and range from 5 to 30 acres. Slopes are 100 to 600 feet long. As much as 15 percent of the Lyman soils is covered by stones.

This complex is about 65 percent exposed bedrock, 20 percent Lyman soils, and 15 percent included soils. The soils and exposed bedrock are so intermingled that it was not practical to map them separately.

Typically, the Lyman soils have a surface layer of very dark brown fine sandy loam 1 inch thick. The subsurface layer is dark gray fine sandy loam 1 inch thick. The subsoil is 16 inches thick. It is dark reddish brown fine sandy loam and brown to dark brown gravelly fine sandy loam. Bedrock is at a depth of 18 inches.

Included with this complex in mapping are small areas of extremely stony soils on the lower slopes of this complex. Also included are areas of soils with bedrock at a depth of 20 to 40 inches or at a depth of less than 10 inches.

The Lyman soils have moderately rapid permeability. Surface runoff is rapid on the Lyman soils, and the available water capacity is low. The depth to bedrock is 10 to 20 inches.

The areas of this complex are sparsely wooded with mainly sugar maple, eastern white pine, and northern red oak. The areas are used extensively as habitat for woodland wildlife. The shallow rooting depth and bedrock exposures make woodland productivity poor.

The steep slopes, bedrock exposures, shallow depth to bedrock, droughtiness, and low fertility make the areas of this complex very poorly suited for farming and most nonfarm uses. Some areas are used for recreational paths and trails.

The capability subclass is VIIIs.

Ru—Rumney loam. This soil is nearly level, poorly drained, and deep. It is on flood plains of rivers and streams. The areas are elongated and range from 3 to 15 acres. Slopes are 0 to 3 percent.

Typically, the surface layer is very dark grayish brown loam 9 inches thick. The subsoil is mottled, grayish brown and light olive gray very fine sandy loam 16 inches thick. The substratum is mottled, light gray to gray loamy fine sand and sand to a depth of 60 inches or more.

Included with this soil in mapping are small convex areas of moderately well drained Podunk and Winooski soils and areas of very poorly drained Saco soils in drainageways. Also included are areas of soils with layers of silt loam and very fine sandy loam. Included areas make up about 15 percent of this unit.

This Rumney soil has moderately rapid permeability in the surface layer and subsoil and rapid or very rapid permeability in the substratum. Surface runoff is slow, and the available water capacity is high. The depth to bedrock is generally more than 5 feet. Most areas of this soil are flooded annually at the time of spring runoff. The seasonal high water table is at or near the surface for long periods during the growing season. Unless limed, the surface layer is very strongly acid to slightly acid.

Most areas of this soil are used for pasture, hay, and silage corn. Some areas are in woodland.

A hazard of flooding during the growing season, slow runoff, and a high water table make this soil poorly suited for cultivated crops, such as corn or vegetables, and for pasture or hay. Wetness and frost action restrict the choice of crops mainly to grasses. Surface drainage, rotation grazing, fertilization, and liming are the main pasture management needs of this soil.

The seasonal high water table and the hazard of flooding make this soil poorly suited for woodland and are the main limitations for most nonfarm uses. Frost action is a hazard in areas of this soil used for roads.

The capability subclass is IIIw.

Sa—Saco mucky silt loam. This soil is nearly level, very poorly drained, and deep. It is on flood plains along rivers and streams. Slopes range from 0 to 2 percent. Most areas of this soil are finger-shaped and range from 3 to 10 acres. Areas of this soil generally occupy the part of the flood plain that is at the lowest elevation and greatest distance from the stream or river.

Typically, the surface layer is very dark gray mucky silt loam 13 inches thick. It is underlain by mottled, gray silt loam and very fine sandy loam 31 inches thick. Dark gray coarse sand extends to a depth of 60 inches or more.

Included with this soil in mapping are small areas of soils that have layers of sandy loam, fine sandy loam, loamy sand, and sand below a depth of 30 inches. Also included are areas of poorly drained Rumney soils and soils that are better drained than this Saco soil. Inclusions make up about 15 percent of the mapped acreage of this unit. Some areas, however, consist entirely of these inclusions.

This Saco soil has moderate permeability. Available water capacity is high. Surface runoff is slow, and water is ponded on the surface in places from late fall through early spring. The water table is near the surface for extended periods during the growing season. Flooding from streams is frequent in early spring and after periods of heavy rainfall.

Most areas of this soil are in woodland and are used as habitat for wildlife. A few areas have been drained and are used for hay.

Frequent flooding and the high water table make this soil poorly suited for cultivated crops, hay, or pasture. The soil is difficult to drain because of its low position on the landscape and the difficulty in locating suitable outlets.

Frequent flooding and the high water table make the soil unsuitable for tree production and most nonfarm uses.

The capability subclass is VIw.

Sc—Scantic silt loam. This soil is nearly level, poorly drained, and deep. It is on lake plains. The areas of this soil are irregularly shaped and range from 10 acres to a few hundred acres. They are at low elevations and receive runoff from adjacent, higher areas. Slopes are 0 to 3 percent.

Typically, the surface layer is dark grayish brown silt loam 9 inches thick. The subsurface layer is mottled, olive gray silty clay loam 5 inches thick. The subsoil is

mottled, dark grayish brown and olive gray, firm silty clay 22 inches thick. The substratum is olive gray, firm silty clay to a depth of 60 inches or more.

Included with this soil in mapping are small areas of very poorly drained Biddeford soils, moderately well drained and somewhat poorly drained Buxton soils, and poorly drained Raynham soils. The Biddeford soils are in small depressions. The Buxton soils are in slightly higher areas. Raynham soils are in slightly higher areas next to the uplands. Also included are soils that have an olive-colored substratum; a few areas of soils, mainly along drainageways, with slopes of up to 5 percent; and small urbanized areas in the towns of Biddeford and Saco. Included areas make up about 15 percent of this unit.

This Scantic soil has moderate or moderately slow permeability in the surface and subsurface layers and slow or very slow permeability in the subsoil and substratum. Surface runoff is slow. The available water capacity is high. The seasonal high water table is at or near the surface for long periods during the growing season. The rooting depth is restricted by a seasonal high water table and by the subsoil. Unless limed, the surface layer is strongly acid to slightly acid.

Most areas of this soil are used for pasture and hay. Some areas are used for woodland.

Seasonal wetness makes this soil poorly suited for cultivated crops, such as corn and potatoes. The surface layer of this soil dries slowly after rains and is sticky when wet. If the soil is cultivated when too wet, it becomes cloddy. These clods become hard when dry and make tillage difficult. Draining this soil with tile is difficult because water moves very slowly into the tile, and surface drainage is generally more suitable. Fall rains prevent timely harvesting of crops in some years.

The soil is poorly suited for pasture and hay. The surface of the soil is easily disturbed and compacted if pastured when it is too wet. Even brief rains during the driest time of summer cause the sod to become vulnerable to compaction and punching. Drainage ditches, waterways, and bedding help to drain this soil effectively.

This soil is poorly suited for trees. Equipment operation is restricted when the soil is wet. The shallow rooting depth causes a hazard of uprooting during windy periods.

Seasonal wetness and slow permeability limit this soil for most nonfarm uses other than wetland wildlife habitat. Wetness, low strength, and frost action restrict the use of the soil as a site for roads.

The capability subclass is IVw.

SeB—Scio silt loam, 3 to 8 percent slopes. This soil is gently sloping, moderately well drained, and deep. It is mainly on lake plains and, to a lesser extent, on terraces and alluvial fans and on concave foot slopes of moraines. Slopes are 200 to 400 feet long. The areas are oval or finger shaped and range from 3 to 30 acres.

Typically, the surface layer is dark brown silt loam 7 inches thick. The subsoil is 19 inches thick. The upper part is yellowish brown very fine sandy loam, and the lower part is mottled, light olive brown silt loam. The substratum consists of firm and mottled, olive silt loam and dark grayish brown and light olive gray very fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are a few areas of soils with slopes of more than 8 percent that are adjacent to drainageways and streams, small areas of poorly drained Raynham soils in depressions and in the middle part of some concave slopes, and areas of soils that are silty clay loam below a depth of 40 inches. Also included are 1- to 2-acre areas where the surface layer has been removed for use as topsoil. These areas are shown on the soil map by the "severely eroded spot" symbol. Included areas make up about 10 to 15 percent of this unit.

This Scio soil has moderate permeability in the upper 40 inches and rapid to slow permeability below a depth of 40 inches. Surface runoff is slow, and the available water capacity is high. Where this soil has not been drained, the water table is at a depth of 1 to 1-1/2 feet during the wetter part of the year and is at a depth of more than 3 feet during summer. The depth to bedrock is generally more than 5 feet. Unless limed, the surface layer is very strongly acid to medium acid.

Most areas of this soil are used for pasture and hay. Some areas are used for cultivated crops. A few areas are used for woodland, and the soil is suitable for trees.

This soil is suitable for cultivated crops, but wetness in spring hinders the operation of farm machinery and delays planting. Irrigation is not necessary for crops such as potatoes unless periods of severe drought occur.

The soil is well suited for pasture. If the pasture is grazed when this soil is wet, however, the surface layer will become compacted. Pasture rotations and restricted grazing during wet periods are major pasture management needs.

Wetness is the main limitation of this soil for many nonfarm uses. Seepage is a hazard if this soil is used for embankment material for ponds.

The capability subclass is IIe.

SeC—Scio silt loam, 8 to 15 percent slopes. This soil is sloping, moderately well drained, and deep. It is on the side slopes of dissected lake plains and, to a lesser extent, on terraces or alluvial fans and on concave foot slopes of moraines. Slopes are 200 to 400 feet long. The areas are oval or finger shaped and range from 3 to 30 acres.

Typically, the surface layer is dark brown silt loam 7 inches thick. The subsoil is 19 inches thick. The upper part is yellowish brown very fine sandy loam, and the lower part is mottled, light olive brown silt loam. The substratum consists of firm, mottled, olive silt loam and dark grayish brown and light olive gray very fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are a few areas of soils with slopes of more than 15 percent that are adja-

cent to drainageways and streams. Also included are concave areas of poorly drained Raynham soils and areas of soils that are silty clay loam below a depth of 40 inches. Included areas make up about 10 to 15 percent of this unit.

This Scio soil has moderate permeability in the upper 40 inches and slow to rapid permeability below a depth of 40 inches. Surface runoff is medium, and the available water capacity is high. Where this soil has not been drained, the water table is at a depth of 1 to 1-1/2 feet during the wetter part of the year and is at a depth of more than 3 feet during summer. The depth to bedrock is generally more than 5 feet. Unless limed, the surface layer is very strongly acid to medium acid.

Most areas of this soil are used for pasture and hay. Some areas are used for cultivated crops, and a few are used for woodland.

This soil is poorly suited for cultivated crops. Erosion is a hazard when the soil is used for cultivated crops, and wetness in spring hinders the operation of farm machinery and delays planting. Erosion-control practices such as stripcropping, minimum tillage, and using crop rotations and diversions help prevent erosion.

The soil is well suited for pasture. If the pasture is grazed when this soil is wet, however, the surface layer will become compacted. Pasture rotations and restricted grazing during wet periods are chief pasture management needs.

This soil is suitable for trees. The main management concern is the hazard of erosion along logging roads and skid trails.

Wetness and slope are the main limitations of this soil for many nonfarm uses. Seepage is a hazard if the soil is used for embankment material for ponds.

The capability subclass is IIIe.

SeD—Scio silt loam, 15 to 25 percent slopes. This soil is moderately steep, moderately well drained, and deep. It is on the side slopes of dissected lake plains and, to a lesser extent, on the sides of terraces. Slopes are up to 400 feet long. The areas are long and narrow, and most range from 5 to 15 acres.

Typically, the surface layer is dark brown silt loam 7 inches thick. The subsoil is 19 inches thick. The upper part is yellowish brown very fine sandy loam, and the lower part is mottled, light olive brown silt loam. The substratum consists of firm and mottled, olive silt loam and dark grayish brown and light olive gray very fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are a few concave areas of poorly drained Raynham soils and small convex areas of soils that are better drained than this Scio soil. Also included are small areas of soils that are silty clay loam below a depth of 40 inches. Included areas make up about 10 to 15 percent of this unit.

This Scio soil has moderate permeability in the upper 40 inches and slow to rapid permeability below a depth of 40 inches. Surface runoff is medium, and the available water capacity is high. The water table is at a depth of about 1-1/2 to 2 feet during the wetter part of the year and is at a depth of more than 3 feet during summer. The depth to bedrock is generally more than 5 feet. Unless limed, the surface layer is very strongly acid to medium acid.

Most areas of this soil are used for woodland. Some areas are used for pasture and hay.

Slope makes this soil poorly suited for farming. Erosion is a severe hazard on this soil, and erosion-control practices such as establishing diversions or stripcropping are difficult to use and maintain. Slope restricts use of equipment.

The soil is suitable for trees, but slope restricts the use of equipment and causes an erosion hazard.

Slope and wetness are the main limitations of this soil for many nonfarm uses. Seepage is a hazard if the soil is used for embankment material for ponds.

The capability subclass is IVe.

Sg—Sebago peat. This soil is level, very poorly drained, and deep. It is in depressions in plains and uplands. The areas range from 3 to 400 acres and are irregular in shape. Slopes range from 0 to 1 percent.

Typically, this soil is black and dark reddish brown organic material to a depth of more than 51 inches.

Included with this soil in mapping are small areas of very poorly drained Chocorua soils near the inlets of some depressions. Also included are areas of marsh. Included areas make up about 15 percent of this unit.

This Sebago soil has moderately rapid permeability. Surface runoff is very slow, and water is ponded on some areas. The available water capacity is high. The rooting depth is restricted by the high water table, which is at or near the surface most of the year. The soil reaction is extremely acid to strongly acid.

Most areas of this soil are in tree-covered swamps and bogs consisting of sphagnum moss, sedges, and low-growing, water-tolerant shrubs such as leather-leaf. The common trees are red maple, gray birch, and black spruce.

The soil is suitable for wetland plants and wetland wildlife habitat. The high water table and low strength of the soil are major limitations for most other uses.

The capability subclass is VIIIw.

SkB—Skerry fine sandy loam, 0 to 8 percent slopes. This soil is nearly level to gently sloping, moderately well drained, and deep. It is on the tops and sides of drumlins and ridges. Slopes range up to 1,000 feet long. Most areas are oval and range from 10 to 100 acres. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the surface layer is dark brown fine sandy loam 6 inches thick. The subsoil is yellowish red and yellowish brown gravelly sandy loam 27 inches thick. It is mottled in the lower part. The substratum is firm, mottled light olive brown and olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Becket soils, somewhat poorly drained Westbury soils, and somewhat poorly drained and poorly drained Brayton soils and a few very stony areas. The Becket soils are upslope from Skerry soils. The Brayton and Westbury soils are at the base of long slopes and in depressions. Included areas make up about 15 percent of this unit.

This Skerry soil has moderate permeability in the surface layer and subsoil and slow or moderately slow permeability in the substratum. Water moves laterally along the top of and through the substratum. Surface runoff is medium, and the available water capacity is moderate. The depth to bedrock is generally 5 feet or more. The seasonal high water table is at a depth of 1-1/2 to 3 feet. Unless limed, the surface layer is very strongly acid to medium acid.

Most areas of this soil are used for crops, orchards, pasture, and hay. A few abandoned areas have reverted to woodland.

The seasonal high water table and slowly permeable substratum make this soil poorly suited for cultivated crops. The suitability for cultivated crops and orchards can be improved by installing tile drainage. Stripcropping and using cover crops and green-manure crops increase organic matter content and reduce the hazard of erosion.

The soil is suitable for pasture and hay, but wetness and frost action limit use of the soil for legumes. Fertilizer and lime applications and pasture rotations are major pasture management needs.

This soil is suited for most trees common to the area, but the substratum restricts root development, especially of tap-rooted trees such as red pine.

The seasonal high water table, slow permeability in the substratum, and frost action limit this soil for most nonfarm uses, especially as a site for septic sewage disposal, houses with basements, or sanitary landfills.

The capability subclass is IIw.

SkC—Skerry fine sandy loam, 8 to 15 percent slopes. This soil is sloping, moderately well drained, and deep. It is on the sides of drumlins and ridges. Slopes range up to 1,000 feet long. Most areas are oval and range from 10 to 100 acres. The surface is covered by stones that are 1 to 1-1/2 feet in diameter and about 100 to 150 feet apart.

Typically, the surface layer is dark brown fine sandy loam 6 inches thick. The subsoil is yellowish red and yellowish brown gravelly sandy loam 27 inches thick. The lower part is mottled. The substratum is firm, mottled, light olive brown and olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Becket soils, somewhat poorly drained Westbury soils, and somewhat poorly drained and poorly drained Brayton soils and a few very stony areas. The Becket soils are upslope from the Skerry soils. The Brayton and Westbury soils are at the base of long slopes and in depressions. Included areas make up about 15 percent of this unit.

This Skerry soil has moderate permeability in the surface layer and subsoil and slow or moderately slow permeability in the substratum. Water moves laterally along the top of and through the substratum. Surface runoff is medium, and the available water capacity is moderate. The depth to bedrock is generally 5 feet or more. The seasonal high water table is at a depth of 1-1/2 to 3 feet. Unless limed, the surface layer is very strongly acid to medium acid.

Most areas of this soil are used for pasture and hay. Some areas are used for crops and orchards. A few abandoned areas have reverted to woodland.

An erosion hazard, the seasonal high water table, the slowly permeable substratum, and slope make this soil poorly suited for cultivated crops. The suitability for cultivated crops and orchards can be improved by installing tile drainage. Stripcropping, installing diversions, and using cover crops and green-manure crops increase organic matter content and reduce the hazard of erosion.

The soil is suitable for pasture and hay, but wetness and frost action limit use of the soil for legumes. Fertilizer and lime applications and pasture rotations are major pasture management needs.

The soil is suitable for most trees common to the area, but the substratum restricts root development, especially of tap-rooted trees such as red pine.

The seasonal high water table, slowly permeable substratum, frost action, and slope limit the soil for most nonfarm uses, especially as a site for septic sewage disposal, houses with basements, and sanitary landfills.

The capability subclass is IIIe.

SrB—Skerry very stony fine sandy loam, 0 to 8 percent slopes. This soil is nearly level to gently sloping, moderately well drained, and deep. It is on the tops and sides of drumlins and ridges. Slopes range up to 1,000 feet long. Most areas are irregular in shape and range from 10 to 100 acres. Stones cover up to 3 percent of the surface of the soil.

Typically, the surface layer consists of 3 inches of decomposed and undecomposed leaves and other organic material over a subsurface layer of light gray to gray sandy loam 2 inches thick. The subsoil is 31 inches thick. The upper part is dark reddish brown fine sandy loam and yellowish red gravelly sandy loam. The lower part is yellowish brown gravelly sandy loam and is mottled below a depth of 23 inches. The substratum is firm, mottled, light olive brown and olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Becket soils, somewhat poorly drained and poorly drained Brayton and Naumburg soils, and somewhat poorly drained Westbury soils. The Becket soils are upslope from the Skerry soils. The Brayton and Westbury soils are at the base of long slopes and in depressions. The Naumburg soils are in depressions. Included areas make up about 15 percent of the unit.

This Skerry soil has moderate permeability in the subsurface layer and subsoil and slow or moderately slow permeability in the substratum. Water moves laterally along the top of and through the substratum. Surface runoff is medium, and the available water capacity is moderate. The depth to bedrock is generally 5 feet or more. The seasonal high water table is at a depth of 1-1/2 to 3 feet.

Most areas of this soil are in woodland. A few areas have been cleared for pasture.

The seasonal high water table, slowly permeable substratum, and stones on the surface make this soil poorly suited for cultivated crops. The stones restrict the use of farm equipment and make the soil poorly suited for pasture and hay. The soil is suitable for unimproved pasture if some of the stones are removed.

The soil is suitable for most trees common to the area, but the substratum restricts root development, especially of tap-rooted trees such as red pine.

The seasonal high water table, slowly permeable substratum, and frost action limit the soil for most nonfarm uses, especially as a site for septic sewage disposal, houses with basements, and sanitary landfills.

The capability subclass is VIs.

SrC—Skerry very stony fine sandy loam, 8 to 15 percent slopes. This soil is sloping, moderately well drained, and deep. It is on the sides of drumlins and ridges. Slopes range up to 1,000 feet long. Most areas are irregular in shape and range from 10 to 100 acres. Stones cover up to 3 percent of the surface of the soil.

Typically, the surface layer consists of 3 inches of decomposed and undecomposed leaves and other organic material over a subsurface layer of light gray to gray sandy loam 2 inches thick. The subsoil is 31 inches thick. The upper part is dark reddish brown fine sandy loam and yellowish red gravelly sandy loam. The lower part is yellowish brown gravelly sandy loam and is mottled below a depth of 23 inches. The substratum is firm, mottled, light olive brown and olive gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Becket soils, somewhat poorly drained and poorly drained Brayton and Naumburg soils, and somewhat poorly drained Westbury soils. The Becket soils are upslope from Skerry soils. The Brayton and Westbury soils are at the base of long slopes and in depressions. The Naumburg soils are in depressions. Included areas make up about 15 percent of the unit.

This Skerry soil has moderate permeability in the subsurface layer and subsoil and slow or moderately slow permeability in the substratum. Water moves laterally along the top of and through the substratum. Surface runoff is medium, and the available water capacity is moderate. The depth to bedrock is generally 5 feet or more. The seasonal high water table is at a depth of 1-1/2 to 3 feet.

Most areas of this soil are in woodland. A few areas have been cleared for pasture.

Slope, the seasonal high water table, the slowly permeable substratum, and the stones on the surface make this soil poorly suited for cultivated crops. The stones and slope restrict the use of farm equipment and make the soil poorly suited for pasture and hay. This soil is suitable for unimproved pasture if some of the stones are removed.

The soil is suitable for most trees common to the area, but the substratum restricts root development, especially of tap-rooted trees such as red pine.

The seasonal high water table, slowly permeable substratum, frost action, and slope limit the soil for most nonfarm uses, especially as a site for septic sewage disposal, houses with basements, and sanitary landfills.

The capability subclass is VIs.

SU—Sulfihemists, frequently flooded. These soils are level, very poorly drained, and deep. They are in coastal marshes and along the shorelines of major estuaries. The areas range from 10 to 1,000 acres or more and are long and narrow. They are characterized by small, narrow drainage channels created by the changing levels between low and high tide.

Typically, these soils consist of dark yellowish brown to very dusky red organic material to a depth of more than 51 inches. The organic material is derived mainly from saltwater marshgrasses.

Included with these soils in mapping are small areas of the Udipsamments-Dune land complex. Also included are areas of soils that have sandy or silty layers at a depth of less than 51 inches. Included areas make up about 5 percent of this unit.

Sulfihemists have moderate to rapid permeability in the organic material. Surface runoff is very slow, and in some areas water is ponded on the surface. Available water capacity is high.

Most areas of these soils consist of open, flat marshes of salt meadowgrass, saltwater cordgrass, and blackgrass.

Wetness and low strength make these soils generally unsuitable for farming and most types of nonfarm uses, but the soils are suitable for wetland wildlife habitat.

The capability subclass is VIIIw.

UD—Udipsamments-Dune land complex. This complex consists of undulating to rolling areas of stable and unstable dunes along the coast. The areas are narrow and range from 3 acres to about 100 acres. Slopes range from 0 to 15 percent.

The complex consists of about 60 percent Udipsamments, 25 percent Dune Land, and 15 percent included soils. The areas are so intermingled that it was not practical to map them separately.

Udipsamments are stable dunes. They are excessively drained or moderately well drained and are dominantly find sand. Dune land is unstable sand mounds and troughs with no plant cover.

Included with this complex in mapping are urbanized areas that are generally less than 3 acres. Also included

are small, narrow areas with slopes of more than 15 percent.

This complex has very rapid permeability. Surface runoff is slow, and the available water capacity is very low. Bedrock is generally below a depth of 5 feet. The water table is generally below a depth of 5 feet, but it ranges to a depth of about 1-1/2 feet. Flooding is a hazard on this complex.

Most areas of this complex are used for buildings, parking lots, recreation, and roads. A few are in their natural state.

The hazard of flooding, rapid permeability, and the sandy texture limit these soils for most uses other than as recreational areas.

The capability subclass is VIIIs.

Ur—Urban land. This unit consists of areas where about 85 percent of the surface is covered by urban structures, for example, houses, parking lots, shopping and business centers, and industrial parks. These areas are in cities and towns mainly on the coastal plain and on uplands. The areas generally range from 3 acres to about 300 acres and are nearly level to sloping.

Included with this unit in mapping are small lawns, parks, vacant lots, and playgrounds that mainly consist of Adams, Buxton, Croghan, or Scantic soils. Also included are small areas of miscellaneous fill material that has been placed over depressions, swamps, and tidal marshes.

Onsite investigation is needed to determine the potential and limitations of this unit for any proposed use.

The unit is not assigned to a capability subclass.

UsA—Urban land-Scantic complex, 0 to 3 percent slopes. This complex consists of urbanized areas and poorly drained Scantic soils. Much of the acreage of the soils has been altered by grading for streets, buildings, and similar uses. The complex is on nearly level lake plains. Areas range from about 10 to 150 acres.

This complex is about 55 percent urbanized areas; 25 percent Scantic soils, half of which has been covered by as much as 20 inches of fill material; and 20 percent included soils. These areas are so intermingled that it was not practical to map them separately.

Typically, the surface layer of the Scantic soils is dark grayish brown silt loam 9 inches thick. The subsurface layer is mottled, olive gray silty clay loam 5 inches thick. The subsoil is mottled, dark grayish brown and olive gray, firm silty clay 22 inches thick. The substratum is olive gray, firm silty clay to a depth of 60 inches or more.

Included with this complex in mapping are areas of Buxton, Scio, and Raynham soils. Also included are areas of Scantic soils covered by more than 20 inches of fill material.

The undisturbed areas of Scantic soils have moderate or moderately slow permeability in the surface layer and slow or very slow permeability in the subsoil and substratum. Surface runoff is slow.

Most of the undisturbed areas of this complex are less than 3 acres and are between streets, houses, and apartment buildings and in yards and playgrounds. Wetness, slow runoff, and frost action limit the Scantic soils for grasses, trees, or shrubs or for building sites.

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

This complex is not assigned to a capability subclass.

Va—Vassalboro peat. This soil is nearly level, very poorly drained, and deep. It is in kettle-shaped holes and depressions generally on outwash plains and kame terraces. The areas range from 5 to 200 acres and are round, oval, or oblong. Slopes range from 0 to 2 percent.

Typically, this soil is black and very dusky red organic material to a depth of more than 51 inches.

Included with this soil in mapping are small areas of soils that are organic material to a depth of less than 51 inches. These areas are near the inlets of some depressions. Also included are small areas of marsh. Included areas make up about 10 percent of this unit.

This Vassalboro soil has moderately rapid permeability. Surface runoff is very slow, and water is ponded on some areas for short periods. The available water capacity is high. The rooting depth is restricted by the high water table, which is at or near the surface most of the year. The soil reaction is extremely acid or very strongly acid.

Most areas of this soil are in open bogs that consist of sphagnum moss and low-growing shrubs, such as highbush blueberry, leatherleaf, bog cranberry, and sheep laurel. The common trees are black spruce, balsam fir, tamarack, eastern white pine, and red maple.

The high water table and low strength limit this soil for farming and most types of nonfarm uses other than wetland wildlife habitat.

The capability subclass is VIIIw.

Vp—Vassalboro peat, ponded. This soil is level, very poorly drained, and deep. It is in depressions generally on outwash plains and kame terraces. The areas range from 5 to 500 acres and are irregular in shape. They border open water or natural ponds and are inundated by water. Slopes range from 0 to 1 percent. The major area of this soil is in the Pendexter and Chellis Brook region of Parsonsfield and Newfield.

Typically, this soil is under 1/2 foot to 1-1/2 feet of water and is black and very dusky red organic material to a depth of more than 51 inches.

Included with this soil in mapping are small areas of water more than 1-1/2 feet deep. Also included are small inundated areas of soils in which the organic material is less than 51 inches deep. Included areas make up about 10 percent of this unit.

This Vassalboro soil has moderately rapid permeability. The water level is continually above the soil surface and is controlled by dams and other structures. The soil reaction is extremely acid or very strongly acid.

Most areas of this soil are covered by cattails, reeds, bullrushes, spikerushes, duckweed, waterweeds, pondweeds, and waterlilies.

Low strength and ponding limit this soil for most uses. The areas are suitable for wetland wildlife habitat, however, and are intensively used for that purpose.

The capability subclass is VIIIw.

Wa—Waskish peat. This soil is nearly level, very poorly drained, and deep. It is in kettle-shaped holes and depressions generally on outwash plains and kame terraces. The areas range from 3 to 1,000 acres and are round or oval. Slopes range from 0 to 2 percent. The major acreage of this soil is in the Saco Heath.

Typically, this soil is dark reddish brown and reddish brown organic material to a depth of more than 63 inches.

Included with this soil in mapping are small areas of very poorly drained Vassalboro soils. Also included are small areas of soils in which the organic material extends to a depth of less than 63 inches. The included soils are near adjoining mineral soils and near the inlets of some depressions. They make up about 10 percent of this unit.

This Waskish soil has very rapid permeability. Surface runoff is very slow, and in some areas water is ponded on the surface. The available water capacity is high. The rooting depth is restricted by the high water table, which is at or near the surface most of the year. The soil reaction is extremely acid or very strongly acid.

Most areas of this soil are in open bogs that consist of sphagnum moss and low-growing, water-tolerant shrubs, such as leatherleaf and bog cranberry. The common trees in these areas are black spruce, cedar, and tamarack.

The high water table and low strength limit this soil for most uses other than wetland wildlife habitat. A small acreage in the Saco Heath is used as a source of peat.

The capability subclass is VIIIw.

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

Sidney W. Emery, soil conservation technician, Soil Conservation Service, assisted in preparing this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils 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 "Soils maps for detailed planning." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

According to the 1974 Census of Agriculture, 31,415 acres in the survey area was used for crops and pasture(*13*). Of this total, 7,272 acres was used only for pasture; 21,601 acres for harvested crops, mainly hay; and 2,542 acres for all other cropland. Woodland covers an additional 5,200 acres of potential cropland.

Erosion is the major concern on about a third of the cropland and pasture in York County. Erosion is a hazard on soils that have slopes of 3 percent or more. Allagash soils, for example, have slopes of 3 to 8 percent. Also, about one-half of the cropland in the county consists of sloping soils that are subject to excessive erosion if they are plowed in the fall. Thus, fall plowing generally increases the hazard of erosion during winter and spring.

Erosion of the soils is damaging for two reasons: First, the productivity of the soil is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer; second, erosion on farmland results in sediment entering streams, thus reducing the quality of

water for recreation, municipal use, and fish and wildlife. The loss of the surface layer is especially damaging in soils that have a clayey subsoil, such as Buxton soils, and in soils that have a compact substratum or shallow depth to bedrock, such as Becket or Lyman soils.

A cropping system that keeps the plant cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land and also provide nitrogen, improving tilth for the following crop. Using a system that provides a plant cover is especially effective on Buxton soils, for instance, which have short slopes and where such practices as contour tillage and terracing are not practical.

Minimum tillage and leaving crop residues on the surface help to increase infiltration and reduce the hazards of runoff and erosion. These practices are suitable for most soils in the survey area but are more difficult to use successfully on the slightly eroded soils. No-tillage corn, which is becoming more common, is a generally suitable crop that reduces erosion on sloping land. Winter rye, a cover crop and green-manure crop, is effective in reducing erosion on soils after row crops are harvested.

Stripcropping and stripcropping with diversions, which reduce the length of slope and reduce runoff and erosion, are suitable practices for deep, well drained soils that have smooth slopes, for example, Becket and Marlow soils. Soils with uneven slopes or excessive wetness or that are rocky are less suitable for diversions.

Drainage is a major management need on about two-thirds of the acreage used for crops and pasture. Some soils, such as Biddeford and Chocorua soils, are so poorly drained that the production of crops common to the area is not feasible. These very poorly drained soils cover about 48,000 acres in the county. Becket and Marlow soils have good natural drainage, but they are limited for cropland because they dry out slowly after rainfall.

The design of surface and subsurface drainage systems varies with the kind of soil. A combination of surface drainage and tile drainage is needed in most areas of poorly drained to somewhat poorly drained soils that are intensively used for row crops. Drains have to be more closely spaced in soils with slow permeability than in the more permeable soils. Tile drainage, for instance, is not effective for draining slowly permeable Raynham and Scantic soils.

Fertility is naturally low in the soils of the uplands in the survey area. Such soils are generally strongly acid and very strongly acid unless limed. The soils on flood plains, such as Ondawa, Podunk, and Rumney soils, range from slightly acid to very strongly acid and are naturally higher in plant nutrients than most upland soils.

Most soils that have never been limed require applications of ground limestone to reduce acidity sufficiently for alfalfa and other crops that thrive in less acid soils. Available phosphorus and potash levels are naturally low in most of the acid soils, making additions of fertilizer necessary.

Tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for row crops in the survey area have a surface layer of fine sandy loam or silt loam that is low in content of organic matter. Generally, the tilth of such soils is poor, and intense rainfall causes the formation of a crust on the surface, reducing infiltration and increasing runoff. Regular additions of crop residues, manure, and other organic material help to improve tilth and reduce crusting.

The Buxton soils are an example of medium-textured soils in which tilth is a problem. These soils often stay wet until late in spring. If they are wet when plowed, they tend to be very cloddy when dry and good seedbeds are difficult to prepare.

Field crops suited to many of the soils in the survey area include commonly grown row crops such as silage corn, sweet corn, dry beans, and potatoes. Millet and sudangrass are the commonly grown close-growing crops used for green feed. Alfalfa, timothy, bromegrass, orchardgrass, birdsfoot trefoil, clover, and reed canarygrass also are used for green feed, pasture, or hay.

Special crops grown commercially in the survey area are vegetables, small fruits, and tree fruits. A small acreage throughout the county is used for strawberries, raspberries, highbush blueberries and lowbush native blueberries, tomatoes, and other vegetables and small fruits. Apples are the dominant tree fruit in the county.

Deep soils that have gentle slopes, good natural drainage, and few stones and that warm up early in spring are well suited to many vegetables and small fruits. The survey area has about 7,300 acres of such soils, mainly Becket and Marlow soils, and an additional 8,700 acres of Allagash and Madawaska soils which are suitable for vegetables. Soils in low positions where frost is frequent and air drainage is poor, however, generally are poorly suited to early-season vegetables, small fruits, or orchard fruits.

The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information on controlling erosion, installing drainage, and increasing fertility and tilth and on the use of the soils for field crops and special crops.

Yields per acre

Glenn Wildes, dairy specialist, and Warren Stiles, extension fruit specialist, Highmoor Farms, Cooperative Extension Service, University of Maine, assisted in the preparation of this section.

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.

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 woodland or 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, s,* or *c,* 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); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

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, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-4 or IIIe-6.

The acreage of soils in each capability class and subclass is shown in table 6. The capability classification of each map unit is given in the section "Soil maps for detailed planning."

Woodland management and productivity

James S. Trask, forester, Maine Forest Service, assisted in preparing this section.

Woodland covers about 499,000 acres in York County. Of this acreage, 234,000 acres is used for eastern white pine, red pine, and eastern hemlock; 88,000 acres for red maple; 71,000 acres for oak and oak-pine; 69,000 acres for aspen and birch; and 37,000 acres for maple, beech, and birch.

An inventory of standing trees indicates that softwoods account for 830 million board feet of sawtimber and 2 million cords of pulpwood. Hardwoods account for 220

million board feet of sawtimber and 1.7 million cords of pulpwood and fuelwood. The dominant and most suitable species of softwood trees in the county is eastern white pine, which makes up 80 percent of the annual sawtimber cut.

Although hardwoods are dominant, most of the deep, well drained and moderately well drained soils in the county will support a wide variety of tree species. The shallow soils are dominated by mixed stands of pine, hemlock, and oak and other hardwoods.

Soils with a high water table are dominated by white pine, hemlock, and red maple. Windthrow is a major management concern on shallow soils and on soils with a high water table. Light thinning is the most common management practice used on these soils to overcome this problem.

The deep, organic soils have either no tree cover or stands of noncommercial trees.

Deep, somewhat excessively drained and excessively drained soils support mixed stands of hardwoods and white pine. These areas can be managed as mixed stands or pure stands more easily than they can be managed as hardwood stands.

Table 7 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 3 indicates good productivity; 4, fair; and 5, poor. 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 7, *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 the 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 blow 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.

Wildlife habitat

Robert J. Wengrzynek, biologist, Soil Conservation Service, assisted in preparing this section.

York County has habitat elements which support a variety of fish and wildlife. The major game species are deer, grouse, woodcock, and snowshoe rabbit. Moose, bear, and coyotes inhabit the northwestern part of the county, but not in great numbers. Raccoon, fox, and furbearers are common in upland areas; and beaver, muskrat, and mink inhabit areas near streams and wetlands. Hawks and owls are common in the sparsely populated areas of the county, and many areas are used by a wide variety of songbirds. Bald eagles, ospreys, egrets, and herons can often be seen in the coastal areas of the county.

The areas of Vassalboro soils near ponds and marshes provide food and cover for black ducks and wood ducks and resting areas for Canada geese and other migratory waterfowl. The areas of Chocorua and Sebago soils in swamps and bogs and Sulfihemists in saltwater marshes also provide habitat for waterfowl.

The warm-water rivers and lakes in the area provide habitat for smallmouth bass, perch, pickerel, and horned pout. The cold-water lakes and streams have species of landlock salmon, smelt, lake trout, brook trout, and brown trout.

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, oats, rye, and sunflower.

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, lovegrass, bromegrass, clover, alfalfa, bluegrass, switchgrass, timothy, and trefoil.

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 goldenrod, fescue, and strawberries.

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, mountain ash, apple, hawthorn, dogwood, hickory, sumac blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are elderberry, raspberry, Russian-olive, autumn-olive, 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, hemlock, 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, wildrice, cattails, cordgrass, 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 pheasant, meadowlark, field sparrow, snowshoe rabbit, 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 ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, coyote, raccoon, deer, moose, 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, herons, shorebirds, muskrat, mink, otter, and beaver.

Recreation

Virtually all of York County is used for recreational activity during the year, but the most intensively used

area is a 2-mile strip along the Atlantic coastline between Old Orchard Beach and Kittery Point. This area provides opportunities for such summer recreational activities as swimming, boating, and fishing.

Inland lakes, rivers, and streams provide freshwater swimming, fishing, and boating. During the fall and winter months, recreational activity is centered on the sloping and hilly uplands in the northwestern part of the county, where ice fishing and hunting are popular.

The soils of the survey area are rated in table 9 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 9, 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 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

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.

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, soil wetness, depth to a seasonal high water table, slope,

likelihood of flooding, natural soil structure aggregation, and soil density. 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 10 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, 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, 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, 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, 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 11 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. 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.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site fea-

tures are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

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, and flooding affect absorption of the effluent. Large stones and bedrock 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 11 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, 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 and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, most organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction materials

Table 12 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 good, fair, poor, or unsuited as a 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. 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. The ratings in table 12 provide guidance as to where to look for probable sources and are based on the probability of finding material in suitable quantity. 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 *good* 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. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of 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 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 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 or stones, 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 13 gives information on the soil properties and site features that affect water management. It gives for each soil the restrictive features that affect embankments, dikes, and levees; aquifer-fed ponds; drainage; irrigation; terraces and diversions; and grassed waterways.

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 restrictive features are given for the soils used as a source of material for embankment fill. They 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 restrictive features 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 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, large stones, slope, and the hazard of cutbanks. 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. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

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 excavations 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. These results are reported in table 17.

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 14 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 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 many 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. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 17.

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 usually 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 15 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 (oven dry) 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 1.60 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 15, 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 16 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 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, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt and water in swamps and marshes is not considered flooding.

Table 16 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 is most likely to 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. The extent of flooding based on soil data are less specific than those 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 16 are the depth to the seasonal high water table; the kind of water table—that is, perched, 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 16.

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. As the rock in this county is hard or massive, blasting or special equipment generally is needed for excavations.

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.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Engineering index test data

Table 17 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil series and morphology." The soil samples were tested by the Maine Department of Transportation, Materials and Research Division, Bangor, Maine.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are: AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487-69 (ASTM); Mechanical analysis—T 88-70 (AASHTO), D2217 (ASTM); Liquid limit—T 89-68 (AASHTO), D 423 (ASTM); Plasticity index—T 90-70 (AASHTO), D 424 (ASTM); Moisture density, Method A—T 99-70 (AASHTO), D 698 (ASTM).

Formation and morphology of the soils

This section describes how the physiography and geology of the area relate to the development of the soils. The section also gives the factors of soil formation and describes the morphology of the soils in York County. Table 18 describes the relationship of the soils to position, parent material, and drainage.

Physiography and geology

By D. Bruce Champeon, geologist, Soil Conservation Service.

York County is in the New England physiographic province. A line drawn from Berwick through Sanford to Limington divides the county into two nearly equal-sized sections within this province. The physiographic boundary between these sections is not always distinct but is more commonly a transitional zone between the "Seaboard Lowlands" to the southeast and the "New England Uplands" to the northwest (*5*).

The Seaboard Lowland section rises uniformly from sea level to an elevation of about 300 to 400 feet. Relief is generally low, although an occasional hill, such as Mt. Agamenticus (elev. 691 ft.), extends above the plain. Drainage is not well developed. A few small rivers cross the area, however, as they flow southeasterly to the Atlantic Ocean.

The New England Upland section is an area of moderate relief characterized by many hills with elevations between 900 and 1,300 feet. Summit elevations and relief generally increase to the northwest. Drainage is well developed, and the topography is mature.

The bedrock which underlies York County has a long and complex history. Sedimentary rocks, such as shale, siltstone, mudstone, sandstone, and limestone, were

formed from sediments and chemical precipitates deposited in ocean basins. These rocks are thought to range in age from about 450 million to 375 million years, or Late Ordovician age to Early Devonian. Exact ages are difficult to determine because an episode of mountain-building called the Acadian revolution occurred during the Early Devonian period. During this episode, the sedimentary rocks were deformed, folded, and subjected to extreme pressures and temperatures. New rocks, such as slate, phyllite, schist, gneiss, quartzite, and granulite, were formed. Most features of the original sedimentary rocks, including animal fossils, which are generally used for age determination, were destroyed in this recrystallization process, called metamorphism.

Molten rock was injected into the existing metamorphic rocks at several different times in the region's geologic history. Near the end of the period of mountain-building activity, during Early Devonian time, small bodies of dark-colored igneous rocks called gabbro and diorite were formed. These were followed by placement of several large and small bodies of light-colored rocks, for example, granite, quartz monzonite, and granodiorite. Radiometric dating shows these rocks to be about 395 million years old.

After a long period of inactivity, granite and syenite were again injected, principally as a complex body in the vicinity of Mt. Agamenticus. These rocks are of Late Permian or Early Triassic age, about 228 million years old. Many other smaller complexes of gabbros, diorite, and granitic rocks are in the area and are about 120 million years old, or of Cretaceous age. Also, numerous dikes of various ages cut most of the rocks of the county (*7, 8*).

Erosion removed a significant amount of rock during the nearly 120 million years that followed. But it was the events of the Pleistocene epoch, beginning about 2 million years ago, which account for the present topography and surficial geology of the area. Glacial ice advanced and retreated over York County probably as many as four times, but evidence remains only of the last major glaciation, known as the Wisconsin stage.

The Wisconsin continental glacier, which was thousands of feet thick, spread to the south and southeast to its maximum southerly extent in the Gulf of Maine about 18,000 years ago. As it traveled, the glacier ground up the rocks beneath it and deposited this newly eroded material as a compact blanket of glacial till, a mixture of all sizes of rock fragments ranging from clay-sized material to boulders. Brayton and Skerry soils are examples of soils developed in this thick till.

The sheer weight of such a massive sheet of ice depressed the land surface, but the extent of the lowering is not known. Also, the great quantities of moisture locked up in the glacier caused a worldwide lowering of sea level by about 300 to 350 feet. As the climate warmed, the glacier melted faster than it advanced, resulting in a net retreat of the glacial front. The sea level rose, and as the sea covered the land, large quantities of clay and silt were deposited. This deposit is the familiar "blue clay" of the coastal area. Scantic soils are an example of soils developed in this marine material.

A minor readvance of the glacier from the White Mountain area occurred before the final retreat began about 11,800 years ago. The sea again covered the land, depositing blue clay up to what is now a maximum elevation of about 260 feet.

As the glacier retreated, large quantities of meltwater carried and eventually deposited sand and gravel as kame terraces, kame fields, kames, and eskers in contact with the remaining ice. Sand was also deposited as outwash plains and deltas. Colton soils generally formed in ice-contact deposits; Adams soils generally formed on outwash plains and deltas.

Not all eroded material was carried away by meltwater. Some simply remained to form a thin, loose cover of till on some of the higher ridges and slopes. Lyman soils developed in this shallow till.

The land began to rebound as the ice melted. This emergence from the sea started 7,000 to 8,000 years ago and continued until about 4,200 years ago, when it reached a maximum level that was 2 to 9 feet above present sea level. At that time a slow submergence began which continues today. During emergence many lakes, ponds, and marshes were formed. Many survive today, but some were filled with lacustrine sediments or organic material. Raynham soils formed in the lake sediments, and Sebago soils formed in the organic material.

The processes of erosion, sedimentation, and landscape alteration continue to influence the formation of soils. For example, alluvial soils, such as Ondawa soils, formed in material deposited on river bottoms and stream bottoms; Sulfihemists developed from saltwater marshgrasses on tidal marshes; and Udipsamments formed in windblown sand on stabilized dunes (*3, 9*).

Factors of soil formation

Soil is formed through the interaction of the five major soil-forming factors: climate, parent material, plant and animal life, topography, and time. The influence of each of these factors on the soil-forming processes varies from place to place. Any local variation in the soils of York County is caused by the varying influence of each of these five factors.

Climate

Climate strongly influences the weathering process and the vegetation, which in turn further modify the soil-forming process. Climatic data for the county are recorded in the section "General nature of the county."

The climate of the coastal zone of York County, which extends 20 to 30 miles inland from the Atlantic Ocean, comes under the influence of the climate of the Canadian Maritime Provinces and therefore has a maritime polar climate. West of this coastal zone, at the foothills

of the White Mountains, the county is considered to be in a continental polar zone. The boundary between these two zones is an imaginary line from West Lebanon to Springvale to the south side of West Buxton.

Rainfall influences soil formation through erosion-solution losses caused by leaching and chemical reaction (of which water is a necessary component). As a result of leaching, the soils of York County are slightly acid to extremely acid. The exchange sites on clay and organic matter are dominated by hydrogen or aluminum ions, rather than by basic ions. Variations in percentage of bases on the exchange sites are dependent on the amount of basic elements in the parent material, the duration and intensity of weathering, or on possible additions of basic ions. The low content of bases in the parent materials of the soils of York County accounts for much of the natural acidity.

Physical weathering, in the form of alternate freezing and thawing, takes place from fall to spring. Weathering promotes the granulation of soil material and the breaking of rock fragments into smaller units. The alternate freezing and thawing process improves soil structure in those soils that have been compacted as a result of the use of equipment.

York County is at a latitude a little south of the midpoint between the North Pole and the Equator. The degree of soil development, therefore, is intermediate between that which would be normal at these two extremes. The soils in York County are more deeply weathered and thickly formed than in polar regions, but they are not so highly weathered or deep as most soils in tropical latitudes, where climate commonly completely masks the influence of different parent materials.

Parent material

The parent material of York County, together with the inherent landscape features, has largely resulted from the Wisconsin stage of glaciation, the last glacial advance and retreat over this area. The six major parent materials of the soils of York County are glacial till, glaciofluvial deposits, marine and lacustrine sediments, organic material, recent alluvium, and eolian deposits.

Soils that formed in friable glacial till, such as Hermon soils, reflect the goughing, scraping, and transportation action of the glacier which deposited the material across the landscape. Becket, Marlow, Peru, and Skerry soils formed in compact glacial till on smooth, drumlin-shaped landforms derived mainly from a mixture of granite, gneiss, and schist. Brayton and Westbury soils formed in the depressional areas of these landforms and have a compact substratum.

Glaciofluvial deposits, accumulated when meltwater from the glacier picked up and deposited the sand particles or gravel as beds of sandy material and gravelly material on outwash plains, terraces, kames, or eskers. Colton soils formed in such material on kames, terraces, and eskers. Adams, Croghan, and Naumburg soils formed in sandy material on outwash plains and terraces.

Some soils formed in lacustrine and marine sediments that were deposited in quiet bodies of water. Elmwood soils formed in loamy material underlain by silt and clay sediments. Scio and Raynham soils formed in sediments of silt and very fine sand. Buxton, Scantic, and Biddeford soils formed in silt and clay sediments. The Ondawa, Podunk, Rumney, Saco, and Winooski soils formed in recent alluvium deposited by active streams and rivers.

Organic material in depressional areas is the parent material for Waskish, Vassalboro, Sebago, and Chocorua soils and Sulfihemists. The depressional areas were once ponded and have accumulations of various kinds of plant remains. The Waskish soils formed almost entirely in sphagnum moss; the Vassalboro soils in sphagnum, herbaceous fiber, and woody fiber; the Sebago soils in herbaceous and woody fiber; the Chocorua soils in herbaceous and woody fiber with underlying mineral material; and the Sulfihemists in saltwater marshgrasses in areas subject to tidal flooding.

Udipsamments formed in eolian material on sand dunes which has been moved and shaped by winds.

Plant and animal life

The presence of living plants and animals and their decaying remains in a mineral soil is one of the features that distinguishes the soil from its parent material. Plants generally supply the organic matter that decomposes and gives color to the surface layer. In areas of poor drainage, this organic matter tends to collect on the surface, creating thick organic layers. The decaying plants and animals also supply nutrients to the soil. Many of the trees and other plants take up these plant nutrients and store them in leaves, stems, and roots. When the trees and plants die, they are acted on by bacteria or fungi, and the nutrients are returned to the soil. Fungi produce some of the organic acids found in areas of such soils as Adams, Hermon, and Marlow soils, especially where the soils are not plowed.

Earthworms, insects, rodents, and other animals that live in the soil help to mix the soil layers. Earthworms aid in soil aeration and in the formation of granular soil structure. They also help in the decomposition of organic matter.

The most obvious result of man's activities is the mixing of layers through plowing. Compact, impermeable layers have been created in some areas within the soil by plowing or use of machinery. Soil erosion is accelerated in cultivated areas to the point that on some soils the surface layer has eroded away. In places that have been limed and fertilized for long periods, the soils have become less acid. In places where man has added drainage systems, the soil has often become more aerated and warmer and has a lower organic matter content in the surface layer.

Topography

The influence of topography on the soils can be seen by comparing the drainage characteristics of soils having the same kind of parent material and climatic conditions but that are on different parts of the landscape.

The Brayton, Marlow, and Peru soils, for example, formed in the same type of parent material—compact glacial till—but each occupies a different part of the landscape and each has a different type of drainage. The Marlow soils are on the upper parts of ridges and are well drained. The Peru soils are in the middle parts of ridges and are moderately well drained. The Brayton soils are on lower slopes and in depressions and are somewhat poorly drained to poorly drained.

Time

The degree of development, or maturity, of a soil commonly reflects the length of time that the parent material has been in place. In this survey area, most of the soils have been forming in their present state for about 11,800 years, since the retreat of the last glacier.

Most soils on flood plains are continually being reworked and are considered immature. Their layers are not well defined, their colors show only slight differences, and their structure is weak. Ondawa soils are an example of soils on flood plains.

Some soils show evidence of change and maturity, such as the formation of a reddish, dark layer that is distinct from the other layers in the soil. This distinct layer is a result of the accumulation of organic matter, iron, and aluminum over a long period. Skerry soils, which are more mature soils, have such a layer.

Morphology of the soils

Robert V. Rourke, associate soil scientist, University of Maine, assisted with this section.

The soils in York County generally exhibit distinct layers, or horizons. The formation of the distinct soil horizons is the result of processes within the soil. In York County, the principal processes are: addition of organic matter, transformation and transfer of organic matter and iron and aluminum oxides, weathering of primary minerals or rocks and parent material into silicate clays, formation of soil structure, and chemical change and transfer of iron. These processes often operate simultaneously.

Soils in wooded areas have an O (organic) horizon at the surface. This horizon is an accumulation of organic matter, such as twigs and leaves, or of humified organic material that has little admixture of mineral material. The amount of organic matter added to the surface layer, or A horizon, of soils varies with vegetation, aspect, temperature, moisture, and drainage conditions. Generally, Adams and Colton soils have small amounts of organic matter in the A horizon, while Brayton soils have an A horizon with high organic matter content.

Organic matter is accumulated and incorporated into the soil to form the A1 horizon. In many soils, plowing and cultivation have changed the A1 horizon to an Ap horizon. Organic material deposited by man is also incorporated into the Ap horizon.

The weathering process important in the formation of horizons in the soils of York County involves the movement of organic matter and iron and aluminum oxides from the A horizon into the B horizon. The decomposition of organic matter in the A horizon creates acid which dissolves sesquioxides (iron and aluminum oxides), reduces iron, and forms soluble metal-organic complexes (*10*). These complexes are leached from the A horizon into the B horizon, where they are precipitated by mechanical, chemical, and biological processes (*4*). In some areas a light, grayish, leached A2 horizon forms over an accumulation of humus and sesquioxides in the B horizon. Adams, Colton, Naumburg, Skerry, and Westbury soils all show evidence of the accumulation of humus and sesquioxides in the B horizon. In the Naumburg and Westbury soils, the precipitation of organic matter and iron and aluminum oxides is associated with a fluctuating water table.

In some soils, such as Buxton soils, the B horizon is formed mainly by alteration of the original material rather than as a result of illuviation. The alteration can be caused by the weathering of the parent material, or by the oxidation of iron to cause a rusty color, or by the development of soil structure in place of the original rock or sediment structure.

In poorly drained soils or soils subject to wetness, gray colors in the subsoil horizon indicate the reduction of iron to the ferrous form. These grayish layers have been chemically reduced to a more soluble form during anaerobic conditions, and the iron was leached from the soils, moved to a different horizon, or concentrated and partly reoxidized. Mottles in the soil result from the reduction and reoxidation. Grayish layers are common in such soils as somewhat poorly drained to poorly drained Brayton soils and poorly drained Scantic soils.

Marlow and Peru soils have a compact substratum. Soil particles are tightly packed, bulk density is high, and pore space is low. It is believed that the compact substratum was formed, in part, as a result of high pressure from glacial ice (*6*). The eluvial-illuvial sequence is above the dense layer and is frequently separated from the dense zone by a second area of eluviation. The compact substratum continues from about 50 to 60 centimeters to several meters in depth and commonly has a very coarse to coarse, prismatic structure. It is brittle when moist. This dense zone is nearly impervious to plant roots and is only very slowly permeable to water.

Soil series and 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 (*11*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*12*). 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 "Soil maps for detailed planning."

Adams series

The Adams series consists of deep, excessively drained soils that formed in glaciofluvial material derived principally from crystalline rock. Adams soils are generally on deltas and outwash plains. Slopes range from 0 to 40 percent but are dominantly 0 to 8 percent.

Adams soils formed in material similar to that in which the associated Croghan and Naumburg soils formed, but Adams soils are better drained. They are also associated with Colton soils but have fewer coarse fragments than Colton soils. In a few areas Adams soils are adjacent to Hermon soils on uplands. Unlike Hermon soils, which formed in sandy and stony glacial till, Adams soils have little or no gravel, cobblestones, or other stones within the profile.

Typical pedon of Adams loamy sand, 0 to 8 percent slopes, in the town of Kennebunk, 0.6 mile east of the Sanford-Kennebunk Town line, and 200 feet west of Maine Route 99:

O1—3 to 2 inches, loose litter of leaves and twigs.

O2—2 inches to 0, black (5YR 2/1) organic material; weak very fine granular structure; very friable; many roots; very strongly acid; abrupt wavy boundary.

A2—0 to 3 inches, gray (5YR 5/1) loamy sand; weak fine granular structure; very friable; many roots; very strongly acid; abrupt broken boundary.

B21h—3 to 5 inches, dark reddish brown (5YR 3/4) loamy sand; weak fine granular structure; very friable; many roots; 5 percent gravel; very strongly acid; clear wavy boundary.

B22ir—5 to 12 inches, brown to dark brown (7.5YR 4/4) loamy sand; weak fine granular structure; very friable; common roots; 5 percent gravel; strongly acid; clear wavy boundary.

B23—12 to 18 inches, yellowish brown (10YR 5/6) sand; single grain; loose; common roots; 5 percent gravel; medium acid; gradual wavy boundary.

C1—18 to 28 inches, light yellowish brown (2.5Y 6/4) sand; single grain; loose; few roots; 5 percent gravel; medium acid; gradual smooth boundary.

C2—28 to 60 inches, light yellowish brown (2.5Y 6/4) coarse sand; single grain; loose; 10 percent gravel; medium acid.

The thickness of the solum ranges from 16 to 30 inches. Gravel makes up from 0 to 5 percent of the profile above 20 inches and 0 to 20 percent below 20 inches. The upper part of the solum is very strongly acid or strongly acid unless limed. The lower part of the B horizon and the entire C horizon are medium acid.

The O2 horizon is black or very dark gray. It overlies an A2 horizon with hue of 5YR or 10YR, value of 5 through 7, and chroma of 1. The A2 horizon has weak, fine, granular structure, or it is single grain. Consistence of the A2 horizon is very friable or loose. Cultivated areas have an Ap horizon with hue of 10YR, value of 3 or 4, and chroma of 2 or 3. The Ap horizon has weak, fine, granular structure and is very friable.

The Bh horizon has hue of 2.5YR or 5YR, value of 2 or 3, and chroma of 2 through 4. The Bir and B2 horizons have hue of 5YR through 10YR, value of 4 or 5, and chroma of 4 or 6. The B horizon is dominantly loamy sand, but the range includes loamy fine sand and sand. Structure of the B horizon is weak, fine, granular, or the horizon is single grain. Consistence is very friable or loose.

The C horizon has hue of 10YR or 2.5Y, value of 6, and chroma of 3 or 4. The texture of the C horizon is typically sand or coarse sand.

Allagash series

The Allagash series consists of deep, well drained soils that formed in glaciofluvial material derived principally from schist, granite, gneiss, and phyllite. Allagash soils are generally on outwash plains and kame terraces. Slopes range from 3 to 15 percent but are dominantly 3 to 8 percent.

Allagash soils commonly are near Colton, Madawaska, and Naumburg soils. Allagash soils are better drained than Madawaska or Naumburg soils. They are not as droughty as Colton soils.

Typical pedon of Allagash very fine sandy loam, 3 to 8 percent slopes, in the town of South Berwick, about 5 miles northeast of the village of South Berwick, 400 feet east of the Great Works River, 300 feet south of the town line, and 50 feet north into a hayfield from old county road:

Ap—0 to 7 inches, brown to dark brown (10YR 4/3) very fine sandy loam; weak very fine granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.

B21ir—7 to 11 inches, yellowish brown (10YR 5/6) very fine sandy loam; weak very fine granular structure; very friable; many fine roots; slightly acid; clear wavy boundary.

B22—11 to 15 inches, brownish yellow (10YR 6/6) fine sandy loam; weak fine granular structure; very fri-

able; common roots; slightly acid; clear wavy boundary.

B23—15 to 20 inches, light olive brown (2.5Y 5/4) fine sandy loam; weak very fine granular structure; very friable; common roots; medium acid, abrupt smooth boundary.

IIC1—20 to 38 inches, light yellowish brown (2.5Y 6/4) loamy fine sand; lenses of fine sand; single grain; very friable; few roots; medium acid; abrupt smooth boundary.

IIC2—38 to 60 inches, light olive brown (2.5Y 5/4) sand; single grain; loose; medium acid.

The thickness of the solum ranges from 15 to 35 inches. Coarse fragments make up 0 to 15 percent of the profile above a depth of 40 inches. The profile is very strongly acid to slightly acid throughout unless limed.

The Ap horizon has value of 3 or 4 and chroma of 2 through 4. The Ap horizon has weak or moderate, very fine or fine granular structure. In uncultivated areas, these soils have an O2 horizon and a discontinuous A2 horizon.

The Bir horizon has hue of 5YR through 10YR, value of 4 or 5, and chroma of 6 or 8. The B2 horizon has hue of 10YR or 2.5Y, value of 4 through 6, and chroma of 4 through 8. Structure is weak, very fine or fine granular. The B horizon is very friable or friable. In some uncultivated areas, these soils have a thin Bh horizon.

The IIC horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 3 or 4. It is loamy fine sand, loamy sand, fine sand, or sand. The soil is gravelly or very gravelly below a depth of 40 inches in some pedons.

Becket series

The Becket series consists of deep, well drained soils that formed in compact glacial till derived mainly from granite, gneiss, and schist. The Becket soils in this survey area are a taxadjunct because they have slightly less extractable iron and aluminum than is defined in the range for the series. Becket soils are on the tops and sides of drumlins and ridges. Slopes range from 3 to 25 percent.

Becket soils are on the landscape with and formed in similar kinds of material as somewhat poorly drained and poorly drained Brayton soils, somewhat excessively drained Lyman soils, and moderately well drained Skerry soils. The Lyman soils are shallower to bedrock than Becket soils.

Typical pedon of Becket fine sandy loam, 3 to 8 percent slopes, in the town of Newfield, 0.25 mile west of Mitchell Mountain, 0.75 mile north on Mountain Road, and 300 feet on the west side of the road, in an idle field:

Ap—0 to 6 inches, dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; 5 percent coarse fragments; slightly acid; abrupt smooth boundary.

B21ir—6 to 11 inches, strong brown (7.5YR 5/8) fine sandy loam; weak fine granular structure; very friable; common fine roots; 5 percent coarse fragments; slightly acid; clear wavy boundary.

B22—11 to 17 inches, yellowish brown (10YR 5/8) sandy loam; weak fine granular structure; very friable; common roots; 5 percent coarse fragments; slightly acid; clear wavy boundary.

B3—17 to 23 inches, light olive brown (2.5Y 5/4) sandy loam; weak medium platy structure; friable; common roots; 10 percent coarse fragments; slightly acid; clear wavy boundary.

IICx—23 to 60 inches, olive (5Y 5/3) gravelly loamy sand; massive parting to weak medium platy structure; very firm, brittle; common fine pores; 15 percent coarse fragments; friable segregated sand lenses in horizontal orientation between plates throughout; common coarse prominent yellowish brown (10YR 5/6) mottles along interface of sand lenses and sandy loam plates; thin silt coatings on tops of pebbles; slightly acid.

The solum thickness and depth to the substratum range from 16 to 34 inches. Coarse fragments make up 5 to 30 percent of the solum and 15 to 30 percent of the substratum. Reaction ranges from very strongly acid to slightly acid in the solum and from strongly acid to slightly acid in the substratum. Surface stoniness ranges from almost stone-free in cleared areas to very stony in other areas.

Undisturbed areas have a thin O layer and an A2 horizon 1 to 3 inches thick. The Ap horizon has a hue of 10YR, value of 3 or 4, and chroma of 2 through 4. The structure is weak, fine or medium granular.

The Bir horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 through 8. The B2 horizon has hue of 10YR, value of 5, and chroma of 6 or 8. The B3 horizon has hue of 2.5Y, value of 5 or 6, and chroma of 4 or 6. The B horizon is fine sandy loam or sandy loam in the fine-earth fraction. The structure is weak, fine granular or weak, thin or medium platy. An A'2 horizon is in some pedons. A few mottles are immediately above or within the substratum in some pedons.

The IICx horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2 through 4. It is loamy sand or sandy loam in the fine-earth fraction. The structure of the IICx horizon is weak or moderate, thin or medium platy, or the horizon is massive. Loose or friable, segregated sand lenses with a horizontal orientation between structural plates comprise more than 20 percent of the IICx horizon. The lenses range from 1/8 inch to 2 inches in thickness. Pockets of fine or medium sand are common in the IICx horizon.

Biddeford series

The Biddeford series consists of deep, very poorly drained soils that formed in marine or lacustrine sediments. Biddeford soils are in loamy and clayey sediments in depressed areas on lowlands. Slopes are 0 to 1 percent.

Biddeford soils commonly are near Scantic and Buxton soils. Biddeford soils are wetter than Scantic or Buxton soils. They are near shallow Lyman soils in the ledge-clay areas along the coast.

Typical pedon of Biddeford mucky peat, in the town of Biddeford, near St. Francis College, about 0.5 mile southwest of Maine Route 9 on Newtown Road, and 300 feet northwest of the road into a shrub swamp:

O1—14 to 11 inches, undecomposed grasses and live roots.
O2—11 inches to 0, dark reddish brown (5YR 2/2) and very dark brown (10YR 2/2) mucky peat; weak fine granular structure; very friable; common roots; less than 5 percent mineral material; strongly acid; clear smooth boundary.
A2g—0 to 5 inches, greenish gray (5BG 5/1) silty clay loam; few fine distinct olive (5Y 5/3) mottles; massive; firm, sticky and plastic; neutral; clear wavy boundary.
Bg—5 to 36 inches, greenish gray (5GY 5/1) silty clay loam; many coarse distinct olive (5Y 5/3) mottles; massive; firm, sticky and plastic; few fine roots; few fine and very fine pores; neutral; clear wavy boundary.
Cg—36 to 60 inches, greenish gray (5BG 5/1) silty clay loam; few fine distinct olive (5Y 5/3) mottles; weak medium platy structure parting to weak very fine angular blocky; firm, sticky and plastic; few pores; neutral.

The thickness of the solum ranges from 22 to 40 inches. The depth to bedrock is more than 5 feet. The soil ranges from strongly acid to slightly acid in the O2 horizon, from strongly acid to neutral in the A2g horizon, from medium acid to mildly alkaline in the B horizon, and from slightly acid to mildly alkaline in the C horizon.

The O horizon ranges from 8 to 16 inches in thickness. The O horizon has hue of 5YR through 10YR, value of 2, and chroma of 1 or 2. The A2g horizon has hue of 5Y, 5BG, or 5GY; value of 5 or 6; and chroma of 0 or 1. The texture is silty clay loam, silty clay, or silt loam. The A2g horizon is massive, or it has weak thick platy structure.

The Bg horizon has hue of 5Y or 5GY, value of 4 or 5, and chroma of 2 or less. It is silty clay loam, silty clay, or clay. The horizon is massive, or it has prismatic or blocky structure.

The Cg horizon has hue of 5Y, 5BG, 5G, or 5B; value of 4 or 5; and chroma of 0 or 1. It is silty clay loam, silty clay, or clay. Structure is weak, medium, platy parting to angular blocky, or the horizon is massive.

Brayton series

The Brayton series consists of deep, somewhat poorly drained and poorly drained soils that formed in compact glacial till derived mainly from schist, gneiss, and granite. Brayton soils are in slight depressions and concave areas on drumloidal hills and ridges. Slopes range from 0 to 8 percent.

Brayton soils commonly are near Becket, Marlow, Peru, Skerry, and Westbury soils and formed in similar kinds of material. Brayton soils are wetter than these soils and are lower on the landscape.

Typical pedon of Brayton fine sandy loam, in an area of Brayton and Westbury very stony fine sandy loams, 0 to 8 percent slopes, in the town of Sanford, 150 feet west on Maine Route 11A from the junction of Maine Route 11A and Hanson Ridge Road, and 150 feet north of Maine Route 11A:

O1—1 inch to 0, deciduous leaves and twigs.
A1—0 to 5 inches, very dark grayish brown (10YR 3/2) fine sandy loam; moderate fine and medium granular structure; friable; many fine roots; 10 percent coarse fragments; strongly acid; clear wavy boundary.
Bg—5 to 11 inches, grayish brown (2.5Y 5/2) fine sandy loam; common medium distinct light gray to gray (10YR 6/1) mottles and common medium distinct yellowish brown (10YR 5/4) mottles; weak medium platy structure; friable; common fine roots; 10 percent coarse fragments; strongly acid; clear smooth boundary.
C1x—11 to 43 inches, olive (5Y 5/3) fine sandy loam; many fine distinct light gray to gray (10YR 6/1) mottles and many fine prominent yellowish brown (10YR 5/6) mottles; moderate very coarse prismatic structure parting to weak thick platy; very firm, brittle; few fine roots in streaks between prisms; 10 percent coarse fragments; medium acid; gradual wavy boundary.
C2x—43 to 60 inches, grayish brown (2.5Y 5/2) fine sandy loam; common fine distinct light gray to gray (10YR 6/1) mottles and common fine prominent yellowish brown (10YR 5/6) mottles; massive; very firm, brittle; 10 percent coarse fragments; medium acid.

The solum thickness and depth to the substratum range from 10 to 20 inches. Coarse fragments make up 5 to 25 percent of the solum and substratum. Reaction in unlimed areas ranges from very strongly acid through slightly acid in the solum and from medium acid to neutral in the Cx horizon.

The A1 horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2. Where present, the Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2. Structure is weak or moderate, fine or medium granular. The A horizon is very friable or friable.

The B horizon has hue of 10YR through 5Y, value of 4 through 6, and chroma of 2 or 3. The B horizon ranges

from sandy loam to loam in the fine-earth fraction. The structure of the B horizon is weak or moderate, thin or medium platy, or weak subangular blocky. The B horizon is very friable through firm.

The Cx horizon has hue of 10YR through 5Y, value of 3 through 6, and chroma of 2 through 4. It is fine sandy loam, sandy loam, or loam in the fine-earth fraction. The structure of the Cx horizon is moderate or strong, very coarse prismatic, weak thick platy, or the horizon is massive. It is firm or very firm.

Buxton series

The Buxton series consists of deep, moderately well drained and somewhat poorly drained soils that formed in marine or lacustrine sediments. Buxton soils are on tops and sides of lake plains and marine plains that have a dendritic drainage pattern. Slopes range from 3 to 25 percent but are dominantly 3 to 8 percent.

Buxton soils are on the landscape and formed in similar kinds of material as very poorly drained Biddeford soils and poorly drained Scantic soils.

Typical pedon of Buxton silt loam, 3 to 8 percent slopes, in the town of Eliot, about 0.9 mile northeast of Maine Route 101, in a hayfield about 500 feet south of Frost Hill Road:

Ap—0 to 7 inches, dark brown (10YR 3/3) silt loam; strong fine granular structure; friable; many very fine roots and few fine roots; many medium earthworm channels; less than 1 percent pebbles 1/4 to 1 inch in diameter; medium acid; abrupt smooth boundary.

B21—7 to 12 inches, yellowish brown (10YR 5/4) silt loam; moderate fine granular structure; friable; common very fine roots; many medium earthworm channels, material from Ap horizon in a few; less than 1 percent pebbles 1/4 to 1 inch in diameter; medium acid; clear wavy boundary.

B22—12 to 16 inches, light olive brown (2.5Y 5/4) silt loam; few medium distinct light olive gray (5Y 6/2) mottles and few fine distinct strong brown (7.5YR 5/6) mottles; moderate fine subangular blocky structure; friable; common very fine roots; many medium and few coarse earthworm channels, material from Ap horizon in a few; less than 1 percent pebbles 1/2 to 1-1/4 inch in diameter; medium acid; abrupt smooth boundary.

A'2—16 to 19 inches, light brownish gray (2.5Y 6/2) silty clay loam; common medium distinct light olive gray (5Y 6/2) and strong brown (7.5YR 5/6) mottles; moderate fine subangular blocky structure; friable; few very fine roots; common medium earthworm channels; less than 1 percent pebbles about 1/2 inch in diameter; medium acid; abrupt wavy boundary.

B'21—19 to 23 inches, olive gray (5Y 5/2) silty clay; light olive gray (5Y 6/2) prism faces; band of brown to dark brown (7.5YR 4/4) between matrix and prism faces; common medium faint gray (5Y 5/1) mottles and common fine distinct brown to dark brown (7.5YR 4/4) mottles; strong coarse prismatic structure parting to strong medium subangular blocky; firm; few very fine roots on prism faces; common very fine and few fine discontinuous oblique vesicular pores; common medium earthworm channels; common medium very dusky red (2.5YR 2/2) oxide coatings; less than 1 percent pebbles 1/4 to 1/2 inch in diameter; medium acid; clear smooth boundary.

B'22—23 to 28 inches, grayish brown (2.5Y 5/2) silty clay; light olive gray (5Y 6/2) prism faces; band of brown to dark brown (7.5YR 4/4) between matrix and prism faces; common coarse distinct light olive gray (5Y 6/2) and gray (5Y 5/1) mottles and common fine distinct brown to dark brown (7.5YR 4/4) mottles; strong very coarse prismatic structure parting to moderate medium and coarse subangular blocky; firm; common very fine discontinuous random irregular pores; common medium and few coarse earthworm channels; few thin discontinuous olive gray (5Y 5/2) silt coatings inside pores and on ped faces; common medium very dusky red (2.5YR 2/2) oxide coatings; 2 percent pebbles and cobbles 1/2 inch to 4 inches in diameter; medium acid; gradual smooth boundary.

B'3—28 to 37 inches, olive gray (5Y 4/2) silty clay; light olive gray (5Y 6/2) prism faces; band of brown to dark brown (7.5YR 4/4) between matrix and prism faces; common medium distinct gray (5Y 5/1) mottles and common fine distinct light olive brown (2.5Y 5/4) mottles; strong very coarse prismatic structure parting to moderate thick platy; firm; few very fine discontinuous random irregular pores; few coarse earthworm channels; thin discontinuous olive gray (5Y 5/2) silt coatings on ped surfaces; common medium very dusky red (2.5YR 2/2) oxide coatings; less than 1 percent pebbles 1/4 to 1/2 inch in diameter; neutral; gradual smooth boundary.

C—37 to 60 inches, olive gray (5Y 4/2) silty clay; olive gray (5Y 5/2) prism faces; band of olive brown (2.5Y 4/4) between matrix and prism faces; weak very coarse prismatic structure; firm; few very fine discontinuous random irregular pores; few thin discontinuous olive gray (5Y 5/2) silt coatings inside pores; common medium very dusky red (2.5YR 2/2) oxide coatings; less than 1 percent pebbles 1/4 to 1/2 inch in diameter; neutral.

The solum thickness ranges from 24 to 55 inches. The coarse-fragment content throughout the soil is less than 5 percent. Depth to mottling ranges from 10 to 24 inches. Reaction ranges from strongly acid through slightly acid in the upper part of the solum and from medium acid through neutral in the lower part of the solum and in the C horizon.

Some undisturbed areas have a thin O horizon over an A1 horizon. The Ap horizon has hue of 7.5YR through

2.5Y and value and chroma of 2 through 4. It has moderate or strong, very fine or fine granular structure.

The B horizon has hue of 7.5YR through 5Y, value of 3 through 5, and chroma of 2 through 8. It is silt loam or silty clay loam. It has moderate, fine or medium granular structure and weak or moderate, subangular blocky structure.

The A'2 horizon has hue of 2.5Y or 5Y, value of 5 through 7, and chroma of 0 through 2. It is silt loam or silty clay loam. It has weak through strong, fine or medium subangular blocky, or platy structure.

The B'2 and B'3 horizons have hue of 2.5Y or 5Y, value of 4 through 6, and chroma of 2 through 6. They are silty clay loam or silty clay. They have weak through strong, coarse or very coarse prismatic structure parting to weak through strong, medium or coarse subangular blocky or platy. Coatings on prism faces have hue of 5Y or 5GY, value of 5 or 6, and chroma of 0 through 2.

The C horizon has hue of 2.5Y or 5Y, value of 4 through 6, and chroma of 2 through 6. It is silty clay loam or silty clay. Structure is weak, thick or very thick platy or weak, coarse or very coarse prismatic, or the horizon is massive.

Chocorua series

The Chocorua series consists of deep, very poorly drained soils that formed in organic material derived mainly from herbaceous and woody fibers and underlying mineral material. Chocorua soils are in depressions on outwash plains, lake plains, and glaciated uplands. Slopes range from 0 to 2 percent.

Chocorua soils are near very poorly drained Sebago and Vassalboro soils. They have a mineral layer at a shallower depth than Sebago soils and have more hemic material than Vassalboro soils. Chocorua soils are also associated with poorly drained and somewhat poorly drained Naumburg soils on outwash plains.

Typical pedon of Chocorua peat, in the town of Buxton, 0.5 mile from Maine Route 22, on the northwest side of Rocky Dundee Road:

Oi1—0 to 8 inches, very dusky red (2.5YR 2/2) on broken face, rubbed and pressed, peat (fibric material); about 80 percent fiber, about 60 percent rubbed; moderate medium granular structure; slightly sticky; many live roots; mainly herbaceous fibers; about 10 percent woody fragments; less than 1 percent mineral material; very pale brown sodium pyrophosphate test (10YR 8/3); very strongly acid in water; clear smooth boundary.

Oe1—8 to 24 inches, very dusky red (2.5YR 2/2) on broken face, rubbed and pressed, mucky peat (hemic material); about 60 percent fiber, 35 percent rubbed; massive; slightly sticky; mainly herbaceous fibers; 5 percent woody fragments; less than 1 percent mineral material; very pale brown (10YR 8/4) sodium pyrophosphate test; very strongly acid in water; gradual smooth boundary.

Oe2—24 to 32 inches, dark reddish brown (2.5YR 2/4) on broken face, rubbed and pressed, mucky peat (hemic material); 40 percent fiber, 30 percent rubbed; massive; slightly sticky; mainly herbaceous fibers; about 5 percent woody fragments; less than 1 percent mineral material; very pale brown (10YR 8/4) sodium pyrophosphate test; very strongly acid in water; gradual smooth boundary.

IIC—32 to 60 inches, dark grayish brown (2.5Y 4/2) loamy sand; single grain; nonsticky, nonplastic; very strongly acid.

The thickness of the organic layers ranges from 16 to 51 inches. The organic layers are comprised of herbaceous and woody materials. Reaction in the organic layers is extremely acid or very strongly acid in water and extremely acid in 0.01 molar calcium chloride. Reaction is very strongly acid to medium acid in the mineral substratum.

The surface tier has hue of 2.5YR through 7.5YR, value of 2 or 3, and chroma of 1 or 2. It has weak or moderate granular structure, or it is massive. It is nonsticky or slightly sticky.

The subsurface and bottom tiers have hue of 2.5YR through 7.5YR, value of 2 or 3, and chroma of 2 through 4. They are massive or have weak, thick, platy structure and are nonsticky or slightly sticky.

The IIC horizon has hue of 2.5Y, value of 4 through 6, and chroma of 2. It is loamy sand, loamy fine sand, or sand in the fine-earth fraction.

Colton series

The Colton series consists of deep, excessively drained soils that formed in glaciofluvial material derived principally from granite, gneiss, and schist. Colton soils are generally on kame terraces, kames, and eskers. Slopes range from 0 to 45 percent but are dominantly 0 to 8 percent.

Colton soils are commonly near Adams, Croghan, and Naumburg soils. They have more coarse fragments in the solum and substratum than Adams soils. Colton soils are better drained and have more coarse fragments than Croghan or Naumburg soils.

Typical pedon of Colton gravelly loamy coarse sand, 0 to 8 percent slopes, in the town of Sanford, 2.8 miles north on Maine Route 4 from the elementary school in North Berwick, 1,200 feet southeast of Maine Route 4 on a private road, and about 100 feet northeast of the private road:

O1—3 to 2 inches, litter of pine needles and leaves from mixed hardwoods.

O2—2 inches to 0, dark reddish brown (5YR 2/2) and black (10YR 2/1) partially decomposed and well decomposed organic material; weak very fine granular structure; very friable; many very fine roots and common fine and medium roots; extremely acid; abrupt wavy boundary.

A2—0 to 2 inches, gray (5YR 5/1) gravelly loamy coarse sand; single grain; loose; many very fine roots and common fine to coarse roots; 15 percent gravel; very strongly acid; abrupt broken boundary.

B21h—2 to 4 inches, dark reddish brown (5YR 3/2) gravelly loamy coarse sand; weak fine granular structure; very friable; common very fine to medium roots; 15 percent gravel; very strongly acid; clear wavy boundary.

B22ir—4 to 10 inches, reddish brown (5YR 4/4) gravelly loamy coarse sand; weak fine granular structure; very friable; common very fine to medium roots; 30 percent gravel; very strongly acid; clear wavy boundary.

B3—10 to 18 inches, yellowish brown (10YR 5/4) gravelly coarse sand; single grain; loose; common very fine to medium roots and many coarse roots; 40 percent gravel; very strongly acid; gradual wavy boundary.

C—18 to 60 inches, light yellowish brown (2.5Y 6/4) very gravelly coarse sand; single grain; loose; few very fine and fine roots; 65 percent gravel; yellowish red (5YR 5/8) coatings on many pebbles and cobbles; strongly acid.

The solum thickness ranges from 18 to 24 inches. Coarse fragments, mainly gravel and cobblestones, make up 10 to 50 percent of the solum and 35 to 70 percent of the C horizon. Reaction in unlimed areas is extremely acid or very strongly acid in the surface layer, very strongly acid or strongly acid in the B horizon, and strongly acid or medium acid in the C horizon.

Uncultivated areas have an A2 horizon from a trace to 2 inches thick that has hue of 5YR or 10YR, value of 5, and chroma of 1. An Ap horizon is in some pedons. It has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3. Consistence is very friable or friable. The A horizon has weak fine granular structure, or it is single grain.

The Bh horizon has hue of 5YR, value of 3, and chroma of 2 or 3. The Bir horizon has hue of 5YR through 10YR, value of 4 through 6, and chroma of 3 through 8. The Bh and Bir horizons are loamy sand or loamy coarse sand in the fine-earth fraction. The B3 horizon is loamy sand, loamy coarse sand, sand, or coarse sand in the fine-earth fraction. The Bir horizon has weak fine granular structure, or it is single grain. Consistence of the Bh horizon is very friable or friable. Consistence of the Bir horizon is very friable or loose.

The C horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 3 or 4. It is coarse sand or sand in the fine-earth fraction. The C horizon has varying degrees of stratification.

Croghan series

The Croghan series consists of deep, moderately well drained soils formed in glaciofluvial material derived principally from schistose and granitic rock. These soils are a taxadjunct in this survey area because they have slightly less extractable iron and aluminum and coarser textures than is defined for the series. Croghan soils are generally on outwash plains and deltas. Slopes range from 0 to 8 percent.

Croghan soils are commonly near Adams, Colton, and Naumburg soils. Croghan soils are wetter than Adams or Colton soils and have fewer coarse fragments than Colton soils. Croghan soils are not as wet as Naumburg soils.

Typical pedon of Croghan loamy sand, 0 to 8 percent slopes, in the town of Sanford, 100 feet west of the Stebbins Road, and 0.3 mile north of Whickers Mill Road:

O1—2 inches to 1 inch, loose litter of leaves and twigs.

O2—1 inch to 0, black (N 2/0) partially decomposed litter; moderate coarse granular structure; very friable; many very fine to medium roots; extremely acid; abrupt smooth boundary.

Ap—0 to 7 inches very dark grayish brown (10YR 3/2) loamy sand; weak fine granular structure; very friable; common very fine and fine roots and few medium roots; very strongly acid; abrupt smooth boundary.

B21ir—7 to 8 inches, strong brown (7.5YR 5/6) loamy coarse sand; weak fine granular structure; very friable; common very fine to medium roots; very strongly acid; abrupt broken boundary.

B22—8 to 17 inches, yellowish brown (10YR 5/6) loamy coarse sand; single grain; loose, few firm weakly cemented sand lenses; few very fine and fine roots; very strongly acid; clear wavy boundary.

B23—17 to 22 inches, yellowish brown (10YR 5/4) coarse sand; common fine distinct light brownish gray (2.5Y 6/2) mottles and common medium distinct brown to dark brown (7.5YR 4/4) mottles; single grain; loose, few firm weakly cemented sand lenses; few very fine and fine roots; strongly acid; clear wavy boundary.

B3—22 to 28 inches, light olive brown (2.5Y 5/4) coarse sand; common fine distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) mottles; single grain; loose; few very fine and fine roots; strongly acid; gradual wavy boundary.

C—28 to 60 inches, light yellowish brown (2.5Y 6/4) sand; common medium prominent strong brown (7.5YR 5/8) mottles and common coarse prominent yellowish red (5YR 5/8) mottles; single grain; loose; strongly acid.

The solum thickness ranges from 28 to 32 inches. The soil is typically free of coarse fragments, but some pedons have thin gravelly layers. Reaction is very strongly acid to medium acid throughout.

Undisturbed areas have a thin O layer and an A2 horizon. The A2 horizon has hue of 7.5YR or 10YR,

value of 6 or 7, and chroma of 1 or 2. The structure is weak fine granular, or the horizon is single grain. The Ap horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2.

The B2 horizon, where undisturbed, has hue of 2.5YR, value of 2 or 3, and chroma of 4 or 6; or hue of 5YR, value of 3 or 4, and chroma of 4; or hue of 7.5YR and value and chroma of 4. In cultivated areas, the B2 horizon has hue of 5YR through 10YR, value of 3 through 5, and chroma of 4 or 6. The B3 horizon has hue of 10YR through 2.5Y, value of 5 or 6, and chroma of 4 or 6. The B horizon is loamy sand, loamy coarse sand, sand, or coarse sand. The B horizon has weak, fine granular structure in the upper part and is massive or single grain in the lower part. Consistence is loose to friable. The upper part of the B horizon is free of mottles, but distinct or prominent, high- and low-chroma mottles are between depths of 12 and 20 inches.

The C horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 through 4. It is coarse sand to loamy sand.

Elmwood series

The Elmwood series consists of deep, moderately well drained soils formed in a thin mantle of outwash material and underlying marine or glaciolacustrine sediments. Elmwood soils are generally on outwash plains and deltas. Slopes range from 0 to 15 percent but are dominantly 0 to 8 percent.

Elmwood soils are commonly near Buxton, Madawaska, Scantic, and Scio soils. They are better drained than Scantic soils. The Madawaska soils formed in thick, sandy deposits. The Buxton and Scio soils have a surface layer of silt loam.

Typical pedon of Elmwood fine sandy loam, 0 to 8 percent slopes, in the town of Eliot, 1 mile north of Stacy Creek and 150 feet east of River Road, in a wooded area:

O1—2 inches to 1 inch, loose litter of leaves and twigs.

O2—1 inch to 0, dark reddish brown (5YR 2/2) decomposed organic matter; moderate very fine granular structure; very friable; many very fine to medium roots and common coarse roots; extremely acid; abrupt wavy boundary.

A1—0 to 2 inches, very dark grayish brown (10YR 3/2) fine sandy loam; moderate very fine granular structure; very friable; common very fine to coarse roots; very strongly acid; abrupt wavy boundary.

B21—2 to 11 inches, yellowish brown (10YR 5/4) fine sandy loam; weak very fine and fine granular structure; very friable; common very fine to coarse roots; very strongly acid; clear wavy boundary.

B22—11 to 14 inches, light olive brown (2.5Y 5/4) fine sandy loam; few fine faint grayish brown (2.5Y 5/2) mottles; weak very fine and fine granular structure; very friable; common very fine to coarse roots; very strongly acid; clear smooth boundary.

A'2—14 to 20 inches; light brownish gray (2.5Y 6/2) very fine sandy loam; many coarse distinct olive gray (5Y 5/2) mottles and common fine distinct reddish brown (5YR 4/4) and dark red (2.5YR 3/6) mottles; weak thick platy structure parting to moderate fine subangular blocky; friable; common very fine to medium roots; medium acid; clear wavy boundary.

IIC1—20 to 34 inches, olive gray (5Y 5/2) silty clay; common coarse distinct light gray to gray (5Y 6/1) mottles and fine dark reddish brown (5YR 3/4) mottles; moderate coarse prismatic structure parting to weak medium and coarse angular blocky; firm; few very fine roots on prism faces; common medium dark reddish brown (5YR 2/2) oxide coatings throughout; medium acid; gradual wavy boundary.

IIC2—34 to 60 inches, olive gray (5Y 4/2) silty clay; common coarse distinct light gray to gray (5Y 6/1) mottles; weak very coarse prismatic structure parting to weak fine and medium angular blocky; firm; few very thin films on vertical ped faces and in channels and pores; many fine to coarse dark reddish brown (2.5YR 2/4) oxide coatings throughout; neutral.

Depth to underlying fine textured material ranges from 18 to 40 inches. The coarse loamy material is 0 to 3 percent coarse fragments, and the clayey material has no coarse fragments. Reaction in the solum is very strongly acid to slightly acid unless limed and is medium acid to neutral in the substratum.

The Ap or A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 2 through 4. In some forested areas, these soils have a thin O2 horizon and in some pedons a thin A2 horizon.

The B horizon has hue of 7.5YR through 2.5Y, value of 3 through 5, and chroma of 4 or 6. It is sandy loam or fine sandy loam. The horizon is massive or has weak, fine granular structure.

The A'2 horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2 through 4. It is sandy loam, fine sandy loam, or very fine sandy loam.

The IIC horizon has hue of 5Y, value of 4 through 6, and chroma of 2 or 3. It is silty clay or silty clay loam. It has weak or moderate, coarse or very coarse, prismatic structure that parts to weak angular blocky structure.

Hermon series

The Hermon series consists of deep, well drained to somewhat excessively drained soils formed in friable glacial till derived principally from granite and gneiss. The Hermon soils in this survey area are a taxadjunct because they have slightly more sand and slightly less extractable iron and aluminum than is defined for the series. Hermon soils are on till plains, hills, ridges, and moraines. Slopes range from 0 to 60 percent.

Hermon soils are near Becket, Brayton, Colton, Lyman, and Skerry soils. Hermon soils are coarser textured than Becket or Skerry soils and do not have the

compact substratum of those soils. Hermon soils are not as droughty as Colton soils, are not as shallow to bedrock as Lyman soils, and are not as wet as Brayton soils.

Typical pedon of Hermon fine sandy loam, in an area of Hermon extremely stony fine sandy loam, 3 to 15 percent slopes, in the town of Sanford, 0.9 mile north of Beaver Hill Road and 300 feet west of Gebung Road:

O1—2 inches to 1 inch, loose litter of leaves and twigs.
O2—1 inch to 0, black (10YR 2/1) partly decomposed forest litter; many very fine to medium roots and few coarse roots; extremely acid; abrupt smooth boundary.
A2—0 to 4 inches, reddish gray (5YR 5/2) fine sandy loam; weak very fine and fine granular structure; very friable; many very fine to medium roots and few coarse roots; 10 percent coarse fragments; extremely acid; abrupt wavy boundary.
B21h—4 to 6 inches, brown to dark brown (7.5YR 4/4) fine sandy loam; weak very fine and fine granular structure; very friable; many very fine to medium roots and few coarse roots; 10 percent coarse fragments; very strongly acid; abrupt wavy boundary.
B22ir—6 to 10 inches, strong brown (7.5YR 5/6) gravelly fine sandy loam; weak fine granular structure; very friable; common very fine to medium roots and few coarse roots; 20 percent coarse fragments; very strongly acid; clear wavy boundary.
B23—10 to 19 inches, yellowish brown (10YR 5/4) gravelly sandy loam; weak fine granular structure; very friable; common fine to coarse roots; 35 percent coarse fragments; strongly acid; clear wavy boundary.
B3—19 to 27 inches, light olive brown (2.5Y 5/4) gravelly loamy coarse sand; weak fine granular structure; very friable; few fine to coarse roots; 40 percent coarse fragments; strongly acid; gradual wavy boundary.
C1—27 to 41 inches, pale olive (5Y 6/3) gravelly loamy coarse sand; massive; friable; few fine and medium roots; 45 percent coarse fragments; strongly acid; diffuse wavy boundary.
C2—41 to 60 inches, pale olive (5Y 6/3) gravelly loamy coarse sand; massive; friable; few coarse distinct light yellowish brown (2.5Y 6/4) stains; 45 percent coarse fragments; strongly acid.

The thickness of the solum ranges from 16 to 33 inches. Coarse fragments make up 15 to 60 percent of the parts of the B horizon below a depth of 10 inches and 35 to 65 percent of the C horizon. The coarse-fragment content of the upper 10 inches of the soil ranges from 5 to 50 percent. Reaction ranges from extremely acid to strongly acid in the upper part of the solum and is strongly acid or medium acid in the lower part of the solum and in the substratum.

The A2 horizon has hue of 5YR or 10YR, value of 5, and chroma of 1 or 2. The Ap horizon, where present, has hue of 10YR, value of 3, and chroma of 2 or 3.

The Bh horizon has hue of 5YR or 7.5YR, value of 3 or 4, and chroma of 2 through 6. The Bir horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 through 8. The texture of the fine-earth fraction is fine sandy loam or sandy loam. The Bh and Bir horizons have weak, very fine or fine granular structure.

The lower part of the B2 horizon and the entire B3 horizon have hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 or 6. The lower part of the B2 horizon is fine sandy loam or sandy loam in the fine-earth fraction. The B3 horizon is sandy loam, coarse sandy loam, or loamy coarse sand in the fine-earth fraction. The lower part of the B2 horizon has weak, fine granular structure and is very friable. The B3 horizon has weak, fine granular structure or is single grain, and it is very friable or loose.

The C horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2 through 4. It is loamy sand or loamy coarse sand in the fine-earth fraction. The C horizon is massive or single grain. The consistence ranges from loose to firm.

Lyman series

The Lyman series consists of shallow, somewhat excessively drained soils that formed in a thin mantle of glacial till derived from gneiss, schist, phyllite, and granite. Lyman soils are on bedrock-controlled landforms that have been modified by glacial action. Slopes range from 3 to 80 percent but are dominantly 8 to 15 percent.

Lyman soils commonly are near Becket, Brayton, Hermon, Naumburg, Scantic, and Skerry soils. Lyman soils are shallower and more droughty than any of these soils. All of these soils except Naumburg and Scantic soils formed in glacial till; the Naumburg soils formed in glacial outwash, and the Scantic soils formed in lacustrine or marine sediments.

Typical pedon of Lyman fine sandy loam, in an area of Lyman-Rock outcrop complex, 8 to 15 percent slopes, in the town of Cornish, west of Maine Route 5 and 180 feet west of the communications tower on Day Hill:

O1—2 inches to 1 inch, leaves, pine needles and twigs.
O2—1 inch to 0, partially decomposed litter.
A1—0 to 1 inch, very dark brown (10YR 2/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; 5 percent coarse fragments; very strongly acid; abrupt wavy boundary.
A2—1 to 2 inches, dark gray (5YR 4/1) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; 5 percent coarse fragments; strongly acid; abrupt broken boundary.
B21h—2 to 4 inches, dark reddish brown (5YR 3/4) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; 5 percent coarse fragments; strongly acid; abrupt broken boundary.

B22ir—4 to 10 inches, reddish brown (5YR 4/4) fine sandy loam; weak fine granular structure; friable; common fine and medium roots; 10 percent coarse fragments; strongly acid; clear wavy boundary.
B23—10 to 18 inches, brown to dark brown (7.5YR 4/4) gravelly fine sandy loam; weak fine granular structure; friable; common fine and medium roots; 15 percent coarse fragments; strongly acid; abrupt smooth boundary.
R—18 inches, gneissic bedrock.

The solum thickness and depth to bedrock range from 10 to 20 inches. Coarse fragments make up 5 to 35 percent of the solum. Reaction is very strongly acid to medium acid throughout, except where the soil has been limed.

The A1 horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2. A discontinuous A2 horizon is in forested areas. It has hue of 5YR through 10YR, value of 4 through 6, and chroma of 1. Cultivated areas have an Ap horizon with hue of 10YR, value of 3 or 4, and chroma of 2 or 3. The A horizon has weak, very fine or fine granular structure.

The Bh horizon has hue of 2.5YR or 5YR, value of 3 or 4, and chroma of 2 through 4. The Bir horizon has hue of 5YR or 7.5YR, value of 3 or 4, and chroma of 4 or 6. The lower part of the B2 horizon has hue of 7.5YR through 2.5Y, value of 4 or 5, and chroma of 3 or 4. The B2 horizon is dominantly fine sandy loam, but the range includes loam, very fine sandy loam, and sandy loam in the fine-earth fraction. It has weak, fine or medium granular structure, and in some pedons it has weak, medium or coarse subangular blocky structure that parts to fine and medium granular. The B horizon is very friable or friable.

The underlying bedrock is generally gneiss or schist, but in places it is granite or phyllite.

Madawaska series

The Madawaska series consists of deep, moderately well drained soils that formed in glaciofluvial deposits. Madawaska soils are on outwash plains and kame terraces. Slopes range from 0 to 8 percent.

Madawaska soils are near Adams, Allagash, Croghan, and Naumburg soils. Madawaska soils are wetter than Adams or Allagash soils, have a finer textured solum than Croghan soils, and are not as wet as Naumburg soils.

Typical pedon of Madawaska fine sandy loam, 0 to 8 percent slopes, in the town of Parsonsfield, 0.5 mile east of the New Hampshire State line, 0.9 mile northeast of Province Lake, and 200 feet south of the road in a hayfield:

Ap—0 to 9 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak very fine granular structure; friable; common very fine to medium roots; less than 5 percent gravel; medium acid; abrupt smooth boundary.
A2—9 to 10 inches, pinkish gray (7.5YR 6/2) fine sandy loam; weak fine granular structure; very friable; common very fine roots and few fine roots; less than 5 percent gravel; strongly acid; abrupt broken boundary.
B21h—10 to 12 inches, dark reddish brown (5YR 3/4) fine sandy loam; weak fine granular structure; friable; common very fine roots and few fine and medium roots; less than 5 percent gravel; strongly acid; abrupt irregular boundary.
B22ir—12 to 17 inches, yellowish red (5YR 4/6) fine sandy loam; weak very fine granular structure; very friable; common very fine roots; less than 5 percent gravel; medium acid; clear wavy boundary.
B23—17 to 19 inches, strong brown (7.5YR 5/6) fine sandy loam; weak very fine granular structure; very friable; common very fine roots; less than 5 percent gravel; medium acid; clear wavy boundary.
B24—19 to 23 inches, yellowish brown (10YR 5/6) fine sandy loam; common medium distinct light brownish gray (2.5Y 6/2) mottles and common coarse distinct yellowish red (5YR 5/6) mottles; single grain; very friable; few fine and medium reddish brown (5YR 4/4) weakly cemented pieces; common very fine roots; less than 5 percent gravel; medium acid; clear wavy boundary.
IIC1—23 to 48 inches, pale olive (5Y 6/3) fine sand; 1- to 3-inch lenses of sand and coarse sand; common coarse distinct strong brown (7.5YR 5/6) and brown to dark brown (7.5YR 4/4) mottles; single grain; loose; few coarse reddish brown (5YR 4/4) weakly cemented pieces; 5 percent gravel; medium acid; gradual smooth boundary.
IIC2—48 to 60 inches, light brownish gray (2.5Y 6/2) fine sand; 1- to 3-inch lenses of sand and coarse sand; many coarse distinct yellowish red (5YR 4/6) mottles and many medium prominent strong brown (7.5YR 5/8) mottles; single grain; loose; 10 percent gravel; medium acid.

The thickness of the solum ranges from 18 to 32 inches. The gravel content ranges from 0 to 10 percent throughout the soil. Reaction ranges from very strongly acid to medium acid throughout the profile.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. The structure of the Ap horizon is weak or moderate, very fine to medium granular. The A2 horizon has hue of 7.5YR through 2.5Y, value of 5 through 7, and chroma of O through 2. The A2 horizon is very fine sandy loam or fine sandy loam. The structure of the A horizon is weak, very fine or fine granular.

The Bh horizon has hue of 2.5YR through 7.5YR and value and chroma of 2 through 4. The Bir horizon has hue of 5YR through 10YR, value of 3 through 5, and chroma of 4 or 6. The Bh and Bir horizons have weak, very fine to medium granular structure. The lower part of

the B horizon has hue of 7.5YR through 2.5Y, value of 5 or 6, and chroma of 4 through 8. The B horizon is fine sandy loam, but the range includes very fine sandy loam in the upper part. The lower part of the B horizon has weak, granular structure, or it is single grain.

The C horizon has hue of 2.5Y or 5Y, value of 4 through 6, and chroma of 1 through 3. It is dominantly fine sand or sand.

Marlow series

The Marlow series consists of deep, well drained soils that formed in compact glacial till derived mainly from mica schist and granite. The Marlow soils in this survey area are a taxadjunct because they have slightly less extractable iron and aluminum than is defined for the series. Marlow soils are on the tops and sides of drumloidal ridges. Slopes range from 3 to 25 percent but are dominantly 3 to 8 percent.

Marlow soils commonly are near somewhat poorly drained and poorly drained Brayton soils and moderately well drained Peru soils. Marlow soils are better drained than these soils.

Typical pedon of Marlow fine sandy loam, 3 to 8 percent slopes, in the town of Shapleigh, 200 feet northwest of the Sanford-Shapleigh town line, and 75 feet southwest of the Deering Ridge Road, in a cornfield:

Ap—0 to 9 inches, dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; friable; many very fine roots and few fine and medium roots; 10 percent coarse fragments; medium acid; abrupt smooth boundary.

B21ir—9 to 12 inches, strong brown (7.5YR 5/6) fine sandy loam; weak fine granular structure; friable; common very fine roots; 10 percent coarse fragments; medium acid; clear wavy boundary.

B22—12 to 18 inches, yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; common very fine roots; 10 percent coarse fragments; medium acid; clear wavy boundary.

B23—18 to 29 inches, light olive brown (2.5Y 5/4) gravelly sandy loam; weak fine granular structure; friable; few very fine roots; 15 percent coarse fragments; medium acid; abrupt wavy boundary.

C1x—29 to 44 inches, olive (5Y 4/3) gravelly sandy loam; moderate medium platy structure; very firm, brittle; few thin light yellowish brown (2.5Y 6/4) fine sand lenses between plates; few brown to dark brown (7.5YR 4/4) coatings between plates; 15 percent coarse fragments; medium acid; gradual smooth boundary.

C2x—44 to 60 inches, olive (5Y 4/3) gravelly sandy loam; weak medium platy structure; very firm, brittle; few dark reddish brown (5YR 3/2) coatings between plates; 15 percent coarse fragments; medium acid.

The depth to the substratum ranges from 16 to 36 inches. The coarse-fragment content in the solum and substratum ranges from 5 to 20 percent. Reaction is very strongly acid to medium acid throughout the profile. The depth to bedrock is generally more than 5 feet.

The Ap horizon has hue of 10YR, value of 3, and chroma of 2 or 3. The structure is weak, fine or medium granular.

The Bir horizon has hue of 7.5YR, value of 5, and chroma of 4 or 6. The lower part of the B horizon has hue of 10YR, value of 5, and chroma of 4 or 6; or hue of 2.5Y, value of 5, and chroma of 4. The B horizon is fine sandy loam, sandy loam, or loam in the fine-earth fraction. The structure of the B horizon is weak, fine or medium granular.

The Cx horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 3. It is fine sandy loam, loam, or sandy loam in the fine-earth fraction. The Cx horizon has weak or moderate, medium platy structure, or the horizon is massive. Consistence of the Cx horizon is firm or very firm and brittle.

Naumburg series

The Naumburg series consists of deep, poorly drained and somewhat poorly drained soils that formed in glaciofluvial deposits derived principally from granitic rock. Naumburg soils are generally in low-lying areas of outwash plains and deltas. Slopes range from 0 to 3 percent.

Naumburg soils are associated with Adams, Chocorua, Colton, and Croghan soils. Naumburg soils are wetter than the Adams, Colton, or Croghan soils; they are better drained and do not have the thick organic layers which are in Chocorua soils.

Typical pedon of Naumburg sand, in the town of Lyman, 0.25 mile west of Maine Route 35, on the southern side of Maine Route 111, and 150 feet southwest of farm buildings in a wooded area:

O1—5 to 4 inches, loose litter of twigs and leaves.

O2—4 to 2 inches, dark reddish brown (2.5YR 2/4) organic material; weak very fine and fine granular structure; very friable; many very fine to medium roots and common coarse roots; extremely acid; clear smooth boundary.

O22—2 inches to 0, black (10YR 2/1) organic material; weak very fine granular structure; very friable; common very fine and fine roots and many medium and coarse roots; extremely acid; abrupt smooth boundary.

A2—0 to 5 inches, light brownish gray (10YR 6/2) sand; few coarse distinct brown to dark brown (7.5YR 4/4 and 7.5YR 4/2) and light gray to gray (5YR 6/1) mottles; massive; very friable; common very fine to coarse roots; very strongly acid; abrupt wavy boundary.

B21h—5 to 10 inches, dark reddish brown (5YR 2/2) sand; common medium faint black (5YR 2/1) and dusky red (2.5YR 3/2) mottles; massive; friable; 10

percent firm parts 1/2 inch to 2 inches across; few very fine to medium roots; 5 percent gravel; very strongly acid; abrupt wavy boundary.

B22ir—10 to 19 inches, dark reddish gray (5YR 4/2) sand; common medium faint dark reddish brown (5YR 3/4) and brown (7.5YR 5/2) mottles; massive; friable; 15 percent firm parts 1/2 inch to 4 inches across; few very fine roots; 5 percent gravel; very strongly acid; gradual wavy boundary.

B3—19 to 28 inches, yellowish brown (10YR 5/4) sand; common medium distinct light brownish gray (2.5Y 6/2) and prominent reddish brown (5YR 4/4) mottles; single grain; loose; very strongly acid; diffuse smooth boundary.

C1—28 to 43 inches, grayish brown (10YR 5/2) sand; few medium distinct dark yellowish brown (10YR 4/6) mottles and common coarse distinct light brownish gray (2.5Y 6/2) and prominent dark reddish brown (5YR 3/4) mottles; single grain; loose; very strongly acid; gradual smooth boundary.

C2—43 to 53 inches, brown (10YR 5/3) sand; many coarse prominent yellowish red (5YR 4/6) mottles; single grain; loose; very strongly acid; gradual smooth boundary.

C3—53 to 60 inches, grayish brown (10YR 5/2) sand; few coarse prominent yellowish red (5YR 4/6) mottles; single grain; nonsticky, nonplastic; strongly acid.

The solum thickness ranges from 18 to 40 inches. The depth to bedrock is more than 5 feet. The gravel content of the profile ranges from 0 to 5 percent. Unless limed, the profile is extremely acid or very strongly acid in the upper part and very strongly acid or strongly acid in the C horizon.

The Ap horizon, where present, has hue of 5YR through 10YR, value of 4, and chroma of 1 or 2. The A2 horizon has hue of 5YR through 10YR, value of 5 or 6, and chroma of 2. It is single grain and loose or massive and very friable.

The Bh horizon has hue of 5YR or 7.5YR, value of 2 or 3, and chroma of 2. The Bir horizon has hue of 5YR through 10YR, value of 4, and chroma of 2 through 4. The B horizon is loamy fine sand, loamy sand, or sand. Structure of the B horizon is weak, fine granular, or the horizon is massive or single grain. Consistency of the B horizon ranges from friable to loose.

The C horizon has hue of 10YR, value of 5, chroma of 2 or 3. It is loamy sand or sand.

Ondawa series

The Ondawa series consists of deep, well drained soils that formed in recent alluvium derived principally from gneiss, schist, and granite. The Ondawa soils in this survey area are a taxadjunct because they have a particle-size control section that is coarse-loamy over sandy or sandy-skeletal. Ondawa soils are on flood plains of major rivers and streams. Slopes range from 0 to 3 percent.

Ondawa soils are near Podunk, Rumney, and Winooski soils. Ondawa soils are better drained than Podunk, Rumney, or Winooski soils and have a coarser textured substratum than Winooski soils.

Typical pedon of Ondawa fine sandy loam, in the town of Hollis, about 1 mile southeast of the Hollis High School, 400 feet northeast of Maine Route 35, and 20 feet from a field border in a cornfield:

Ap—0 to 9 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; friable; common very fine and fine roots; medium acid; abrupt smooth boundary.

B21—9 to 11 inches, yellowish brown (10YR 5/6) very fine sandy loam; weak fine granular structure; very friable; few very fine and fine roots; slightly acid; clear wavy boundary.

B22—11 to 19 inches, yellowish brown (10YR 5/4) very fine sandy loam; weak fine granular structure; very friable; few very fine and fine roots; medium acid; gradual wavy boundary.

B23—19 to 30 inches, light olive brown (2.5Y 5/4) very fine sandy loam; weak fine granular structure; very friable; few very fine and fine roots; medium acid; abrupt smooth boundary.

IIC1—30 to 42 inches, very pale brown (10YR 7/4) sand; single grain; loose; medium acid; abrupt smooth boundary.

IIIC2—42 to 54 inches, light yellowish brown (10YR 6/4) and very pale brown (10YR 7/4) fine sand; single grain; loose; medium acid; abrupt smooth boundary.

IVC3—54 to 60 inches, very pale brown (10YR 7/4) sand; single grain; loose; medium acid.

The solum thickness ranges from 20 to 35 inches. Reaction is medium acid or slightly acid throughout the profile.

The Ap horizon has hue of 10YR, value of 3, and chroma of 2 or 3. Structure is weak or moderate, very fine or fine granular. Consistence is very friable or friable.

The B horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 or 6. It is very fine sandy loam or fine sandy loam.

The C horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 3 or 4. It is fine sand, sand, or loamy fine sand.

Peru series

The Peru series consists of deep, moderately well drained soils that formed in compact glacial till derived mainly from mica schist and granite. The Peru soils in the survey area are a taxadjunct because they have slightly less extractable iron and aluminum than is defined for the series. Peru soils are near the top and on the sides of drumloidal ridges. Slopes range from 0 to 8 percent.

Peru soils are on the same landscape with Brayton, Lyman, and Marlow soils. Peru soils are deeper than Lyman soils, are not so wet as Brayton soils, and are not so well drained as Marlow soils.

Typical pedon of Peru fine sandy loam, 0 to 8 percent slopes, in the town of Sanford, 600 feet southwest of the junction of Maine Route 11A and Hanson Ridge Road, in a cornfield 50 feet southeast of Maine Route 11A:

Ap—0 to 9 inches, dark grayish brown (10YR 4/2) fine sandy loam; moderate fine and medium granular structure; very friable; many roots; 5 percent coarse fragments; neutral; abrupt smooth boundary.

B21—9 to 15 inches, yellowish brown (10YR 5/4) fine sandy loam; weak fine and medium granular structure; friable; common fine roots; 10 percent coarse fragments; medium acid; clear wavy boundary.

B22—15 to 20 inches, light olive brown (2.5Y 5/4) fine sandy loam; common medium distinct brown (7.5YR 5/4) and strong brown (7.5YR 5/6) mottles and few medium distinct olive gray (5Y 6/2) mottles; weak thin platy structure; friable; few fine roots; 10 percent coarse fragments; medium acid; clear wavy boundary.

C1x—20 to 34 inches, olive (5Y 5/3) gravelly sandy loam; thin pockets of fine sand; common medium and coarse faint light olive gray (5Y 6/2) mottles and common medium and coarse distinct light olive brown (2.5Y 5/4) and olive brown (2.5Y 4/4) mottles; few fine dark reddish brown (2.5YR 2/4) stains under pebbles; moderate medium and thick platy structure; firm, brittle; 15 percent coarse fragments; medium acid; clear wavy boundary.

C2x—34 to 60 inches olive gray (5Y 4/2) gravelly sandy loam; many coarse prominent dark reddish brown (2.5YR 3/4) and reddish brown (5YR 4/4) mottles and common medium faint light gray to gray (5Y 6/1) mottles; massive; firm, brittle; 15 percent coarse fragments; medium acid.

The solum thickness and depth to the fragipan range from 15 to 25 inches. Coarse fragments make up 5 to 20 percent of the profile. In unlimed areas reaction is strongly acid or medium acid in the solum and underlying material.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3.

The upper part of the B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. The lower part of the B horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4 or 6. The B horizon is fine sandy loam or sandy loam in the fine-earth fraction. Distinct or prominent mottling is in the lower part of the B horizon.

The Cx horizon has a hue of 5Y, value of 4 or 5, and chroma of 2 or 3. It is fine sandy loam or sandy loam in the fine-earth fraction. It has weak or moderate, thin to thick platy structure, or the horizon is massive. It is firm or very firm and is brittle.

Podunk series

The Podunk series consists of deep, moderately well drained soils that formed in recent alluvium derived principally from gneiss, schist, and granite. The Podunk soils in this survey area are a taxadjunct because they have a particle-size control section that is coarse-loamy over sandy or sandy-skeletal. The soils are on flood plains along rivers and streams. Slopes range from 0 to 3 percent.

Podunk soils are near Ondawa, Rumney, Saco, and Winooski soils. Podunk soils are better drained than Rumney or Saco soils and are wetter than Ondawa soils. They are similar in drainage to Winooski soils but have a coarser textured C horizon.

Typical pedon of Podunk silt loam, in an area of Podunk and Winooski soils, in the town of Saco, about 0.5 mile northwest of the Maine Turnpike, and 200 feet southwest of Boom Road, in a cultivated field:

Ap—0 to 8 inches, dark brown (10YR 3/3) silt loam; weak very fine and fine granular structure; friable; many very fine and fine roots; medium acid; abrupt wavy boundary.

B21—8 to 12 inches, light olive brown (2.5Y 5/4) loam; weak very fine granular structure; very friable; common very fine and fine roots; few medium earthworm channels filled with dark brown (10YR 3/3) material; medium acid; clear smooth boundary.

B22—12 to 18 inches, light olive brown (2.5Y 5/4) loam; common medium faint light brownish gray (2.5Y 6/2) mottles; weak very fine granular structure; very friable; common very fine roots; medium acid; abrupt wavy boundary.

C1—18 to 22 inches, light olive brown (2.5Y 5/4) fine sandy loam; common coarse distinct light olive gray (5Y 6/2) mottles and few medium faint light olive brown (2.5Y 5/6) mottles; massive; very friable; common very fine roots; medium acid; clear smooth boundary.

C2—22 to 25 inches, light olive brown (2.5Y 5/4) very fine sandy loam; few fine distinct pale olive (5Y 6/3) mottles; massive; very friable; few very fine roots; medium acid; clear wavy boundary.

IIC3—25 to 35 inches, light olive brown (2.5Y 5/4) loamy fine sand; common coarse distinct light olive gray (5Y 6/2) mottles, common medium distinct brown to dark brown (7.5YR 4/4) and strong brown (7.5YR 5/6) mottles, and common medium prominent dark reddish brown (5YR 3/4) mottles; massive; very friable; few very fine roots; medium acid; clear smooth boundary.

IIC4—35 to 47 inches, olive (5Y 5/3) loamy fine sand; many coarse faint light olive gray (5Y 6/2) mottles, common medium prominent reddish brown (5YR 4/4) mottles, and common coarse distinct strong brown (7.5YR 5/6) mottles; massive; very friable; slightly acid; clear smooth boundary.

IIC5—47 to 60 inches, olive (5Y 5/3) fine sand; many coarse faint light olive gray (5Y 6/2) mottles, common medium prominent reddish brown (5YR 4/4) mottles, and common coarse distinct strong brown (7.5YR 5/6) mottles; single grain; nonsticky, nonplastic; medium acid.

The solum thickness ranges from 18 to 27 inches. The reaction is very strongly acid to slightly acid throughout the soil.

The Ap horizon has hue of 10YR, value of 3, and chroma of 2 or 3.

The B horizon has hue of 10YR through 5Y, value of 5 or 6, and chroma of 3 through 6. Few or common, faint or distinct mottles with chroma of 2 or less are between depths of 12 and 24 inches. The B horizon is very fine sandy loam, fine sandy loam, or loam. Structure is weak, very fine or fine granular.

The C horizon has hue of 10YR through 5Y, value of 4 through 6, and chroma of 3 through 6. It ranges from very fine sandy loam to loamy very fine sand. The IIC horizon ranges from loamy fine sand to coarse sand.

Raynham series

The Raynham series consists of deep, poorly drained soils that formed in lacustrine and marine sediments. The Raynham soils in this survey area are a taxadjunct because the mean annual soil temperature is slightly lower than is defined for the series. The soils are on lake plains or marine plains. Slopes range from 0 to 3 percent.

Raynham soils commonly are near Buxton, Scantic, and Scio soils. Buxton and Scantic soils formed in more clayey deposits than Raynham soils. Scio soils are better drained than Raynham soils.

Typical pedon of Raynham silt loam, in the town of Lyman, 50 feet north of the township line between Lyman and Kennebunk, and 50 feet west of a dairy farm field road:

A1—0 to 3 inches, very dark gray (10YR 3/1) silt loam, light gray to gray (10YR 6/1) dry; moderate fine and medium granular structure; friable; common very fine, few fine, and common medium roots; medium acid; abrupt wavy boundary.

A2g—3 to 6 inches, light olive gray (5Y 6/2) silt loam; few coarse distinct yellowish brown (10YR 5/4) mottles; weak thin and medium platy structure; friable; common very fine, few fine, and common medium roots; medium acid; clear wavy boundary.

B21g—6 to 13 inches, light brownish gray (2.5Y 6/2) silt loam; common medium distinct light gray to gray (5Y 6/1) mottles and many medium prominent strong brown (7.5YR 5/8) mottles; weak thin platy structure; friable; few very fine roots; few lenses of very fine sand 1 to 2 inches thick; medium acid; clear wavy boundary.

B22—13 to 22 inches; olive (5Y 5/3) silt loam; many coarse prominent strong brown (7.5YR 5/8) and light gray to gray (N 6/0) mottles; weak medium subangular blocky structure; firm; few very fine roots; medium acid; clear wavy boundary.

C1—22 to 36 inches, olive (5Y 5/3) silt loam; common coarse distinct gray (5Y 5/1) mottles and common coarse prominent yellowish brown (10YR 5/8) mottles; strong very coarse prismatic structure; firm; few very fine roots between prisms; weak thick and very thick platy lenses; medium acid; clear wavy boundary.

C2—36 to 60 inches, olive (5Y 5/3) silt loam; many coarse prominent yellowish red (5YR 4/6) and dark yellowish brown (10YR 4/4) mottles; strong very coarse prismatic structure; firm; few very fine roots between prisms; weak thick and very thick platy lenses; neutral.

The thickness of the solum ranges from 16 to 24 inches. Coarse fragments make up 0 to 2 percent, by volume, of the soil. Reaction is strongly acid to slightly acid in the solum and medium acid to neutral in the substratum.

The A1 or Ap horizon has hue of 10YR or 2.5Y, value of 2 through 4, and chroma of 1 through 3. The A2g horizon has hue of 10YR through 5Y, value of 5 or 6, and chroma of 1 or 2.

The B horizon has hue of 10YR through 5Y, value of 4 through 6, and chroma of 2 through 4, but one or more subhorizons in each pedon have a chroma of 2. The B horizon is silt loam or very fine sandy loam. Structure is weak, thin or medium platy or weak, medium, subangular blocky.

The C horizon has hue of 2.5Y or 5Y, value of 4 through 6, and chroma of 1 through 3. It is silt loam or very fine sandy loam but is silty clay loam below a depth of 40 inches in some pedons. The C horizon has prismatic structure with weak thin to very thick, platy lenses, or the horizon is massive. It is friable or firm.

Rumney series

The Rumney series consists of deep, poorly drained soils that formed in recent alluvium derived principally from gneiss, schist, and granite. The Rumney soils in this survey area are a taxadjunct because the particle-size control section is coarse-loamy over sandy or sandy-skeletal. Rumney soils are on flood plains of streams and rivers. The slopes range from 0 to 3 percent but are dominantly 0 to 2 percent.

Rumney soils are near Ondawa, Podunk, Saco, and Winooski soils. They are wetter than Ondawa, Podunk, or Winooski soils and are better drained than Saco soils.

Typical pedon of Rumney loam, in the town of Saco, on Boom Road, 0.25 mile northwest of the Maine Turnpike, and 150 feet southwest of the road in a cultivated field:

Ap—0 to 9 inches, very dark grayish brown (10YR 3/2) loam; weak medium granular structure; friable; common very fine roots and few fine roots; few medium earthworm channels; slightly acid; abrupt smooth boundary.

B21g—9 to 16 inches, grayish brown (2.5Y 5/2) very fine sandy loam; many medium prominent strong brown (7.5YR 5/6) mottles and common medium faint light yellowish brown (2.5Y 6/4) mottles; weak fine granular structure; very friable; few very fine roots; common medium earthworm channels filled with dark grayish brown (10YR 4/2) material; medium acid; clear smooth boundary.

B22g—16 to 25 inches, light olive gray (5Y 6/2) very fine sandy loam; many medium prominent strong brown (7.5YR 5/6) and reddish brown (5YR 5/4) mottles; weak very fine and fine subangular blocky structure; friable; medium acid; clear smooth boundary.

IIC1g—25 to 5l inches, light gray to gray (5Y 6/1) loamy fine sand; common coarse distinct dark red (2.5YR 3/6) mottles; single grain; loose, nonplastic, nonsticky; medium acid; abrupt smooth boundary.

IIC2g—51 to 60 inches, light gray to gray (5Y 6/1) sand; common coarse prominent pale brown (10YR 6/3) mottles; single grain; loose, nonplastic, nonsticky; medium acid.

The thickness of the solum ranges from 20 to 30 inches. The gravel content ranges from 0 to 10 percent throughout the profile, and reaction ranges from very strongly acid to slightly acid.

The Ap or A1 horizon has hue of 10YR or 2.5Y, value of 2 through 4, and chroma of 1 or 2. Structure is weak or moderate, fine or medium granular. Consistence is very friable or friable.

The B horizon has hue of 10YR through 5Y, value of 3 through 6, and chroma of 1 or 2. Mottles range from common to many, fine to coarse, and faint to prominent. The horizon is fine sandy loam, very fine sandy loam, or loam. Structure is weak or moderate, very fine or fine subangular blocky or granular. Consistence is very friable or friable.

The IIC horizon has hue of 10YR through 5Y, value of 3 through 6, and chroma of 1 or 2. It is sand, loamy fine sand, or loamy sand.

Saco series

The Saco series consists of deep, very poorly drained soils that formed in recent alluvium on flood plains of rivers and streams. The Saco soils in this survey area are a taxadjunct because the mean annual soil temperature is slightly lower than is defined for the series. Slopes range from 0 to 2 percent.

Saco soils are near Podunk, Rumney, and Winooski soils. Saco soils are wetter than these soils.

Typical pedon of Saco mucky silt loam, in the town of Berwick, about 1 mile northwest of the village rotary, and 1,000 feet southwest of Rochester Street.

A1—0 to 13 inches, very dark gray (10YR 3/1) mucky silt loam, gray (10YR 5/1) dry; weak fine and medium granular structure; very friable; many very fine to medium roots; strongly acid; abrupt smooth boundary.

C1g—13 to 24 inches, gray (10YR 5/1) silt loam; common fine distinct strong brown (7.5YR 5/6) and dark yellowish brown (10YR 4/4) mottles and few medium distinct reddish brown (5YR 4/4) and light gray to gray (5Y 6/1) mottles; massive; friable; few very fine roots; medium acid; clear smooth boundary.

C2g—24 to 44 inches, gray (5Y 5/1) very fine sandy loam; massive; friable, nonplastic, slightly sticky; medium acid ranging to slightly acid below a depth of 30 inches; abrupt smooth boundary.

IIC3g—44 to 60 inches, dark gray (10YR 4/1) coarse sand; single grain; loose, nonplastic, nonsticky; 10 percent gravel; slightly acid.

The depth to sand or sand and gravel ranges from 40 to 60 inches. The coarse-fragment content above a depth of 40 inches ranges from 0 to 5 percent and below 40 inches from 0 to 50 percent. Unless limed, the soil is strongly acid or medium acid to a depth of about 30 inches and medium acid to neutral below a depth of 30 inches.

The A1 horizon has hue of 7.5YR through 2.5Y, value of 2 or 3, and chroma of 1 or 2. Structure is weak granular, or the horizon is massive. Consistence is very friable or friable.

The C horizon has hue of 10YR through 5Y, value of 3 through 6, and chroma of 0 or 1. It is silt loam or very fine sandy loam above the lithologic discontinuity and is sand, coarse sand, or sand in the fine-earth fraction. The C horizon is mostly massive except for the IIC horizon, which is single grain. Consistence is friable, very friable, or loose when moist and nonplastic, nonsticky, or slightly sticky when wet. In some pedons the C1 horizon is replaced by a B2 horizon with weak structure.

Scantic series

The Scantic series consists of deep, poorly drained soils that formed in marine or lacustrine sediments. Scantic soils are on lake plains or marine plains. Slopes range from 0 to 3 percent.

Scantic soils are near Biddeford, Brayton, Raynham, and Scio soils. Scantic soils are not as wet as Biddeford soils and do not have the organic surface layer. Scantic soils are wetter than Buxton and Scio soils and formed in more clayey deposits than Raynham soils.

Typical pedon of Scantic silt loam, in the town of Dayton, about 1,500 feet north of intersection of Gordon Road and Murch Road and on the western edge of the Meadow Field, 300 feet north of the farm road:

Ap—0 to 9 inches, dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable;

many very fine and fine roots; neutral; abrupt smooth boundary.

A2g—9 to 14 inches, olive gray (5Y 5/2) silty clay loam; common fine faint light gray to gray (5Y 6/1) mottles, distinct light olive brown (2.5Y 5/6) mottles, and prominent strong brown (7.5YR 5/6) mottles; weak thick platy structure parting to moderate very fine and fine subangular blocky; friable; common very fine and fine roots; strongly acid; abrupt wavy boundary.

B21g—14 to 20 inches, dark grayish brown (2.5Y 4/2) silty clay; common fine distinct yellowish brown (10YR 5/6) mottles; weak very thick platy structure parting to moderate medium subangular blocky; firm; few very fine roots; gray (5Y 5/1) silt coatings on ped faces; few fine dark reddish brown (5YR 2/2) oxide coatings on ped exteriors; medium acid; clear wavy boundary.

B22g—20 to 31 inches, olive gray (5Y 5/2) silty clay; many coarse distinct light olive brown (2.5Y 5/4) mottles; weak very coarse prismatic structure and weak very thick platy structure parting to moderate coarse subangular blocky; firm; few very fine roots on prism faces; gray (5Y 5/1) prism faces 3/8 inch wide, light olive brown (2.5Y 5/6) prism edges; few fine dark reddish brown (5YR 3/2) oxide coatings on ped exteriors; slightly acid; clear wavy boundary.

B23g—31 to 36 inches, olive gray (5Y 5/2) silty clay; many coarse faint olive (5Y 5/3) mottles; moderate very coarse prismatic structure and weak very thick platy structure parting to moderate coarse subangular blocky; firm; few very fine roots on prism faces; gray (5Y 5/1) prism faces; dark reddish brown (5YR 3/2) oxide coatings on ped exteriors; slightly acid; gradual wavy boundary.

C1—36 to 46 inches, olive gray (5Y 5/2) silty clay; many coarse faint olive (5Y 5/3) mottles; strong very coarse prismatic structure; firm; few very fine roots on prism faces; gray (5Y 5/1) prism faces; common fine dark reddish brown (5YR 3/2) oxide coatings on ped exteriors; slightly acid; gradual smooth boundary.

C2—46 to 60 inches, olive gray (5Y 5/2) silty clay; many coarse faint olive (5Y 5/3) mottles; strong very coarse prismatic structure; very firm; gray (5Y 5/1) prism faces; many medium black (5YR 2/1) oxide coatings on ped exteriors; neutral.

The solum thickness ranges from 25 to 50 inches. The soil is commonly free of coarse fragments, but a few pedons are less than 3 percent gravel. Unless the soil is limed, reaction ranges from strongly acid to slightly acid in the A horizon and from strongly acid to neutral in the upper part of the B horizon. The reaction in the lower part of the B horizon and in the C horizon is medium acid to neutral.

The Ap horizon has hue of 10YR through 5Y, value of 3 or 4, and chroma of 1 or 2. It has weak or moderate, fine or medium granular structure. An A2g horizon is in most pedons, and it has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 1 or 2. The A2g horizon is silt loam or silty clay loam. Structure of the A2g horizon is weak or moderate, medium or thick platy that parts to very fine or fine subangular blocky in some pedons. Consistence of the A horizon is very friable or friable.

The B horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 1 or 2. It ranges from silt loam to silty clay in the upper part and silty clay loam to silty clay in the lower part. Structure is platy and subangular blocky in the upper part of the B horizon and prismatic, platy, and subangular blocky in the lower part of the B horizon. Consistence is friable or firm when moist and plastic and sticky when wet.

The C horizon has hue of 5Y, value of 4 or 5, and chroma of 1 or 2. The C horizon is silty clay loam or silty clay. Structure is prismatic or platy, or the horizon is massive. Consistence is firm or very firm when moist and plastic and sticky when wet.

Scio series

The Scio series consists of deep, moderately well drained soils that formed in stratified marine or lacustrine sediments. The Scio soils in the survey area are a taxadjunct because the mean annual soil temperature is slightly lower than is defined for the series and the soils have more clay. Scio soils are on lake plains or marine plains, terraces, or foot slopes of moraines. Slopes range from 3 to 25 percent but are dominantly 3 to 8 percent.

Scio soils are near Buxton, Raynham, and Scantic soils. Scio soils are better drained than Raynham or Scantic soils. Buxton soils formed in more clayey deposits than Scio soils.

Typical pedon of Scio silt loam, 3 to 8 percent slopes, in the town of Buxton, 1,000 feet southwest of the Waterman Road, about 1.5 miles southeast of Groveville, and 150 feet southwest of farm pond:

Ap—0 to 7 inches, dark brown (10YR 3/3) silt loam; moderate very fine granular structure; friable; many very fine roots and common fine and medium roots; common mixing of yellowish brown (10YR 5/4) material from B2 horizon; medium acid; abrupt smooth boundary.

B21—7 to 14 inches, yellowish brown (10YR 5/6) very fine sandy loam; weak very fine granular structure; friable; common very fine roots and few fine roots; few medium pale brown (10YR 6/3) spherical spots of clean very fine sand below a depth of 12 inches; medium acid; abrupt smooth boundary.

B22—14 to 19 inches, light olive brown (2.5Y 5/4) silt loam; few medium distinct light olive gray (5Y 6/2) mottles below a depth of 15 inches; weak very fine subangular blocky structure; friable; common very fine roots and few fine roots; medium acid; clear wavy boundary.

B23—19 to 26 inches, light olive brown (2.5Y 5/4) silt loam; common medium distinct light olive gray (5Y 6/2) mottles and coarse distinct yellowish brown (10YR 5/6) mottles; strong very coarse prismatic structure parting to weak very fine subangular blocky; firm; common very fine and fine roots on prism faces; light olive gray (5Y 6/2) prism faces and yellowish red (5YR 4/6) prism edges; few fine dark reddish brown (5YR 3/3) oxide coatings; medium acid; clear wavy boundary.

Cl—26 to 34 inches, olive (5Y 5/3) silt loam; common coarse distinct light olive gray (5Y 6/2) and light olive brown (2.5Y 5/4) mottles, and faint olive gray (5Y 5/2) mottles; strong very coarse prismatic structure; firm; few fine roots within prisms, common fine roots on prism faces; light olive gray (5Y 6/2) prism faces and yellowish red (5YR 4/6) prism edges; common fine dark reddish brown (5YR 2/2) oxide coatings; medium acid; abrupt smooth boundary.

C2—34 to 36 inches, dark grayish brown (2.5Y 4/2) loam broken, light olive brown (2.5Y 5/4) loam crushed; common coarse distinct light olive gray (5Y 6/2) and dark yellowish brown (10YR 4/4) mottles; strong very coarse prismatic structure parting to weak very thin and thin platy lenses when removed; few fine roots on prism faces; few pores with silt or very fine sand coatings; light olive gray (5Y 6/2) prism faces, yellowish red (5YR 4/6) prism edges; few fine dark reddish brown (5YR 2/2) oxide coatings; medium acid; abrupt smooth boundary.

C3—36 to 48 inches, olive (5Y 5/3) silt loam; common coarse faint olive gray (5Y 5/2) mottles and medium prominent strong brown (7.5YR 5/8) mottles; strong very coarse prismatic structure parting to weak very thin and thin platy lenses when removed; firm; few very fine roots on prism faces; irregularly shaped and discontinuous common fine and medium pores; few oblique and discontinuous fine tubular pores; very fine sand and silt coatings inside pores; fine sand movement on prism faces; light olive gray (5Y 6/2) prism faces and yellowish red (5YR 4/6) prism edges; common fine dark reddish brown (5YR 2/2) oxide coatings; medium acid; abrupt smooth boundary.

C4—48 to 60 inches, light olive gray (5Y 6/2) very fine sandy loam broken, olive (5Y 5/3) very fine sandy loam crushed; many coarse distinct olive brown (2.5Y 4/4) mottles; strong very coarse prismatic structure parting to weak thin and medium platy lenses when removed; firm; common fine and medium pores, discontinuous oblique and irregular in shape; light gray to gray (5Y 6/1) prism faces, brown to dark brown (7.5YR 4/4) prism edges; few fine dark reddish brown (5YR 2/2) oxide coatings; medium acid.

The solum thickness ranges from 20 to 27 inches. The coarse fragment content is less than 5 percent above a depth of 40 inches. In unlimed areas reaction is very strongly acid to medium acid to a depth of 40 inches and strongly acid or medium acid below a depth of 40 inches.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 3. Structure is weak or moderate, very fine or fine granular. Consistence is very friable or friable.

The B horizon has hue of 10YR through 5Y, value of 4 or 5, and chroma of 4 or 6. The B horizon is silt loam or very fine sandy loam. It has weak very fine to medium granular, very fine subangular blocky, or thin to thick platy structure; or strong, very coarse, prismatic structure parting to weak very fine subangular blocky. Consistence is very friable to firm.

The C horizon has hue of 10YR through 5Y, value of 4 through 6, and chroma of 2 through 4. It is mainly silt loam, loam, or very fine sandy loam, but strata of loamy very fine sand to sand and gravelly strata are common below a depth of 40 inches. The C horizon has moderate or strong, coarse or very coarse prismatic structure, or it is massive or single grain. In some pedons the horizon has weak, very thin to medium platy lenses within prisms. Consistence is very friable to firm.

Sebago series

The Sebago series consists of deep, very poorly drained soils that formed in organic material derived mainly from herbaceous and woody fiber. The Sebago soils are in depressions on outwash plains, glaciated uplands, and lake plains and marine plains. Slopes range from 0 to 1 percent.

Sebago soils are near very poorly drained Chocorua and Vassalboro soils. Sebago soils formed in thicker organic material than Chocorua soils and have more hemic material than Vassalboro soils. Sebago soils are associated with shallow Lyman soils, which are on glaciated uplands, and excessively drained Adams and Colton soils, which formed in glaciofluvial material.

Typical pedon of Sebago peat, in the town of Waterboro, 3 miles northeast of Waterboro Center and 300 feet north of Deering Ridge Road:

Oi1—0 to 4 inches, black (10YR 2/1) on broken face, rubbed and pressed, peat (fibric material); about 95 percent fiber, about 90 percent rubbed; massive; nonplastic, nonsticky; common very fine and fine roots and many medium and coarse roots; 35 percent herbaceous fibers, 35 percent woody fibers, 30 percent sphagnum; about 10 percent woody fragments; extremely acid in water; clear smooth boundary.

Oi2—4 to 6 inches, black (5YR 2/1) on broken face, rubbed and pressed, peat (fibric material); about 90 percent fiber, about 80 percent rubbed; massive; nonplastic, nonsticky; common roots; 50 percent herbaceous fibers, 30 percent woody fibers, 20 percent sphagnum; about 5 percent woody fragments; extremely acid in water; clear smooth boundary.

Oe1—6 to 15 inches, dark reddish brown (5YR 2/2) on broken face, rubbed and pressed, mucky peat (hemic material); about 70 percent fiber, about 55 percent rubbed; massive; nonplastic, nonsticky; few very fine roots; about 60 percent herbaceous fibers, 30 percent woody fibers, 10 percent sphagnum; few thin black (10YR 2/1) carbon layers; very pale brown (10YR 8/4) sodium pyrophosphate test; extremely acid in water; abrupt smooth boundary.

Oi3—15 to 17 inches, dark reddish brown (5YR 3/2) on broken face, rubbed and pressed, peat (fibric material); about 80 percent fiber, about 65 percent rubbed; massive; nonplastic, nonsticky; 75 percent herbaceous fibers, 10 percent woody fibers, 15 percent sphagnum; very pale brown (10YR 8/3) sodium pyrophosphate test; extremely acid in water; abrupt smooth boundary.

Oe2—17 to 33 inches, dark reddish brown (5YR 2/2) on broken face, rubbed and pressed, mucky peat (hemic material); about 70 percent fiber, about 45 percent rubbed; massive; nonplastic, nonsticky; about 80 percent herbaceous fibers, 20 percent woody fibers; about 1 percent woody fragments; very pale brown (l0YR 7/3) sodium pyrophosphate test; extremely acid in water; clear smooth boundary.

Oe3—33 to 40 inches, dark reddish brown (5YR 2/2) on broken face; rubbed and pressed, mucky peat (hemic material); about 50 percent fiber, about 35 percent rubbed; massive; nonplastic, slightly sticky; about 70 percent herbaceous fibers, 30 percent woody fibers; few thin black (10YR 2/1) carbon layers; very pale brown (10YR 7/3) sodium pyrophosphate test; extremely acid in water; abrupt smooth boundary.

Oi4—40 to 51 inches, black (5YR 2/1) on broken face, peat (fibric material), dark reddish brown (5YR 2/2) when rubbed and pressed; about 60 percent fiber, about 45 percent rubbed; massive; nonplastic, nonsticky; about 75 percent herbaceous fibers, 25 percent woody fibers; light gray (10YR 7/2) sodium pyrophosphate test; extremely acid in water; gradual smooth boundary.

Oi5—51 to 59 inches, dark reddish brown (5YR 2/2) on broken face and rubbed, peat (fibric material), dark reddish brown (5YR 3/2) when pressed; about 90 percent fiber, about 80 percent rubbed; massive; nonplastic, nonsticky; 80 percent herbaceous fibers, 5 percent woody fibers, 15 percent sphagnum; very strongly acid in water; gradual smooth boundary.

Oi6—59 to 66 inches, dark reddish brown (5YR 3/2) on broken face and rubbed, peat (fibric material), dark reddish brown (5YR 3/3) when pressed; about 85 percent fiber, about 80 percent rubbed; massive; nonplastic, nonsticky; about 80 percent herbaceous fibers, 15 percent woody fibers, 5 percent sphagnum; about 3 percent woody fragments; about 1 percent mineral, mostly mica; very strongly acid in water.

The thickness of the organic layers exceeds 5l inches. Slightly decomposed woody fragments, consisting of small limbs, logs, and a few stumps, make up as much as 15 percent of the soil. Reaction is extremely acid in 0.01 molar calcium chloride and extremely acid or very strongly acid in water.

The surface tier has hue of 5YR or 10YR, value of 2 or 3, and chroma of 1 or 2. It is massive or has weak or moderate, medium granular structure.

The subsurface and bottom tiers have hue of 5YR through 10YR, value of 2 or 3, and chroma of 1 through 4. They are commonly massive, but they include weak, thick, platy structure.

Skerry series

The Skerry series consists of deep, moderately well drained soils that formed in compact glacial till derived from schist, granite, and gneiss. Skerry soils are on the tops and sides of drumlins and ridges. Slopes range from 0 to 15 percent but are dominantly 0 to 8 percent.

Skerry soils commonly are near Becket, Brayton, and Lyman soils. Skerry soils are wetter than Becket or Lyman soils, are better drained than Brayton soils, and are deeper than Lyman soils.

Typical pedon of Skerry fine sandy loam, in an area of Skerry very stony fine sandy loam, 0 to 8 percent slopes, in the town of Parsonsfield, 70 feet west of the road in a wooded area, about 2,300 feet west of Long Pond and 2,500 feet north of West Pond:

O1—3 to 2 inches, loose layer of needles and leaves.

O2—2 inches to 0, black (10YR 2/1) partially decomposed organic material; weak very fine granular structure; very friable; many very fine to medium roots; extremely acid; abrupt smooth boundary.

A2—0 to 2 inches, light gray to gray (5YR 6/1) sandy loam; weak fine granular structure; very friable; many very fine to medium roots and common coarse roots; 10 percent coarse fragments; very strongly acid; abrupt wavy boundary.

B21h—2 to 5 inches, dark reddish brown (2.5YR 2/4) fine sandy loam; weak fine and medium granular structure; friable; many very fine to medium roots; few coarse very dusky red (2.5YR 2/2) weakly cemented chunks; 10 percent coarse fragments; very strongly acid; abrupt wavy boundary.

B22ir—5 to 15 inches, yellowish red (5YR 4/6) gravelly sandy loam; weak fine granular structure; friable; 45 percent weakly cemented chunks; few very fine roots; 15 percent coarse fragments; very strongly acid; clear wavy boundary.

B23—15 to 23 inches, yellowish brown (10YR 5/6) gravelly sandy loam; weak fine granular structure; friable; 25 percent weakly cemented chunks; few very fine roots; 20 percent coarse fragments; strongly acid; gradual wavy boundary.

B24—23 to 33 inches, yellowish brown (10YR 5/6) gravelly sandy loam; common medium distinct grayish

brown (10YR 5/2) mottles and few medium prominent yellowish red (5YR 4/6) mottles; massive; friable; 25 percent weakly cemented; 20 percent coarse fragments; strongly acid; clear smooth boundary.

C1x—33 to 38 inches, light olive brown (2.5Y 5/4) gravelly loamy sand; common medium distinct grayish brown (10YR 5/2) mottles; 70 percent massive and firm and brittle, 30 percent single grain and loose; 25 percent coarse fragments with silt coatings on upper surfaces; strongly acid; clear smooth boundary.

C2x—38 to 60 inches, olive (5Y 5/3) gravelly loamy sand; common fine distinct light olive brown (2.5Y 5/4) and prominent strong brown (7.5YR 5/6) mottles; 30 percent massive and firm and brittle, 70 percent single grain and loose; 30 percent coarse fragments with silt coatings on upper surfaces; strongly acid.

The depth to the substratum ranges from 16 to 34 inches. Coarse fragments make up 5 to 20 percent of the solum and 15 to 30 percent of the substratum. Reaction is very strongly acid to medium acid throughout the profile unless the soil is limed.

The Ap and A1 horizons, where present, have hue of 10YR, value of 3 or 4, and chroma of 1 through 4. Value of 3 and chroma of 1 or 2 are restricted to the A1 horizon. The A2 horizon has hue of 5YR or 10YR, value of 6, and chroma of 1 or 2. The structure is weak, fine or medium granular. Consistence is very friable or friable.

The Bh and Bir horizons have hue of 2.5YR, value of 2 through 4, and chroma of 4 or 6; or hue of 5YR, value of 2 through 4, and chroma of 2 through 8. The lower part of the B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. The B horizon is fine sandy loam or sandy loam in the fine-earth fraction. It has weak or moderate, fine or medium granular structure, or the horizon is massive.

The Cx horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 2 through 4. It is dominantly gravelly loamy sand. Structure is weak medium platy, or the horizon is massive or single grain in the segregated sand layers. Consistence is firm or very firm. Loose or friable, segregated sand layers with a horizontal orientation between structural plates are in the substratum. Coarse fragments commonly have silt coatings on their upper surfaces.

Sulfihemists

Sulfihemists in York County consist of deep, very poorly drained soils that formed in organic deposits derived mainly from saltwater marshgrasses. The soils are in areas subject to tidal inundation. Slopes range from 0 to 1 percent.

Sulfihemists commonly are near Udipsamments and Beaches. They are similar to the Vassalboro soils in drainage but are not as acid.

Because of the variability of these soils, a typical pedon is not given. Thickness of the organic layers exceeds 51 inches. The surface, subsurface, and bottom tiers are massive. Reaction ranges from slightly acid to mildly alkaline. Thin layers of silt are common in the organic material.

The surface tier has hue of 2.5YR through 10YR, value of 2 through 5, and chroma of 1 through 4. The fiber content is 50 to 100 percent, and the rubbed fiber content ranges from 40 to 95 percent. Consistence is nonsticky or slightly sticky. The organic matter content ranges from 90 to 100 percent.

The subsurface and bottom tiers have hue of 2.5YR through 10YR, value of 2 through 5, and chroma of 1 through 4. The fiber content is 60 to 100 percent, and the rubbed fiber content ranges from 50 to 90 percent. The layers of some subsurface and bottom tiers have a 10 to 20 percent fiber content, and a rubbed fiber content that ranges from 5 to 10 percent. Consistence ranges from nonsticky to sticky. The organic matter content ranges from 50 to 100 percent.

Udipsamments

Udipsamments in York County consist of excessively drained or moderately well drained, deep soils that formed in eolian deposits. The soils are on stabilized dunes.

Udipsamments commonly are near Beaches and Sulfihemists, which formed in organic deposits in tidal areas. They are similar in drainage to Adams or Croghan soils but have less profile development.

Because of the variability of these soils, a typical pedon is not given. The depth to bedrock is more than 5 feet. The depth to the water table is generally more than 5 feet but ranges to about l-l/2 feet. The frequency of flooding ranges from occasional to none.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is loose fine sand or loose loamy fine sand. Reaction ranges from strongly acid to neutral. The A horizon is about 3 inches thick.

The C horizon has hue of 10YR through 5Y, value of 4 through 7, and chroma of 2 or 3. It is dominantly loose fine sand but ranges to sand and coarse sand. A few pedons have organic layers below the C horizon.

Vassalboro series

The Vassalboro series consists of deep, very poorly drained soils that formed in organic material derived mainly from herbaceous fibers, sphagnum, and woody fibers. Vassalboro soils are in depressions and kettle-shaped holes on outwash plains and kame terraces. Slopes range from 0 to 2 percent.

Vassalboro soils are near Chocorua, Sebago, and Waskish soils. Vassalboro soils are deeper to the mineral substratum than Chocorua soils. They have more fibric material than Sebago soils and less sphagnum moss

than Waskish soils. Vassalboro soils are also near the excessively drained Adams and Colton soils, which formed in glaciofluvial material.

Typical pedon of Vassalboro peat, in the town of Buxton, 1 mile northeast of Groveville, 1,500 feet southeast from the road, on the north side of a pond:

Oi1—0 to 17 inches, black (5YR 2/1) on broken face, rubbed and pressed, peat (fibric material); about 70 percent fiber, 50 percent rubbed; massive; slightly sticky; many roots; 10 percent sphagnum, 10 percent herbaceous fibers, 80 percent woody fibers; about 10 percent woody fragments; white (10YR 8/2) sodium pyrophosphate test; extremely acid in water and calcium chloride; clear smooth boundary.

Oi2—17 to 37 inches, very dusky red (2.5YR 2/2) on broken face, rubbed and pressed, peat (fibric material); about 80 percent fiber, 60 percent rubbed; massive; slightly sticky; few roots; 20 percent sphagnum, 30 percent herbaceous fibers, 50 percent woody fibers; about 5 percent woody fragments; white (10YR 8/2) sodium pyrophosphate test; extremely acid in water and calcium chloride; clear smooth boundary.

Oi3—37 to 77 inches, very dusky red (2.5YR 2/2) on broken face, peat (fibric material); dusky red (2.5YR 3/2) when rubbed and pressed; about 90 percent fiber, 70 percent rubbed; massive; slightly sticky; 30 percent sphagnum, 20 percent herbaceous fibers, 50 percent woody fibers; about 5 percent woody fragments; white (10YR 8/2) sodium pyrophosphate test; extremely acid in water and calcium chloride.

The thickness of the organic layers exceeds 51 inches. The botanical origin of fiber includes sphagnum moss, herbaceous plants, and woody material. Layers of all three are common in any given site. Woody fragments make up as much as 15 percent of the soil. Reaction is extremely acid in 0.01 molar calcium chloride and extremely acid or very strongly acid in water.

The surface tier has hue of 2.5YR through 10YR, value of 2 through 4, and chroma of 1 through 4. It is nonsticky or slightly sticky.

The subsurface and bottom tiers have hue of 2.5YR through 10YR, value of 2 or 3, and chroma of 1 through 4. They are massive or have weak thick platy structure. They are nonsticky or slightly sticky.

Waskish series

The Waskish series consists of deep, very poorly drained soils that formed in organic material derived mainly from sphagnum moss. Waskish soils are in depressions and kettle-shaped holes on outwash plains and kame terraces. Slopes range from 0 to 2 percent.

Waskish soils are near very poorly drained Vassalboro soils. They formed in material with a higher content of sphagnum moss than Vassalboro soils. Waskish soils are also associated with excessively drained Adams and Colton soils, which formed in glaciofluvial material.

Typical pedon of Waskish peat, in the town of Saco, 0.75 mile east of North Saco on Flag Pond Road, 0.5 mile southwest of the Flag Pond Road on a private road, and about 400 feet southwest from the edge of the Saco Heath:

Oi1—0 to 5 inches, dark reddish brown (5YR 3/2) on broken face and rubbed, peat (fibric material), dark brown (7.5YR 3/2) when pressed; about 90 percent fiber, about 85 percent rubbed; massive; nonplastic, nonsticky; many very fine to medium roots; about 90 percent sphagnum, 10 percent woody fibers; about 20 percent woody fragments; extremely acid in water; clear wavy boundary.

Oi2—5 to 16 inches, dark reddish brown (5YR 3/3) on broken face and rubbed, peat (fibric material), dark reddish brown (5YR 3/4) when pressed; about 90 percent fiber, about 80 percent rubbed; massive; nonplastic, nonsticky; few very fine roots; about 95 percent sphagnum, 5 percent woody fibers; about 10 percent woody fragments; extremely acid in water; clear smooth boundary.

Oi3—I6 to 47 inches, reddish brown (5YR 4/4) on broken face, peat (fibric material), yellowish brown (10YR 5/4) rubbed, brown (7.5YR 5/4) when pressed; about 100 percent fiber, about 95 percent rubbed; massive; nonplastic, nonsticky; about 100 percent sphagnum; about 5 percent woody fragments; extremely acid in water; abrupt smooth boundary.

Oi4—47 to 55 inches, dark reddish brown (5YR 3/2) on broken face and rubbed, peat (fibric material), dark brown (7.5YR 3/2) when pressed; about 90 percent fiber, about 75 percent rubbed; massive; nonplastic, nonsticky; about 90 percent sphagnum, 10 percent woody fibers; less than 5 percent woody fragments; extremely acid in water; clear smooth boundary.

Oi5—55 to 71 inches, dark reddish brown (5YR 3/3) on broken face and rubbed, peat (fibric material), dark reddish brown (5YR 3/4) when pressed; about 90 percent fiber, about 80 percent rubbed; massive; nonplastic, nonsticky; about 95 percent sphagnum, 5 percent woody fibers; 10 percent woody fragments; extremely acid in water; clear smooth boundary.

Oi6—71 to 95 inches, reddish brown (5YR 4/4) on broken face, peat (fibric material), dark reddish brown (5YR 3/4) rubbed, brown to dark brown (7.5YR 4/4) when pressed; about 95 percent fiber, about 90 percent rubbed; massive; nonplastic, nonsticky; about 95 percent sphagnum, 5 percent woody fibers; less than 1 percent mineral material; extremely acid in water.

Organic material extends to a depth of more than 63 inches and commonly to a depth of 10 to 20 feet. The content of woody fragments ranges from 0 to 20 per-

cent, but a content of more than 10 percent is only in the surface tier. Most of the fiber is derived from sphagnum moss. The organic layers are made up of primarily sphagnum fiber and less than 10 percent of herbaceous and woody fiber. Reaction is extremely acid in 0.01 molar calcium chloride and extremely acid or very strongly acid in water. The fibric material has hue of 5YR through 10YR, value of 3 through 7, and chroma of 2 through 4.

Westbury series

The Westbury series consists of deep, somewhat poorly drained soils formed in compact glacial till deposits derived from mainly sulfidic schist, some of which is graphitic, and from dark gray slate, schist, and gneiss. Westbury soils are in low-lying areas and depressions that receive runoff from adjacent higher areas. Slopes range from 0 to 8 percent.

Westbury soils are near Becket, Brayton, and Skerry soils. Westbury soils are wetter than Becket or Skerry soils but are not quite as wet as Brayton soils.

Typical pedon of Westbury fine sandy loam, in an area of Brayton and Westbury very stony fine sandy loams, 0 to 8 percent slopes, in the town of Lebanon, about 0.25 mile south of U. S. Route 202 and 300 yards southeast from the intersection of Long Swamp Road and Lord Road, and about 50 feet into the corner of a woodlot:

O1—1-1/2 to 1 inch, loose litter of leaves and twigs.

O2—1 inch to 0, dark reddish brown (5YR 3/2) decomposed organic material; weak very fine granular structure; very friable; many roots; extremely acid; abrupt wavy boundary.

A1—0 to 2 inches, very dark gray (10YR 3/1) fine sandy loam, light brownish gray (10YR 6/2) dry; weak very thin platy structure and very fine granular structure; very friable; many fine and medium roots; 5 percent coarse fragments; very strongly acid; abrupt irregular boundary.

A2—2 to 4 inches, grayish brown (2.5Y 5/2) fine sandy loam; few medium distinct gray (5Y 5/1) mottles and common medium distinct brown to dark brown (7.5YR 4/4) mottles; weak thin platy structure; very friable; many fine roots; 10 percent coarse fragments; very strongly acid; abrupt irregular boundary.

B21h—4 to 9 inches, dark reddish brown (5YR 3/2) fine sandy loam; few medium distinct brown to dark brown (10YR 4/3) mottles and few fine distinct strong brown (7.5YR 5/6) mottles; weak thin platy structure; very friable; common roots; few fine concretions; 10 percent coarse fragments; very strongly acid; abrupt wavy boundary.

B22—9 to 23 inches, yellowish brown (10YR 5/6) fine sandy loam; common coarse prominent dark reddish brown (2.5YR 3/4) mottles and many coarse prominent light olive gray (5Y 6/2) mottles; weak thin platy structure; friable; common roots; few fine concretions; 10 percent coarse fragments; very strongly acid; abrupt irregular boundary.

C1x—23 to 36 inches, yellowish brown (10YR 5/4) fine sandy loam; common coarse prominent light gray to gray (5Y 6/1) and yellowish red (5YR 4/6) mottles; weak thin and medium platy structure; firm, weakly brittle; few roots; common pores; 10 percent coarse fragments; strongly acid; clear smooth boundary.

C2x—36 to 49 inches, yellowish brown (10YR 5/6) sandy loam; many coarse prominent light gray to gray (5Y 6/1) mottles and few medium prominent yellowish red (5YR 5/8) mottles; moderate very thin platy structure; friable, firm and weakly brittle when dry; few noncoated pores; 10 percent coarse fragments; medium acid; gradual smooth boundary.

C3x—49 to 60 inches, yellowish brown (10YR 5/6) fine sandy loam; many coarse prominent light gray (5Y 7/1) mottles and few coarse prominent yellowish red (5YR 5/8) mottles; moderate very thin and thin platy structure; friable, firm and weakly brittle when dry; 10 percent coarse fragments; slightly acid.

The thickness of the solum and depth to the substratum range from 13 to 24 inches. Coarse fragments make up 5 to 30 percent of the profile above the substratum and 10 to 50 percent within the substratum. Reaction is extremely acid or very strongly acid in the O and A horizons and very strongly acid to medium acid in the B horizon. It is strongly acid or medium acid in the Cx horizon above a depth of 40 inches and strongly acid to slightly acid below a depth of 40 inches.

In undisturbed areas, the soil has a dark reddish brown or black O2 horizon 1 to 4 inches thick. An A1 horizon is in most pedons. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. Structure in the A1 horizon is weak, very thin, platy or very fine and fine granular. The A2 horizon is 2 to 5 inches thick. It has hue of 10YR, value of 5 or 6, and chroma of 2; or has hue of 2.5Y, value of 5, and chroma of 2. The A2 horizon is fine sandy loam or sandy loam in the fine-earth fraction. Structure in the A2 horizon is weak, thin or medium platy or fine granular.

The Bh horizon has hue of 5YR or 7.5YR, value of 3, and chroma of 2. It is loam, fine sandy loam or sandy loam in the fine-earth fraction. It has weak, thin, platy or fine and medium granular structure. It is very friable or friable.

The B2 horizon has hue of 7.5YR through 2.5Y, value of 4 or 5, and chroma of 4 through 8. It is loam, fine sandy loam or sandy loam in the fine-earth fraction. It has weak, thin to thick, platy structure.

The Cx horizon has hue of 10YR, value of 5, and chroma of 4 or 6; or has hue of 2.5Y, value of 5, and chroma of 2 or 4. The Cx horizon is loam, fine sandy loam, or sandy loam in the fine-earth fraction. Structure in the Cx horizon is platy, very coarse, prismatic, or the horizon is massive.

Winooski series

The Winooski series consists of deep, moderately well drained soils that formed in recent alluvium derived mainly from gneiss, schist, and granite. The Winooski soils in this survey area are a taxadjunct because the mean annual soil temperature is a few degrees lower than is defined for the series. The soils are on flood plains along rivers and streams. Slopes range from 0 to 3 percent.

Winooski soils are near Ondawa, Podunk, and Rumney soils. Winooski soils are wetter than Ondawa soils, have a finer textured C horizon than Podunk soils, and are better drained than Rumney soils.

Typical pedon of Winooski very fine sandy loam, in an area of Podunk and Winooski soils, in the town of Buxton, about 1 mile northwest of Bar Mills and about 200 feet from the bank of the Saco River, in a field:

Ap—0 to 11 inches, very dark grayish brown (10YR 3/2) very fine sandy loam; weak very fine and fine granular structure; friable; common very fine and fine roots; few medium earthworm channels; slightly acid; abrupt smooth boundary.

C1—11 to 16 inches, dark yellowish brown (10YR 4/4) very fine sandy loam; massive; friable; few very fine roots; few medium earthworm channels; slightly acid; clear smooth boundary.

C2—16 to 18 inches, light olive brown (2.5Y 5/4) very fine sandy loam; few medium distinct pale brown (10YR 6/3) mottles; massive; friable; few very fine roots; few very fine pores; medium acid; clear smooth boundary.

C3—18 to 24 inches, brown to dark brown (10YR 4/3) very fine sandy loam; few fine distinct light brownish gray (10YR 6/2) mottles; massive; friable; few very fine roots; few very fine pores; medium acid; clear smooth boundary.

C4—24 to 37 inches, yellowish brown (10YR 5/4) very fine sandy loam; few fine faint pale brown (10YR 6/3) and distinct dark brown (7.5YR 3/2) mottles; massive; friable; few very fine roots; few very fine pores; medium acid; abrupt smooth boundary.

C5—37 to 43 inches, dark grayish brown (10YR 4/2) very fine sandy loam; few fine faint brown (10YR 5/3) mottles; massive; friable; medium acid; abrupt smooth boundary.

C6—43 to 60 inches, light olive brown (2.5Y 5/4) silt loam; common coarse distinct grayish brown (2.5Y 5/2) mottles and medium prominent dark reddish brown (2.5YR 3/4) mottles; massive; friable; medium acid.

The soil ranges from strongly acid through slightly acid above a depth of 35 inches and is medium acid or slightly acid below a depth of 35 inches.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2. Structure is weak, very fine to medium granular. Consistence is very friable or friable.

The C horizon has hue of 10YR or 2.5Y, value of 3 through 5, and chroma of 2 through 4. It is very fine sandy loam, silt loam, or loamy very fine sand.

Classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*12*). 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 19, 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 Spodosol.

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 Orthod (*Orth*, meaning the central concept, or most representative, plus *od*, from Spodosol).

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 Haplorthods (*Hapl*, meaning minimal horizonation, plus *orthod*, the suborder of the Spodosols that have a horizon with an accumulation of iron, aluminum, and humus.

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 Haplorthods.

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 sandy-skeletal, mixed, frigid Typic Haplorthods.

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. An example is the Colton series. The texture of the surface layer or of the substratum can differ within a series.

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Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

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 40-inch profile or to a limiting layer is expressed as—

	Inches
Very low	Less than 2.4
Low	2.4-3.2
Moderate	3.2-5.2
High	More than 5.2

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

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. Mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter.

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.

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.

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.

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 for 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 running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Esker (geology). A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

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.

Favorable (in tables). Favorable soil features for the specified use.

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.

Fine textured soil. Sandy clay, silty clay, and clay.

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. None means that flooding is not probable; rare that it is unlikely but possible under unusual weather 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. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

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.

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 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.

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 (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

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.

Kame (geology). An irregular, short ridge or hill of stratified glacial drift.

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.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Low strength (in tables). The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

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.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

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.)

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.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

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.

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

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.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

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

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 groundwater 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.

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.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

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.

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.

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.

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 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.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

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 (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, silt loam, 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."

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

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.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the low lands along streams.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

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.

TABLES

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

Month	Temperature[1]						Precipitation[1]				
	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[2]	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	32.7	10.4	21.6	54	-19	0	3.29	1.61	4.65	7	20.0
February	35.4	11.8	23.6	56	-23	0	3.95	2.55	5.21	7	21.1
March	43.4	21.3	32.4	66	-4	17	3.81	2.50	4.99	7	18.7
April	57.0	31.0	44.0	83	12	144	3.87	2.37	5.21	7	4.8
May	70.0	41.1	55.6	91	24	484	3.58	1.47	5.28	7	.3
June	78.7	50.8	64.8	95	33	744	3.51	2.39	4.53	7	.0
July	83.1	55.9	69.5	96	41	915	3.21	1.93	4.35	7	.0
August	81.6	53.9	67.8	94	37	862	3.20	1.96	4.31	6	.0
September	73.1	46.6	59.9	91	26	597	3.76	2.18	5.04	6	.0
October	63.0	36.5	49.8	83	17	304	3.95	2.33	5.38	6	.3
November	48.2	28.9	38.6	70	9	56	5.29	3.49	6.93	9	3.8
December	35.8	16.4	26.1	58	-13	16	4.67	2.63	6.33	8	22.1
Year	58.5	33.7	46.1	97	-23	4,139	46.09	39.45	52.62	84	91.1

[1]Recorded in the period 1953-75 at Sanford, Maine.

[2]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 (40° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature[1]		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 9	May 25	June 1
2 years in 10 later than--	May 3	May 19	May 27
5 years in 10 later than--	April 22	May 7	May 17
First freezing temperature in fall:			
1 year in 10 earlier than--	September 30	September 17	September 9
2 years in 10 earlier than--	October 7	September 23	September 14
5 years in 10 earlier than--	October 18	October 5	September 23

[1]Recorded in the period 1953-75 at Sanford, Maine.

TABLE 3.--GROWING SEASON

Probability	Daily minimum temperature during growing season[1]		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	154	124	106
8 years in 10	162	133	114
5 years in 10	178	150	128
2 years in 10	194	167	143
1 year in 10	202	176	150

[1]Recorded in the period 1953-75 at Sanford, Maine.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
AdB	Adams loamy sand, 0 to 8 percent slopes	46,418	7.3
AdC	Adams loamy sand, 8 to 15 percent slopes	8,268	1.3
AdD	Adams loamy sand, 15 to 40 percent slopes	8,688	1.4
AgB	Adams-Urban land complex, 0 to 8 percent slopes	915	0.1
AlB	Allagash very fine sandy loam, 3 to 8 percent slopes	2,073	0.3
AlC	Allagash very fine sandy loam, 8 to 15 percent slopes	808	0.1
Ba	Beaches	600	0.1
BcB	Becket fine sandy loam, 3 to 8 percent slopes	3,969	0.6
BcC	Becket fine sandy loam, 8 to 15 percent slopes	3,121	0.5
BcD	Becket fine sandy loam, 15 to 25 percent slopes	883	0.1
BeB	Becket very stony fine sandy loam, 3 to 8 percent slopes	2,857	0.4
BeC	Becket very stony fine sandy loam, 8 to 15 percent slopes	5,317	0.8
BeD	Becket very stony fine sandy loam, 15 to 25 percent slopes	4,892	0.8
Bm	Biddeford mucky peat	3,589	0.6
BrB	Brayton and Westbury fine sandy loams, 0 to 8 percent slopes	3,082	0.5
BsB	Brayton and Westbury very stony fine sandy loams, 0 to 8 percent slopes	42,917	6.7
BuB	Buxton silt loam, 3 to 8 percent slopes	7,684	1.2
BuC	Buxton silt loam, 8 to 15 percent slopes	4,669	0.7
BuD	Buxton silt loam, 15 to 25 percent slopes	2,934	0.5
Ch	Chocorua peat	18,709	2.9
CoB	Colton gravelly loamy coarse sand, 0 to 8 percent slopes	18,064	2.8
CoC	Colton gravelly loamy coarse sand, 8 to 15 percent slopes	9,137	1.4
CoD	Colton gravelly loamy coarse sand, 15 to 25 percent slopes	4,458	0.7
CoE	Colton gravelly loamy coarse sand, 25 to 45 percent slopes	3,835	0.6
CrB	Croghan loamy sand, 0 to 8 percent slopes	31,568	4.9
CuB	Croghan-Urban land complex, 0 to 8 percent slopes	325	0.1
Dm	Dumps	274	*
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	3,395	0.5
EmC	Elmwood fine sandy loam, 8 to 15 percent slopes	689	0.1
HeB	Hermon fine sandy loam, 3 to 8 percent slopes	7,132	1.1
HeC	Hermon fine sandy loam, 8 to 15 percent slopes	4,131	0.6
HeD	Hermon fine sandy loam, 15 to 25 percent slopes	650	0.1
HmB	Hermon very stony fine sandy loam, 3 to 8 percent slopes	9,935	1.6
HmC	Hermon very stony fine sandy loam, 8 to 15 percent slopes	25,965	4.1
HmD	Hermon very stony fine sandy loam, 15 to 25 percent slopes	17,474	2.7
HnC	Hermon extremely stony fine sandy loam, 3 to 15 percent slopes	6,178	1.0
HnE	Hermon extremely stony fine sandy loam, 15 to 60 percent slopes	7,473	1.2
LnB	Lyman fine sandy loam, 3 to 8 percent slopes	15,263	2.4
LnC	Lyman fine sandy loam, 8 to 15 percent slopes	9,843	1.5
LnD	Lyman fine sandy loam, 15 to 25 percent slopes	2,414	0.4
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	18,546	2.9
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	36,363	5.7
LyE	Lyman-Rock outcrop complex, 15 to 80 percent slopes	15,972	2.5
MaB	Madawaska fine sandy loam, 0 to 8 percent slopes	5,862	0.9
MrB	Marlow fine sandy loam, 3 to 8 percent slopes	3,356	0.5
MrC2	Marlow fine sandy loam, 8 to 15 percent slopes, eroded	1,384	0.2
MrD2	Marlow fine sandy loam, 15 to 25 percent slopes, eroded	364	0.1
MvB	Marlow very stony fine sandy loam, 3 to 8 percent slopes	1,307	0.2
MvC	Marlow very stony fine sandy loam, 8 to 15 percent slopes	865	0.1
MvD	Marlow very stony fine sandy loam, 15 to 25 percent slopes	322	0.1
Na	Naumburg sand	44,779	7.0
On	Ondawa fine sandy loam	813	0.1
PeB	Peru fine sandy loam, 0 to 8 percent slopes	3,030	0.5
Pg	Pits, gravel	2,567	0.4
Po	Podunk and Winooski soils	1,533	0.2
Ra	Raynham silt loam	18,669	2.9
RoC	Rock outcrop-Lyman complex, 8 to 15 percent slopes	1,257	0.2
RoE	Rock outcrop-Lyman complex, 15 to 80 percent slopes	2,365	0.4
Ru	Rumney loam	5,537	0.9
Sa	Saco mucky silt loam	3,961	0.6
Sc	Scantic silt loam	31,568	4.9
SeB	Scio silt loam, 3 to 8 percent slopes	6,616	1.0
SeC	Scio silt loam, 8 to 15 percent slopes	3,580	0.6
SeD	Scio silt loam, 15 to 25 percent slopes	672	0.1
Sg	Sebago peat	13,532	2.1
SkB	Skerry fine sandy loam, 0 to 8 percent slopes	11,294	1.8
SkC	Skerry fine sandy loam, 8 to 15 percent slopes	700	0.1
SrB	Skerry very stony fine sandy loam, 0 to 8 percent slopes	24,634	3.8
SrC	Skerry very stony fine sandy loam, 8 to 15 percent slopes	14,775	2.3
SU	Sulfihemists, frequently flooded	4,480	0.7

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
UD	Udipsamments-Dune land complex	996	0.2
Ur	Urban land	1,714	0.3
UsA	Urban land-Scantic complex, 0 to 3 percent slopes	403	0.1
Va	Vassalboro peat	1,560	0.2
Vp	Vassalboro peat, ponded	1,876	0.3
Wa	Waskish peat	1,061	0.2
	Water	1,091	0.2
	Total	640,000	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	Apples
	Ton	Cwt	Ton	Ton	Ton	AUM*	Bu
AdB---------- Adams	14	---	3.0	2.5	2.0	5.5	---
AdC---------- Adams	12	---	3.0	2.5	2.0	5.5	---
AdD---------- Adams	---	---	---	---	---	---	---
AgB---------- Adams-Urban land	---	---	---	---	---	---	---
AlB---------- Allagash	24	270	5.0	4.5	3.5	8.5	---
AlC---------- Allagash	22	240	4.5	4.0	3.5	7.7	---
Ba**. Beaches							
BcB---------- Becket	22	330	4.5	4.0	4.0	8.5	1,000
BcC---------- Becket	20	300	4.5	4.0	4.0	8.5	1,000
BcD---------- Becket	18	---	4.0	3.5	3.5	8.0	700
BeB, BeC, BeD---------- Becket	---	---	---	---	---	---	---
Bm---------- Biddeford	---	---	---	---	---	---	---
BrB---------- Brayton and Westbury	16	---	3.0	3.5	4.0	5.5	---
BsB---------- Brayton and Westbury	---	---	---	---	---	---	---
BuB---------- Buxton	22	---	3.5	3.5	4.5	6.5	---
BuC---------- Buxton	20	---	3.5	3.5	4.5	6.5	---
BuD---------- Buxton	18	---	3.0	3.0	4.0	5.5	---
Ch---------- Chocorua	---	---	---	---	---	---	---
CoB---------- Colton	12	---	3.0	2.0	---	5.0	---
CoC---------- Colton	---	---	3.0	2.0	---	5.0	---
CoD---------- Colton	---	---	---	---	---	---	---

See footnotes 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	Apples
	Ton	Cwt	Ton	Ton	Ton	AUM*	Bu
CoE---------- Colton	---	---	---	---	---	---	---
CrB---------- Croghan	14	---	3.0	3.0	3.0	5.5	---
CuB---------- Croghan-Urban land	---	---	---	---	---	---	---
Dm** Dumps							
EmB---------- Elmwood	22	270	4.5	4.0	4.0	8.0	---
EmC---------- Elmwood	20	240	4.0	4.0	4.0	8.0	---
HeB---------- Hermon	18	270	4.0	3.5	3.5	7.0	650
HeC---------- Hermon	16	240	4.0	3.5	3.5	7.0	650
HeD---------- Hermon	14	---	3.5	3.0	3.0	6.5	600
HmB, HmC, HmD---------- Hermon	---	---	---	---	---	---	---
HnC, HnE---------- Hermon	---	---	---	---	---	---	---
LnB---------- Lyman	14	---	3.5	2.5	2.0	5.6	500
LnC---------- Lyman	12	---	3.0	2.5	2.0	5.6	500
LnD---------- Lyman	---	---	---	2.0	---	4.8	450
LyB---------- Lyman-Rock outcrop	---	---	---	---	---	---	---
LyC---------- Lyman-Rock outcrop	---	---	---	---	---	---	---
LyE---------- Lyman-Rock outcrop	---	---	---	---	---	---	---
MaB---------- Madawaska	22	270	4.5	3.5	4.0	8.5	---
MrB---------- Marlow	24	330	4.5	4.0	4.0	8.5	1,000
MrC2---------- Marlow	18	300	4.5	4.0	4.0	8.5	1,000
MrD2---------- Marlow	16	---	4.0	3.5	3.5	7.5	700
MvB, MvC, MvD---------- Marlow	---	---	---	---	---	---	---
Na---------- Naumburg	10	---	---	3.0	---	5.5	---

See footnotes 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	Apples
	Ton	Cwt	Ton	Ton	Ton	AUM*	Bu
On---------- Ondawa	26	330	4.5	4.0	---	8.5	---
PeB---------- Peru	20	270	4.0	4.0	4.0	8.0	600
Pg**. Pits							
Po---------- Podunk and Winooski	25	310	4.0	4.5	4.5	8.5	---
Ra---------- Raynham	18	---	---	3.5	4.0	6.5	---
RoC, RoE---------- Rock outcrop-Lyman	---	---	---	---	---	---	---
Ru---------- Rumney	20	---	---	3.5	4.0	6.5	---
Sa---------- Saco	---	---	---	---	---	---	---
Sc---------- Scantic	14	---	---	3.0	3.5	6.0	---
SeB---------- Scio	22	360	5.0	3.5	4.5	9.5	---
SeC---------- Scio	20	---	4.5	3.0	4.5	8.5	---
SeD---------- Scio	18	---	4.0	3.0	4.0	8.0	---
Sg---------- Sebago	---	---	---	---	---	---	---
SkB---------- Skerry	18	---	3.5	4.0	4.0	8.0	600
SkC---------- Skerry	16	---	3.5	4.0	4.0	8.0	550
SrB, SrC---------- Skerry	---	---	---	---	---	---	---
SU**. Sulfihemists							
UD---------- Udipsamments-Dune land	---	---	---	---	---	---	---
Ur**. Urban land							
UsA---------- Urban land-Scantic	---	---	---	---	---	---	---
Va, Vp---------- Vassalboro	---	---	---	---	---	---	---
Wa. Waskish							

* 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 the description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I	813	---	---	---
II	55,944	16,014	32,798	7,132
III	109,881	32,961	58,856	18,064
IV	148,268	16,366	76,347	55,555
V	---	---	---	---
VI	186,306	2,778	7,550	175,978
VII	86,320	---	---	86,320
VIII	45,179	---	45,179	---

TABLE 7.--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	
AdB, AdC---------- Adams	5s	Slight	Slight	Severe	Slight	Eastern white pine--	60	Eastern white pine, red pine, European larch.
						Red pine----------	60	
						Sugar maple-------	50	
						Northern red oak----	55	
AdD---------- Adams	5s	Slight	Moderate	Severe	Slight	Eastern white pine--	60	Eastern white pine, red pine, European larch.
						Red pine----------	60	
						Sugar maple-------	50	
						Northern red oak----	55	
AgB*:								
Adams----------	5s	Slight	Slight	Severe	Slight	Eastern white pine--	60	Eastern white pine, red pine, European larch.
						Red pine----------	60	
						Sugar maple-------	50	
						Northern red oak----	55	
Urban land.								
AlB, AlC---------- Allagash	4o	Slight	Slight	Slight	Slight	Red pine----------	65	Eastern white pine, larch, Scotch pine.
						Eastern white pine--	65	
						Northern red oak----	65	
BcB, BcC---------- Becket	4o	Slight	Slight	Slight	Slight	Eastern white pine--	69	Eastern white pine.
						Northern red oak----	60	
						Red pine----------	75	
BcD---------- Becket	4r	Slight	Moderate	Slight	Slight	Eastern white pine--	69	Eastern white pine.
						Northern red oak----	60	
						Red pine----------	75	
BeB, BeC---------- Becket	4o	Slight	Slight	Slight	Slight	Eastern white pine--	69	Eastern white pine.
						Northern red oak----	60	
						Red pine----------	75	
BeD---------- Becket	4r	Slight	Moderate	Slight	Slight	Eastern white pine--	69	Eastern white pine.
						Northern red oak----	60	
						Red pine----------	75	
Bm---------- Biddeford	5w	Slight	Severe	Severe	Severe	Red maple----------	50	
BrB*, BsB*:								
Brayton----------	4w	Slight	Severe	Severe	Severe	Northern red oak----	60	Eastern white pine, northern white-cedar.
						Sugar maple-------	60	
						Eastern white pine--	67	
						Red maple----------	65	
						Eastern hemlock-----	65	
						Northern white-cedar	45	
Westbury----------	4w	Slight	Moderate	Moderate	Moderate	Northern red oak----	60	Eastern white pine, Norway spruce.
						Sugar maple-------	60	
						Eastern white pine--	67	
						Red maple----------	65	
						Eastern hemlock-----	65	
						Northern white-cedar	45	
BuB---------- Buxton	4o	Slight	Slight	Slight	Slight	Eastern white pine--	65	Eastern white pine.
						Eastern hemlock-----	60	

See footnote at end of table.

TABLE 7.--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	
BuC---- Buxton	4r	Moderate	Moderate	Slight	Slight	Eastern white pine-- Eastern hemlock-----	65 60	Eastern white pine.
BuD---- Buxton	4r	Severe	Severe	Slight	Slight	Eastern white pine-- Eastern hemlock-----	65. 60	Eastern white pine.
CoB, CoC---- Colton	4s	Slight	Slight	Moderate	Slight	Eastern white pine-- Red pine---------- Sugar maple--------- Northern red oak----	62 52 55 55	Eastern white pine, red pine.
CoD, CoE---- Colton	4s	Slight	Moderate	Moderate	Slight	Eastern white pine-- Red pine---------- Sugar maple--------- Northern red oak----	62 52 55 55	Eastern white pine, red pine.
CrB---- Croghan	4s	Slight	Slight	Moderate	Slight	Eastern white pine-- Red pine---------- Sugar maple--------- Northern red oak----	65 65 55 55	Eastern white pine, red pine, European larch.
CuB*: Croghan----	4s	Slight	Slight	Moderate	Slight	Eastern white pine-- Red pine---------- Sugar maple--------- Northern red oak----	65 65 55 55	Eastern white pine, red pine, European larch.
Urban land.								
EmB, EmC---- Elmwood	3o	Slight	Slight	Slight	Slight	Eastern white pine-- Red maple---------- Eastern hemlock-----	75 68 70	Eastern white pine, red pine, European larch.
HeB, HeC---- Hermon	4s	Slight	Slight	Moderate	Slight	Eastern white pine-- Red pine---------- Sugar maple--------- Northern red oak----	70 65 55 65	Eastern white pine, red pine, European larch.
HeD---- Hermon	4s	Slight	Moderate	Moderate	Slight	Eastern white pine-- Red pine---------- Sugar maple--------- Northern red oak----	70 65 55 65	Eastern white pine, red pine, European larch.
HmB, HmC---- Hermon	4s	Slight	Slight	Moderate	Slight	Eastern white pine-- Red pine---------- Sugar maple--------- Northern red oak----	70 65 55 65	Eastern white pine, red pine, European larch.
HmD---- Hermon	4s	Slight	Moderate	Moderate	Slight	Eastern white pine-- Red pine---------- Sugar maple--------- Northern red oak----	70 65 55 65	Eastern white pine, red pine, European larch.
HnC, HnE---- Hermon	4x	Slight	Moderate	Moderate	Slight	Eastern white pine-- Red pine---------- Sugar maple--------- Northern red oak----	70 65 55 65	Eastern white pine, red pine, European larch.
LnB, LnC---- Lyman	4d	Slight	Slight	Severe	Moderate	Sugar maple--------- Eastern white pine-- Northern red oak---- Red pine----------	50 54 55 47	Eastern white pine, red pine.

See footnote at end of table.

TABLE 7.--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	
LnD---------- Lyman	4d	Slight	Moderate	Severe	Moderate	Sugar maple--------- Eastern white pine-- Northern red oak---- Red pine----------	50 54 55 47	Eastern white pine, red pine.
LyB*, LyC*: Lyman----------	4d	Slight	Slight	Severe	Moderate	Sugar maple--------- Eastern white pine-- Northern red oak---- Red pine----------	50 54 55 47	Eastern white pine, red pine.
Rock outcrop.								
LyE*: Lyman----------	4d	Slight	Moderate	Severe	Moderate	Sugar maple--------- Eastern white pine-- Northern red oak---- Red pine----------	50 54 55 47	Eastern white pine, red pine.
Rock outcrop.								
MaB---------- Madawaska	3o	Slight	Slight	Slight	Slight	Eastern white pine-- Sugar maple--------- Red pine----------	76 63 71	Eastern white pine, European larch.
MrB, MrC2---------- Marlow	3o	Slight	Slight	Slight	Slight	Eastern white pine-- Sugar maple--------- Red pine---------- Northern red oak---- Eastern hemlock-----	73 59 64 65 55	Eastern white pine.
MrD2---------- Marlow	3r	Slight	Moderate	Slight	Slight	Eastern white pine-- Sugar maple--------- Red pine---------- Northern red oak---- Eastern hemlock-----	73 59 64 65 55	Eastern white pine.
MvB, MvC---------- Marlow	3o	Slight	Slight	Slight	Slight	Eastern white pine-- Sugar maple--------- Red pine---------- Northern red oak---- Eastern hemlock-----	73 59 64 65 55	Eastern white pine.
MvD---------- Marlow	3r	Slight	Moderate	Slight	Slight	Eastern white pine-- Sugar maple--------- Red pine---------- Northern red oak---- Eastern hemlock-----	73 59 64 65 55	Eastern white pine.
Na---------- Naumburg	4w	Slight	Moderate	Severe	Moderate	Eastern white pine-- Eastern hemlock----- Red maple---------- Quaking aspen-------	65 60 75 60	Eastern white pine, Norway spruce.
On---------- Ondawa	4o	Slight	Slight	Slight	Slight	Eastern white pine-- Northern red oak----	70 60	Eastern white pine.
PeB---------- Peru	3o	Slight	Slight	Slight	Slight	Sugar maple--------- Northern red oak---- Eastern white pine-- Red pine----------	57 70 71 65	Eastern white pine, red pine, European larch.
Po*: Podunk----------	3o	Slight	Slight	Slight	Slight	Eastern white pine-- Red pine---------- Northern red oak----	75 75 70	Eastern white pine, red pine.

See footnote at end of table.

TABLE 7.--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	
Po*:								
Winooski	3o	Slight	Slight	Slight	Slight	Northern red oak	70	Eastern white pine, red pine, European larch.
						Eastern white pine	75	
						Sugar maple	65	
						Red pine	75	
Ra	4w	Slight	Severe	Severe	Severe	Eastern white pine	65	Eastern white pine, northern white-cedar.
Raynham						Eastern hemlock	60	
RoC*:								
Rock outcrop.								
Lyman	4d	Slight	Slight	Severe	Moderate	Sugar maple	50	Eastern white pine, red pine.
						Eastern white pine	54	
						Northern red oak	55	
						Red pine	47	
RoE*:								
Rock outcrop.								
Lyman	4d	Slight	Moderate	Severe	Moderate	Sugar maple	50	Eastern white pine, red pine.
						Eastern white pine	54	
						Northern red oak	55	
						Red pine	47	
Ru	4w	Slight	Severe	Severe	Severe	Eastern white pine	59	Eastern white pine, northern white-cedar.
Rumney						Red maple	65	
						Eastern hemlock	48	
Sc	5w	Slight	Severe	Severe	Severe	Eastern white pine	55	Northern white-cedar, eastern white pine, tamarack, black spruce.
Scantic						Eastern hemlock	55	
SeB	3o	Slight	Slight	Slight	Slight	Northern red oak	70	European larch, eastern white pine, red pine.
Scio						Sugar maple	60	
						Eastern white pine	75	
SeC	3r	Moderate	Slight	Slight	Slight	Northern red oak	70	Eastern white pine, red pine, European larch.
Scio						Sugar maple	60	
						Eastern white pine	75	
SeD	3r	Severe	Moderate	Slight	Slight	Eastern white pine	75	Eastern white pine, red pine, European larch.
Scio						Northern red oak	70	
						Sugar maple	60	
SkB, SkC, SrB, SrC-	3o	Slight	Slight	Slight	Slight	Eastern white pine	70	Eastern white pine, European larch.
Skerry						Sugar maple	60	
						Eastern hemlock	65	
UsA*:								
Urban land.								
Scantic	5w	Slight	Severe	Severe	Severe	Eastern white pine	55	Northern white-cedar, eastern white pine, tamarack, black spruce.
						Eastern hemlock	55	

* See the description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 8.--WILDLIFE HABITAT POTENTIALS

[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	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AdB, AdC, AdD---- Adams	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
AgB*: Adams----	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Urban land.										
AlB---- Allagash	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AlC---- Allagash	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Ba*. Beaches										
BcB---- Becket	Fair	Good	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
BcC---- Becket	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
BcD---- Becket	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
BeB---- Becket	Very poor.	Poor	Good	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
BeC, BeD---- Becket	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Bm---- Biddeford	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
BrB*: Brayton----	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
Westbury----	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
BsB*: Brayton----	Very poor.	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
Westbury----	Very poor.	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
BuB---- Buxton	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BuC---- Buxton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BuD---- Buxton	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Ch---- Chocorua	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT POTENTIALS--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	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
CoB, CoC, CoD---- Colton	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
CoE---- Colton	Very poor.	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
CrB---- Croghan	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
CuB*: Croghan----	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
Urban land.										
Dm*. Dumps										
EmB---- Elmwood	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EmC---- Elmwood	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
HeB, HeC---- Hermon	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
HeD---- Hermon	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
HmB, HmC, HmD, HnC, HnE---- Hermon	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
LnB, LnC, LnD---- Lyman	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
LyB*, LyC*: Lyman----	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop.										
LyE*: Lyman----	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop.										
MaB---- Madawaska	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MrB---- Marlow	Fair	Good	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
MrC2---- Marlow	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
MrD2---- Marlow	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
MvB---- Marlow	Very poor.	Poor	Good	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
MvC, MvD---- Marlow	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT POTENTIALS--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	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Na---- Naumburg	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
On---- Ondawa	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
PeB---- Peru	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Pg*. Pits										
Po*:										
Podunk----	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
Winooski----	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Ra---- Raynham	Fair	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
RoC*: Rock outcrop.										
Lyman----	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
RoE*: Rock outcrop.										
Lyman----	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Ru---- Rumney	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Sa---- Saco	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Sc---- Scantic	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
SeB---- Scio	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SeC---- Scio	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SeD---- Scio	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Sg---- Sebago	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
SkB---- Skerry	Fair	Good	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
SkC---- Skerry	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
SrB---- Skerry	Very poor.	Poor	Good	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
SrC---- Skerry	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT POTENTIALS--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	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
SU*. Sulfihemists										
UD*: Udipsamments.										
Dune land.										
Ur*. Urban land										
UsA*: Urban land.										
Scantic	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
Va---- Vassalboro	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Fair	Very poor.	Very poor.	Fair.
Vp---- Vassalboro	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Wa---- Waskish	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.

*See the description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 9.--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
AdB Adams	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Moderate: too sandy.	Severe: droughty, too sandy.
AdC Adams	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope, too sandy.	Moderate: too sandy.	Severe: droughty, too sandy.
AdD Adams	Severe: slope.	Severe: slope.	Severe: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope, droughty, too sandy.
AgB*: Adams	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Moderate: too sandy.	Severe: droughty, too sandy.
Urban land.					
AlB Allagash	Slight	Slight	Moderate: slope.	Slight	Slight.
AlC Allagash	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Ba*. Beaches					
BcB Becket	Moderate: percs slowly.	Slight	Moderate: percs slowly, slope.	Slight	Slight.
BcC Becket	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight	Moderate: small stones.
BcD Becket	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
BeB Becket	Moderate: percs slowly, large stones.	Slight	Moderate: percs slowly, slope.	Moderate: large stones.	Moderate: large stones, slope.
BeC Becket	Moderate: percs slowly, slope.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: large stones.
BeD Becket	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: large stones.	Severe: slope.
Bm Biddeford	Severe: wetness, excess humus.	Severe: wetness, excess humus.	Severe: wetness, excess humus.	Severe: wetness, excess humus.	Severe: wetness, excess humus.
BrB*: Brayton	Severe: wetness.	Severe: wetness.	Severe: small stones, wetness.	Moderate: wetness.	Moderate: wetness.
Westbury	Moderate: wetness, percs slowly.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
BsB*:					
Brayton	Severe: wetness.	Severe: wetness.	Severe: small stones, wetness.	Moderate: wetness, large stones.	Moderate: wetness, large stones.
Westbury	Moderate: wetness, large stones.	Moderate: wetness.	Severe: large stones, wetness.	Moderate: large stones, wetness.	Moderate: wetness, large stones.
BuB	Severe: percs slowly.	Moderate: wetness.	Severe: percs slowly.	Slight	Moderate: wetness.
Buxton					
BuC	Severe: percs slowly.	Moderate: slope, wetness.	Severe: slope, percs slowly.	Slight	Moderate: slope, wetness.
Buxton					
BuD	Severe: slope, percs slowly.	Severe: slope.	Severe: slope, percs slowly.	Moderate: slope.	Severe: slope.
Buxton					
Ch	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus.	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus.	Severe: wetness, excess humus, floods.
Chocorua					
CoB	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Moderate: small stones.	Moderate: small stones.
Colton					
CoC	Moderate: small stones, slope.	Moderate: small stones, slope.	Severe: slope, small stones.	Moderate: small stones.	Moderate: slope, small stones.
Colton					
CoD	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: small stones, slope.	Severe: slope.
Colton					
CoE	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Colton					
CrB	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy, wetness.	Moderate: too sandy.	Severe: too sandy.
Croghan					
CuB*:					
Croghan	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy, wetness.	Moderate: too sandy.	Severe: too sandy.
Urban land.					
Dm*.					
Dumps					
EmB	Moderate: percs slowly.	Slight	Moderate: slope, percs slowly, wetness.	Slight	Slight.
Elmwood					
EmC	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Elmwood					
HeB	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
Hermon					

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
HeC---- Hermon	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----	Moderate: slope.
HeD---- Hermon	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
HmB---- Hermon	Moderate: large stones.	Slight----	Moderate: slope, large stones.	Moderate: large stones.	Moderate: large stones.
HmC---- Hermon	Moderate: slope, large stones.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: slope, large stones.
HmD---- Hermon	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, large stones.	Severe: slope.
HnC---- Hermon	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: large stones.
HnE---- Hermon	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
LnB---- Lyman	Slight----	Slight----	Severe: depth to rock.	Slight----	Severe: depth to rock.
LnC---- Lyman	Moderate: slope, small stones.	Moderate: slope.	Severe: slope, depth to rock.	Slight----	Severe: depth to rock.
LnD---- Lyman	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Moderate: slope.	Severe: slope, depth to rock.
LyB*: Lyman----	Slight----	Slight----	Severe: depth to rock.	Slight----	Severe: depth to rock.
Rock outcrop.					
LyC*: Lyman----	Moderate: slope, small stones.	Moderate: slope.	Severe: slope, depth to rock.	Slight----	Severe: depth to rock.
Rock outcrop.					
LyE*: Lyman----	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Rock outcrop.					
MaB---- Madawaska	Slight----	Slight----	Moderate: slope, wetness.	Slight----	Slight.
MrB---- Marlow	Moderate: percs slowly.	Slight----	Moderate: percs slowly, slope.	Slight----	Slight.
MrC2---- Marlow	Moderate: percs slowly, slope.	Moderate: slope.	Severe: slope.	Slight----	Moderate: slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
MrD2---------- Marlow	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
MvB---------- Marlow	Moderate: percs slowly.	Slight----------	Moderate: percs slowly, slope.	Moderate: large stones.	Moderate: large stones.
MvC---------- Marlow	Moderate: percs slowly, slope.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: large stones, slope.
MvD---------- Marlow	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: large stones, slope.	Severe: slope.
Na---------- Naumburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
On---------- Ondawa	Severe: floods.	Moderate: floods.	Moderate: floods.	Slight----------	Moderate: floods.
PeB---------- Peru	Moderate: percs slowly.	Slight----------	Moderate: percs slowly.	Slight----------	Slight.
Pg*. Pits					
Po*:					
Podunk----------	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.	Severe: floods.
Winooski----------	Severe: floods.	Moderate: floods.	Moderate: floods.	Slight----------	Moderate: floods.
Ra---------- Raynham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
RoC*: Rock outcrop.					
Lyman----------	Moderate: slope, small stones.	Moderate: slope.	Severe: slope, depth to rock.	Slight----------	Severe: depth to rock.
RoE*: Rock outcrop.					
Lyman----------	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Ru---------- Rumney	Severe: floods, wetness.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.	Severe: floods, wetness.
Sa---------- Saco	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.
Sc---------- Scantic	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
SeB---------- Scio	Slight----------	Slight----------	Moderate: slope, wetness.	Slight----------	Slight.
SeC---------- Scio	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
SeD---------- Scio	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Sg---------- Sebago	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus.	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus.	Severe: wetness, floods, excess humus.
SkB---------- Skerry	Moderate: percs slowly.	Slight----------	Moderate: percs slowly, slope.	Slight----------	Slight.
SkC---------- Skerry	Moderate: percs slowly, slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
SrB---------- Skerry	Moderate: percs slowly.	Slight----------	Moderate: percs slowly, slope.	Moderate: large stones.	Moderate: large stones.
SrC---------- Skerry	Moderate: percs slowly, slope.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: large stones, slope.
SU*. Sulfihemists					
UD*: Udipsamments.					
Dune land.					
Ur*. Urban land					
UsA*: Urban land.					
Scantic----------	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Va, Vp---------- Vassalboro	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus.	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus.	Severe: wetness, floods, excess humus.
Wa---------- Waskish	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus.	Severe: wetness, excess humus, floods.	Severe: wetness, excess humus.	Severe: excess humus, wetness, floods.

* See the description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 10.--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
AdB---------- Adams	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Severe: droughty, too sandy.
AdC---------- Adams	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: droughty, too sandy.
AdD---------- Adams	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, droughty, too sandy.
AgB*: Adams----------	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Severe: droughty, too sandy.
Urban land.						
AlB---------- Allagash	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
AlC---------- Allagash	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Ba*. Beaches						
BcB---------- Becket	Moderate: wetness.	Moderate: frost action, wetness.	Moderate: wetness.	Moderate: frost action, slope.	Moderate: frost action.	Moderate: small stones.
BcC---------- Becket	Moderate: wetness, slope.	Moderate: frost action, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: frost action, slope.	Moderate: small stones, slope.
BcD---------- Becket	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
BeB---------- Becket	Moderate: large stones, wetness.	Moderate: frost action, wetness.	Moderate: large stones, wetness.	Moderate: frost action, slope.	Moderate: frost action.	Moderate: large stones.
BeC---------- Becket	Moderate: large stones, slope.	Moderate: frost action, slope.	Moderate: large stones, slope.	Severe: slope.	Moderate: frost action, slope.	Moderate: large stones, slope.
BeD---------- Becket	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Bm---------- Biddeford	Severe: wetness, too clayey.	Severe: wetness, low strength.	Severe: wetness, low strength.	Severe: wetness, low strength.	Severe: wetness, low strength.	Severe: wetness, excess humus.
BrB*: Brayton----------	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, frost action.	Moderate: wetness.
Westbury---------	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: frost action, wetness.	Moderate: wetness.

See footnote at end of table.

TABLE 10.--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
BsB*: Brayton	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, large stones.	Moderate: wetness.
Westbury	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, frost action.	Moderate: wetness, large stones.
BuB Buxton	Severe: too clayey, wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: frost action, low strength.	Moderate: wetness.
BuC Buxton	Severe: too clayey, wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: slope, wetness.	Severe: frost action, low strength.	Moderate: slope, wetness.
BuD Buxton	Severe: slope, too clayey, wetness.	Severe: slope, wetness, frost action.	Severe: wetness, slope.	Severe: slope, wetness.	Severe: slope, frost action, low strength.	Severe: slope.
Ch Chocorua	Severe: wetness, excess humus.	Severe: wetness, excess humus.	Severe: wetness, excess humus.	Severe: wetness, excess humus.	Severe: wetness, excess humus.	Severe: wetness, floods.
CoB Colton	Severe: small stones.	Slight	Slight	Moderate: slope.	Slight	Moderate: small stones, droughty.
CoC Colton	Severe: small stones.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, slope.
CoD, CoE Colton	Severe: slope, small stones.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CrB Croghan	Severe: wetness, cutbanks cave.	Moderate: wetness, frost action.	Severe: wetness.	Moderate: slope, wetness, frost action.	Moderate: frost action.	Severe: too sandy.
CuB*: Croghan	Severe: wetness, cutbanks cave.	Moderate: wetness, frost action.	Severe: wetness.	Moderate: slope, wetness, frost action.	Moderate: frost action.	Severe: too sandy.
Urban land.						
Dm*. Dumps						
EmB Elmwood	Severe: wetness, too clayey.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: frost action, low strength.	Slight.
EmC Elmwood	Severe: wetness, too clayey.	Severe: frost action.	Severe: wetness.	Severe: slope, frost action.	Severe: frost action, low strength.	Moderate: slope.
HeB Hermon	Moderate: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Slight.
HeC Hermon	Moderate: slope, cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.

See footnote at end of table.

TABLE 10.--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
HeD---------- Hermon	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
HmB---------- Hermon	Moderate: large stones, cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones, slope.	Slight---------	Moderate: large stones.
HmC---------- Hermon	Moderate: large stones, slope.	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: slope.	Moderate: slope.	Moderate: slope, large stones.
HmD---------- Hermon	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
HnC---------- Hermon	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: slope, large stones.	Severe: large stones.
HnE---------- Hermon	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.
LnB---------- Lyman	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
LnC---------- Lyman	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.
LnD---------- Lyman	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.
LyB*: Lyman----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Rock outcrop.						
LyC*: Lyman----------	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.
Rock outcrop.						
LyE*: Lyman----------	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.						
MaB---------- Madawaska	Severe: wetness, cutbanks cave.	Moderate: wetness, frost action.	Severe: wetness.	Moderate: slope, wetness, frost action.	Moderate: frost action.	Slight.
MrB---------- Marlow	Moderate: wetness.	Moderate: frost action.	Moderate: wetness.	Moderate: frost action, slope.	Moderate: frost action.	Slight.
MrC2---------- Marlow	Moderate: wetness, slope.	Moderate: frost action, slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: frost action, slope.	Moderate: slope.
MrD2---------- Marlow	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--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
MvB---------- Marlow	Moderate: large stones, wetness.	Moderate: frost action.	Moderate: large stones, wetness.	Moderate: frost action, slope.	Moderate: frost action.	Moderate: large stones.
MvC---------- Marlow	Moderate: slope, wetness.	Moderate: frost action, slope.	Moderate: slope, wetness.	Severe: slope.	Moderate: frost action, slope.	Moderate: large stones, slope.
MvD---------- Marlow	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Na---------- Naumburg	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
On---------- Ondawa	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.
PeB---------- Peru	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: frost action.	Slight.
Pg*. Pits						
Po*: Podunk----------	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.	Severe: floods.
Winooski---------	Severe: floods, wetness.	Severe: floods, frost action.	Severe: floods, wetness.	Severe: floods, frost action.	Moderate: floods.	Moderate: floods.
Ra---------- Raynham	Severe: wetness.	Severe: frost action, wetness.	Severe: wetness.	Severe: frost action, wetness.	Severe: frost action, wetness.	Moderate: wetness.
RoC*: Rock outcrop.						
Lyman----------	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.
RoE*: Rock outcrop.						
Lyman----------	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.
Ru---------- Rumney	Severe: floods, wetness, cutbanks cave.	Severe: floods, wetness, frost action.	Severe: floods, wetness.	Severe: floods, wetness, frost action.	Severe: floods, wetness, frost action.	Severe: floods, wetness.
Sa---------- Saco	Severe: floods, wetness, cutbanks cave.	Severe: floods, wetness, frost action.	Severe: floods, wetness.	Severe: floods, wetness, frost action.	Severe: floods, wetness, frost action.	Severe: floods, wetness.
Sc---------- Scantic	Severe: wetness, too clayey.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, low strength, frost action.	Severe: wetness.
SeB---------- Scio	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: frost action.	Slight.

See footnote at end of table.

TABLE 10.--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
SeC---------- Scio	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: slope, frost action.	Severe: frost action.	Moderate: slope.
SeD---------- Scio	Severe: slope, wetness.	Severe: slope, frost action.	Severe: slope, wetness.	Severe: slope, frost action.	Severe: slope, frost action.	Severe: slope.
Sg---------- Sebago	Severe: wetness, floods, excess humus.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, excess humus.
SkB---------- Skerry	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: frost action.	Slight.
SkC---------- Skerry	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: slope, frost action.	Severe: frost action.	Moderate: slope.
SrB---------- Skerry	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: frost action.	Moderate: large stones.
SrC---------- Skerry	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: slope, frost action.	Severe: frost action.	Moderate: large stones, slope.
SU*. Sulfihemists						
UD*: Udipsamments.						
Dune land.						
Ur*. Urban land						
UsA*: Urban land.						
Scantic----------	Severe: wetness, too clayey.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, low strength, frost action.	Severe: wetness.
Va, Vp---------- Vassalboro	Severe: wetness, floods, excess humus.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, excess humus.
Wa---------- Waskish	Severe: excess humus, wetness, floods.	Severe: wetness, low strength, floods.	Severe: wetness, low strength, floods.	Severe: wetness, low strength, floods.	Severe: frost action, wetness, low strength.	Severe: excess humus, wetness, floods.

* See the description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," 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	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AdB* Adams	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: thin layer, too sandy, area reclaim.
AdC* Adams	Moderate: slope.	Severe: slope, seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: thin layer, too sandy, area reclaim.
AdD* Adams	Severe: slope.	Severe: slope, seepage.	Severe: seepage, too sandy.	Severe: slope, seepage.	Poor: slope, thin layer, too sandy.
AgB* **: Adams	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: thin layer, too sandy, area reclaim.
Urban land.					
AlB* Allagash	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Fair: thin layer.
AlC* Allagash	Moderate: slope.	Severe: slope, seepage.	Severe: seepage, too sandy.	Severe: seepage.	Fair: slope, thin layer.
Ba**. Beaches					
BcB Becket	Severe: percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: small stones.
BcC Becket	Severe: percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: small stones, slope.
BcD Becket	Severe: slope, percs slowly.	Severe: slope.	Severe: wetness.	Severe: slope, wetness.	Poor: slope.
BeB Becket	Severe: percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: large stones.
BeC Becket	Severe: percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: large stones, slope.
BeD Becket	Severe: slope, percs slowly.	Severe: slope.	Severe: wetness.	Severe: slope, wetness.	Poor: slope.
Bm Biddeford	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness, too clayey.

See footnotes at end of table.

TABLE 11--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BrB**:					
Brayton	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Westbury	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: small stones.
BsB**:					
Brayton	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Westbury	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: large stones.
BuB Buxton	Severe: percs slowly, wetness.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: thin layer.
BuC Buxton	Severe: percs slowly, wetness.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: slope, thin layer.
BuD Buxton	Severe: slope, percs slowly, wetness.	Severe: slope.	Severe: wetness.	Severe: slope, wetness.	Poor: slope.
Ch Chocorua	Severe: wetness.	Severe: wetness, excess humus.	Severe: wetness, excess humus.	Severe: wetness.	Poor: wetness, excess humus.
CoB* Colton	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: small stones.
CoC* Colton	Moderate: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Poor: small stones.
CoD* Colton	Severe: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: slope, seepage.	Poor: slope, small stones.
CoE* Colton	Severe: slope.	Severe: slope, seepage.	Severe: slope, seepage.	Severe: slope, seepage.	Poor: slope, small stones.
CrB* Croghan	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy.
CuB* **: Croghan	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy.
Urban land.					
Dm**. Dumps					
EmB Elmwood	Severe: percs slowly, wetness.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Fair: thin layer.

See footnotes at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
EmC---------- Elmwood	Severe: percs slowly, wetness.	Severe: slope.	Severe: wetness, too clayey.	Severe: wetness.	Fair: slope, thin layer.
HeB*---------- Hermon	Slight----------	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: small stones.
HeC*---------- Hermon	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: small stones.
HeD*---------- Hermon	Severe: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: slope, seepage.	Poor: slope, small stones.
HmB*---------- Hermon	Moderate: large stones.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: small stones.
HmC*---------- Hermon	Moderate: large stones, slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: small stones.
HmD*---------- Hermon	Severe: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: slope, seepage.	Poor: slope, small stones.
HnC*---------- Hermon	Severe: large stones.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage.	Poor: large stones.
HnE*---------- Hermon	Severe: slope, large stones.	Severe: seepage, slope.	Severe: slope, large stones, seepage.	Severe: slope, seepage.	Poor: slope, large stones.
LnB---------- Lyman	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
LnC---------- Lyman	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
LnD---------- Lyman	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
LyB**: Lyman----------	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
Rock outcrop.					
LyC**: Lyman----------	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
Rock outcrop.					

See footnotes at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
LyE**:					
Lyman	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
Rock outcrop.					
MaB	Severe: wetness.	Severe: wetness, seepage.	Severe: seepage, too sandy.	Severe: wetness, seepage.	Fair: thin layer, too sandy.
Madawaska					
MrB	Severe: percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: small stones.
Marlow					
MrC2	Severe: percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: small stones, slope.
Marlow					
MrD2	Severe: percs slowly, slope.	Severe: slope.	Severe: wetness.	Severe: slope, wetness.	Poor: slope.
Marlow					
MvB	Severe: percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: large stones.
Marlow					
MvC	Severe: percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: large stones, slope.
Marlow					
MvD	Severe: slope, percs slowly.	Severe: slope.	Severe: wetness.	Severe: slope, wetness.	Poor: slope.
Marlow					
Na	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Poor: wetness, area reclaim.
Naumburg					
On	Severe: floods.	Severe: floods, seepage.	Severe: floods, seepage.	Severe: floods, seepage.	Fair: thin layer.
Ondawa					
PeB	Severe: percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: small stones.
Peru					
Pg**.					
Pits					
Po**:					
Podunk	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Fair: thin layer.
Winooski	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Good.
Ra	Severe: percs slowly, wetness.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.
Raynham					
RoC**:					
Rock outcrop.					
Lyman	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.

See footnotes at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
RoE**: Rock outcrop.					
Lyman	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
Ru Rumney	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Poor: wetness.
Sa Saco	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Poor: wetness.
Sc Scantic	Severe: percs slowly, wetness.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, thin layer.
SeB Scio	Severe: wetness.	Moderate: seepage, slope.	Severe: seepage, wetness.	Severe: seepage, wetness.	Good.
SeC Scio	Severe: wetness.	Severe: slope.	Severe: seepage, wetness.	Severe: seepage, wetness.	Fair: slope.
SeD Scio	Severe: slope, wetness.	Severe: slope.	Severe: seepage, wetness.	Severe: slope, seepage, wetness.	Poor: slope.
Sg Sebago	Severe: wetness, floods.	Severe: wetness, seepage, excess humus.	Severe: wetness, floods, seepage.	Severe: wetness, floods, seepage.	Poor: wetness, excess humus, hard to pack.
SkB Skerry	Severe: percs slowly.	Moderate: small stones, slope.	Severe: wetness.	Severe: wetness.	Fair: small stones.
SkC Skerry	Severe: percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: small stones, slope.
SrB Skerry	Severe: percs slowly.	Moderate: large stones, slope.	Severe: wetness.	Severe: wetness.	Fair: large stones.
SrC Skerry	Severe: percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: large stones, slope.
SU**. Sulfihemists					
UD**: Udipsamments.					
Dune land.					
Ur**. Urban land					
UsA**: Urban land.					

See footnotes at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
UsA**: Scantic	Severe: percs slowly, wetness.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, thin layer.
Va, Vp Vassalboro	Severe: wetness, floods.	Severe: wetness, seepage, excess humus.	Severe: wetness, floods, seepage.	Severe: wetness, floods, seepage.	Poor: wetness, excess humus, hard to pack.
Wa Waskish	Severe: wetness, floods.	Severe: wetness, seepage, excess humus.	Severe: wetness, seepage, floods.	Severe: wetness, seepage, floods.	Poor: excess humus, wetness, hard to pack.

* Excessive permeability may cause pollution of ground water.
** See the description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
AdB, AdC---------- Adams	Good----------	Good----------	Unsuited: excess fines.	Poor: too sandy.
AdD---------- Adams	Fair: slope.	Good----------	Unsuited: excess fines.	Poor: slope, too sandy.
AgB*: Adams----------	Good----------	Good----------	Unsuited: excess fines.	Poor: too sandy.
Urban land.				
AlB---------- Allagash	Good----------	Good----------	Unsuited: excess fines.	Good.
AlC---------- Allagash	Good----------	Good----------	Unsuited: excess fines.	Fair: slope.
Ba*. Beaches				
BcB, BcC---------- Becket	Fair: frost action.	Poor: excess fines.	Poor: excess fines.	Poor: small stones.
BcD---------- Becket	Fair: frost action, slope.	Poor: excess fines.	Poor: excess fines.	Poor: slope, small stones.
BeB, BeC---------- Becket	Fair: frost action.	Poor: excess fines.	Poor: excess fines.	Poor: large stones.
BeD---------- Becket	Fair: slope, frost action.	Poor: excess fines.	Poor: excess fines.	Poor: large stones, slope.
Bm---------- Biddeford	Poor: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness, thin layer, too clayey.
BrB*: Brayton----------	Poor: wetness, frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: small stones, wetness.
Westbury----------	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: small stones.
BsB*: Brayton----------	Poor: wetness, frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: large stones, wetness.
Westbury----------	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: large stones.
BuB---------- Buxton	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
BuC---------- Buxton	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope, too clayey.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
BuD---------- Buxton	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
Ch---------- Chocorua	Poor: wetness, excess humus.	Unsuited: excess humus.	Unsuited: excess humus.	Poor: wetness, excess humus.
CoB, CoC---------- Colton	Good----------	Good----------	Good----------	Poor: small stones.
CoD---------- Colton	Fair: slope.	Good----------	Good----------	Poor: slope, small stones.
CoE---------- Colton	Poor: slope.	Good----------	Good----------	Poor: slope, small stones.
CrB---------- Croghan	Good----------	Good----------	Unsuited: excess fines.	Poor: too sandy.
CuB*: Croghan----------	Good----------	Good----------	Unsuited: excess fines.	Poor: too sandy.
Urban land.				
Dm*. Dumps				
EmB---------- Elmwood	Poor: frost action, low strength.	Poor: excess fines, thin layer.	Unsuited: excess fines.	Good.
EmC---------- Elmwood	Poor: frost action, low strength.	Poor: excess fines, thin layer.	Unsuited: excess fines.	Fair: slope.
HeB---------- Hermon	Good----------	Poor: excess fines.	Poor: excess fines.	Fair: small stones.
HeC---------- Hermon	Good----------	Poor: excess fines.	Poor: excess fines.	Fair: slope, small stones.
HeD---------- Hermon	Fair: slope.	Poor: excess fines.	Poor: excess fines.	Poor: slope.
HmB, HmC---------- Hermon	Good----------	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, small stones.
HmD---------- Hermon	Fair: slope.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: slope.
HnC---------- Hermon	Fair: large stones.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, small stones.
HnE---------- Hermon	Poor: slope.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: slope.
LnB, LnC---------- Lyman	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer, area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
LnD--- Lyman	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: slope, thin layer, area reclaim.
LyB*, LyC*: Lyman---	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer, area reclaim.
Rock outcrop.				
LyE*: Lyman---	Poor: slope, thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: slope, thin layer, area reclaim.
Rock outcrop.				
MaB--- Madawaska	Good---	Fair: excess fines.	Unsuited: excess fines.	Good.
MrB, MrC2--- Marlow	Fair: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: small stones.
MrD2--- Marlow	Fair: frost action, slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.
MvB, MvC--- Marlow	Fair: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: large stones.
MvD--- Marlow	Fair: slope, frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: large stones, slope.
Na--- Naumburg	Poor: wetness, area reclaim.	Fair: excess fines.	Unsuited: excess fines.	Poor: wetness, too sandy.
On--- Ondawa	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
PeB--- Peru	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: small stones.
Pg*. Pits				
Po*: Podunk---	Fair: frost action.	Fair: excess fines.	Unsuited: excess fines.	Good.
Winooski---	Poor: frost action.	Poor: excess fines.	Unsuited: excess fines.	Good.
Ra--- Raynham	Poor: frost action, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
RoC*: Rock outcrop.				
Lyman---	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer, area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
RoE*: Rock outcrop.				
Lyman	Poor: slope, thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: slope, thin layer, area reclaim.
Ru Rumney	Poor: wetness.	Fair: excess fines.	Unsuited: excess fines.	Poor: wetness.
Sa Saco	Poor: wetness, frost action.	Fair: excess fines.	Unsuited: excess fines.	Poor: wetness.
Sc Scantic	Poor: frost action, wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
SeB Scio	Poor: first action.	Poor: excess fines.	Poor: excess fines.	Good.
SeC Scio	Poor: frost action.	Poor: excess fines.	Poor: excess fines.	Fair: slope.
SeD Scio	Poor: frost action.	Poor: excess fines.	Poor: excess fines.	Poor: slope.
Sg Sebago	Poor: wetness, frost action, low strength.	Unsuited: excess humus.	Unsuited: excess humus.	Poor: wetness, excess humus.
SkB, SkC Skerry	Poor: frost action.	Poor: excess fines.	Unsuited: excess fines.	Fair: small stones.
SrB, SrC Skerry	Poor: frost action.	Poor: excess fines.	Unsuited: excess fines.	Poor: large stones.
SU*. Sulfihemists				
UD*: Udipsamments.				
Dune land.				
Ur*. Urban land				
UsA*: Urban land.				
Scantic	Poor: frost action, wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Va, Vp Vassalboro	Poor: wetness, frost action, low strength.	Unsuited: excess humus.	Unsuited: excess humus.	Poor: wetness, excess humus.
Wa Waskish	Poor: wetness, low strength, frost action.	Unsuited: excess humus.	Unsuited: excess humus.	Poor: wetness, excess humus.

* See the description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AdB, AdC, AdD----- Adams	Seepage, piping.	No water-------	Not needed-----	Fast intake, slope, droughty.	Too sandy, slope.	Droughty, slope.
AgB*: Adams----------	Seepage, piping.	No water-------	Not needed-----	Fast intake, slope, droughty.	Too sandy, slope.	Droughty, slope.
Urban land.						
AlB, AlC---------- Allagash	Seepage, piping.	No water-------	Not needed-----	Slope----------	Slope----------	Slope.
Ba*. Beaches						
BcB, BcC, BcD----- Becket	Seepage--------	No water-------	Not needed-----	Rooting depth, slope, percs slowly.	Percs slowly, slope.	Percs slowly, slope.
BeB, BeC, BeD----- Becket	Large stones, seepage.	No water, large stones.	Not needed-----	Percs slowly, large stones, slope.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.
Bm---------- Biddeford	Low strength, compressible, hard to pack.	Favorable------	Wetness, percs slowly, poor outlets.	Not needed-----	Not needed-----	Wetness, percs slowly.
BrB*: Brayton----------	Wetness--------	Slow refill----	Percs slowly, frost action.	Wetness, rooting depth.	Wetness, rooting depth.	Wetness, rooting depth.
Westbury---------	Wetness--------	Slow refill----	Percs slowly, frost action.	Wetness, rooting depth.	Wetness, rooting depth.	Wetness, rooting depth.
BsB*: Brayton----------	Large stones, wetness.	Large stones, slow refill.	Large stones, percs slowly, frost action.	Large stones, wetness, rooting depth.	Large stones, wetness, rooting depth.	Large stones, wetness, rooting depth.
Westbury---------	Large stones, wetness.	Large stones, slow refill.	Large stones, percs slowly, frost action.	Large stones, wetness, rooting depth.	Large stones, wetness, rooting depth.	Large stones, wetness, rooting depth.
BuB, BuC, BuD----- Buxton	Piping, erodes easily.	Slow refill----	Percs slowly---	Percs slowly, wetness, slope.	Percs slowly, erodes easily.	Percs slowly, erodes easily.
Ch---------- Chocorua	Compressible, low strength.	Favorable------	Wetness, poor outlets.	Wetness--------	Not needed-----	Not needed.
CoB, CoC, CoD, CoE Colton	Seepage. piping.	No water-------	Not needed-----	Slope, seepage, droughty.	Slope, too sandy, piping.	Slope, droughty.
CrB---------- Croghan	Seepage, unstable fill, piping.	Deep to water, cutbanks cave.	Cutbanks cave.	Seepage, fast intake.	Too sandy------	Erodes easily, droughty.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
CuB*: Croghan	Seepage, unstable fill, piping.	Deep to water, cutbanks cave.	Cutbanks cave	Seepage, fast intake.	Too sandy	Erodes easily, droughty.
Urban land.						
Dm*. Dumps						
EmB, EmC Elmwood	Wetness	Favorable	Frost action, percs slowly, slope.	Slope, percs slowly.	Slope, wetness, percs slowly.	Slope, percs slowly.
HeB, HeC, HeD Hermon	Seepage, piping.	Deep to water, cutbanks cave.	Not needed	Fast intake, droughty, slope.	Slope	Droughty, slope.
HmB, HmC, HmD, HnC, HnE Hermon	Seepage, large stones, piping.	Large stones, deep to water, cutbanks cave.	Not needed	Large stones, droughty, slope.	Large stones, slope.	Droughty, large stones, slope.
LnB, LnC, LnD Lyman	Thin layer, seepage.	No water, depth to rock.	Not needed	Depth to rock, slope, rooting depth.	Depth to rock, slope.	Slope, depth to rock, droughty.
LyB*, LyC*, LyE*: Lyman	Thin layer, seepage.	No water, depth to rock.	Not needed	Depth to rock, slope, rooting depth.	Depth to rock, slope.	Slope, depth to rock, droughty.
Rock outcrop.						
MaB Madawaska	Low strength, piping, seepage.	Deep to water, seepage.	Cutbanks cave, frost action, slope.	Fast intake, wetness, seepage.	Wetness, slope.	Wetness, slope.
MrB, MrC2, MrD2 Marlow	Favorable	No water	Not needed	Rooting depth, slope.	Percs slowly, slope.	Percs slowly, slope.
MvB, MvC, MvD Marlow	Large stones	No water, large stones.	Not needed	Percs slowly, large stones, slope.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.
Na Naumburg	Piping, seepage.	Cutbanks cave	Cutbanks cave, wetness.	Fast intake, wetness.	Not needed	Not needed.
On Ondawa	Piping	No water	Not needed	Floods, seepage.	Not needed	Not needed.
PeB Peru	Favorable	Deep to water	Percs slowly, slope.	Percs slowly, rooting depth.	Percs slowly, slope.	Percs slowly, slope.
Pg*. Pits						
Po*: Podunk	Piping, erodes easily.	Deep to water	Poor outlets, floods.	Favorable	Not needed	Not needed.
Winooski	Piping, erodes easily.	Deep to water	Floods, poor outlets.	Favorable	Not needed	Not needed.
Ra Raynham	Piping, low strength, erodes easily.	Favorable	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly, erodes easily.	Wetness, percs slowly, erodes easily.
RoC*, RoE*: Rock outcrop.						

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
RoC*, RoE*: Lyman	Thin layer, seepage.	No water, depth to rock.	Not needed	Depth to rock, slope, rooting depth.	Depth to rock, slope.	Slope, depth to rock, droughty.
Ru Rumney	Piping, seepage.	Favorable	Wetness, floods, poor outlets.	Floods	Not needed	Not needed.
Sa Saco	Piping, wetness.	Favorable	Floods, frost action.	Wetness, floods.	Not needed	Not needed.
Sc Scantic	Hard to pack, wetness.	Slow refill	Percs slowly, frost action, slope.	Wetness, percs slowly, slope.	Wetness, percs slowly, erodes easily.	Wetness, percs slowly, erodes easily.
SeB, SeC, SeD Scio	Erodes easily, piping, seepage.	Cutbanks cave, deep to water.	Slope, cutbanks cave.	Slope, erodes easily, wetness.	Slope, erodes easily, wetness.	Slope, erodes easily.
Sg Sebago	Excess humus, low strength, wetness.	Favorable	Floods, frost action, poor outlets.	Floods, wetness.	Not needed	Not needed.
SkB, SkC Skerry	Favorable	Deep to water	Percs slowly, slope.	Percs slowly, rooting depth, droughty.	Percs slowly, slope.	Percs slowly, slope.
SrB, SrC Skerry	Large stones	Deep to water, large stones.	Percs slowly, slope, large stones.	Percs slowly, large stones, rooting depth.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.
SU*. Sulfihemists						
UD*: Udipsamments.						
Dune land.						
Ur*. Urban land						
UsA*: Urban land.						
Scantic	Hard to pack, wetness.	Slow refill	Percs slowly, frost action, slope.	Wetness, percs slowly, slope.	Wetness, percs slowly, erodes easily.	Wetness, percs slowly, erodes easily.
Va, Vp Vassalboro	Excess humus, low strength, wetness.	Favorable	Floods, frost action, poor outlets.	Floods, wetness.	Not needed	Not needed.
Wa Waskish	Wetness, excess humus, wetness.	Favorable	Frost action, floods, poor outlets.	Wetness, floods.	Not needed	Not needed.

* See the description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated. NP = nonplastic]

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	
AdB, AdC, AdD------ Adams	0-3	Loamy sand------	SM, SP-SM	A-1, A-2, A-3, A-4	0	95-100	95-100	45-85	5-40	---	NP
	3-18	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-1, A-2, A-3, A-4	0	95-100	95-100	35-95	5-40	---	NP
	18-60	Sand, coarse sand.	SP-SM, SW-SM, SP	A-1, A-2, A-3	0-1	90-100	70-100	20-90	0-10	---	NP
AgB*: Adams----------	0-3	Loamy sand------	SM, SP-SM	A-1, A-2, A-3, A-4	0	95-100	95-100	45-85	5-40	---	NP
	3-18	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-1, A-2, A-3, A-4	0	95-100	95-100	35-95	5-40	---	NP
	18-60	Sand, coarse sand.	SP-SM, SW-SM, SP	A-1, A-2, A-3	0-1	90-100	70-100	20-90	0-10	---	NP
Urban land.											
AlB, AlC---------- Allagash	0-7	Very fine sandy loam.	SM, ML	A-4, A-5	0	95-100	95-100	65-100	40-90	<44	NP-9
	7-20	Fine sandy loam, loam.	SM, ML	A-2, A-4	0	95-100	75-100	50-95	30-75	---	NP
	20-38	Fine sand, loamy fine sand, sand.	SM, SP-SM	A-2, A-1, A-3	0	85-100	75-100	35-80	5-35	---	NP
	38-60	Stratified loamy fine sand to very gravelly sand.	SP, SM, SW	A-1, A-2, A-3	0-10	70-100	25-100	10-75	0-30	---	NP
Ba*. Beaches											
BcB, BcC, BcD------ Becket	0-6	Fine sandy loam	SM	A-2, A-4	0-15	85-95	55-90	35-75	20-50	---	---
	6-23	Fine sandy loam, sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-15	70-90	60-85	50-75	25-40	---	---
	23-60	Gravelly loamy sand, gravelly loamy fine sand, gravelly sandy loam.	SM, SP-SM, GM, GP-GM	A-2	5-15	60-85	55-75	25-70	10-30	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES AND CLASSIFICATIONS--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	
BeB, BeC, BeD------ Becket	0-2	Very stony fine sandy loam.	SM	A-2, A-4	10-20	85-95	80-90	55-75	30-50	---	---
	2-23	Fine sandy loam, sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-15	70-90	60-85	50-75	25-40	---	---
	23-60	Gravelly loamy sand, gravelly loamy fine sand, gravelly sandy loam.	SM, SP-SM, GM, GP-GM	A-2	5-15	60-85	55-75	25-70	10-30	---	---
Bm----------	14-0	Mucky peat------	Pt	A-8	---	---	---	---	---	---	---
Biddeford	0-5	Silt loam, silty clay loam, silty clay.	ML, MH, OL	A-4, A-6, A-7	0	100	100	90-100	85-100	30-62	5-25
	5-36	Silty clay, silty clay loam, clay.	CL, CL-ML, MH, ML	A-6, A-7 A-4, A-5	0	100	100	95-100	90-100	25-54	5-20
	36-60	Silty clay loam, silty clay, clay.	CL, CL-ML, MH, ML	A-6, A-4	0	100	100	95-100	90-100	25-40	5-15
BrB*:											
Brayton----------	0-5	Fine sandy loam	SM, ML, OL	A-1, A-2, A-4	0-15	80-90	75-90	45-90	20-80	<15	NP-4
	5-11	Gravelly fine sandy loam, gravelly sandy loam, silt loam.	GM, ML, SM	A-2, A-4, A-1	0-15	55-95	50-90	30-90	15-80	<15	NP-4
	11-60	Gravelly fine sandy loam, very gravelly sandy loam, loam.	GM, SM, GM-GC, ML	A-2, A-4, A-1	0-15	45-75	40-90	25-85	10-70	<15	NP-4
Westbury----------	0-4	Fine sandy loam	SM, OL, ML	A-2, A-4, A-1	0-5	80-95	75-90	45-75	20-60	<15	NP-4
	4-23	Gravelly loam, silt loam, gravelly sandy loam.	SM, GM, ML	A-2, A-4, A-1	0-5	55-95	50-90	30-90	15-80	<15	NP-4
	23-36	Gravelly sandy loam, very gravelly fine sandy loam, loam.	SM, GM, GW-GM, ML	A-1, A-2, A-4	0-5	40-90	35-85	20-80	10-65	<15	NP-4
	36-60	Gravelly sandy loam, very gravelly fine sandy loam, loam.	GM, GW-GM, SM, ML	A-1, A-2, A-4	0-5	40-90	35-85	20-80	10-65	<15	NP-4
BsB*:											
Brayton----------	0-5	Very stony fine sandy loam.	GM, SM, ML, OL	A-4, A-1, A-2	5-20	55-80	50-75	30-75	15-70	<15	NP-4
	5-11	Gravelly fine sandy loam, gravelly sandy loam, silt loam.	GM, ML, SM	A-2, A-4, A-1	0-15	55-95	50-90	30-90	15-80	<15	NP-4
	11-60	Gravelly fine sandy loam, very gravelly sandy loam, loam.	GM, SM, ML, GW-GM	A-2, A-4, A-1	0-15	45-95	40-90	25-85	10-70	<15	NP-4

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES AND CLASSIFICATIONS--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	
BsB*:											
Westbury----------	0-4	Very stony fine sandy loam.	SM, ML, GM	A-2, A-4, A-1	5-10	55-80	50-75	30-75	15-70	<15	NP-4
	4-23	Gravelly loam, silt loam, gravelly sandy loam.	SM, GM, ML	A-2, A-4, A-1	0-5	55-95	50-90	30-90	15-80	<15	NP-4
	23-36	Gravelly sandy loam, very gravelly fine sandy loam, loam.	SM, GM, GW-GM, ML	A-1, A-2, A-4	0-5	40-90	35-85	20-80	10-65	<15	NP-4
	36-60	Gravelly sandy loam, very gravelly fine sandy loam, loam.	GM, GW-GM, SM, ML	A-1, A-2, A-4	0-5	40-90	35-85	20-80	10-65	<15	NP-4
BuB, BuC, BuD------ Buxton	0-7	Silt loam-------	ML, MH	A-4, A-6, A-7, A-5	0	98-100	95-100	95-100	85-100	36-55	5-20
	7-19	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6, A-7, A-5	0	98-100	95-100	95-100	85-100	25-55	5-20
	19-60	Silty clay, silty clay loam, clay.	CL, CL-ML ML	A-6, A-4	0	98-100	95-100	95-100	90-100	25-40	5-15
Ch---------- Chocorua	0-32	Peat----------	Pt	A-8	0	---	---	---	---	---	---
	32-60	Gravelly sand, loamy sand, loamy fine sand.	SP, SM	A-1, A-3	0	100	60-100	30-80	0-30	---	NP
CoB, CoC, CoD, CoE- Colton	0-10	Gravelly loamy coarse sand.	SM, SP, GW, GM	A-1, A-2, A-3	5-20	30-80	25-75	25-60	2-25	---	NP
	10-18	Gravelly loamy sand, very gravelly sand, cobbly sand.	SM, GM, SP, GP	A-1, A-2, A-3	5-20	30-80	25-75	20-50	2-20	---	NP
	18-60	Very gravelly sand, very cobbly sand.	GP, SP, GW, SW	A-1	10-45	20-55	15-50	10-30	0-5	---	NP
CrB---------- Croghan	0-7	Loamy sand------	SM, SP-SM, SW-SM	A-1, A-3, A-4, A-2	0	95-100	95-100	45-80	5-40	---	NP
	7-28	Sand, loamy sand, loamy fine sand.	SM, SP-SM, SW-SM	A-1, A-2, A-3, A-4	0	90-100	85-100	45-80	5-40	---	NP
	28-60	Sand, loamy sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	90-100	85-100	45-75	5-30	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES AND CLASSIFICATIONS--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	
CuB*:											
Croghan	0-7	Loamy sand	SM, SP-SM, SW-SM	A-1, A-3, A-4, A-2	0	95-100	95-100	45-80	5-40	---	NP
	7-28	Sand, loamy sand, loamy fine sand.	SM, SP-SM, SW-SM	A-1, A-2, A-3, A-4	0	90-100	85-100	45-80	5-40	---	NP
	28-60	Sand, loamy sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	90-100	85-100	45-75	5-30	---	NP
Urban land.											
Dm*.											
Dumps											
EmB, EmC	0-14	Fine sandy loam	SM, ML	A-2, A-4	0	100	95-100	55-85	30-55	<30	NP
Elmwood	14-20	Sandy loam, fine sandy loam, silt loam.	SM, ML	A-2, A-4	0	100	95-100	55-95	30-75	<30	NP
	20-60	Silty clay loam, clay loam, clay.	CL, CH	A-7, A-6	0	100	100	90-100	90-100	35-55	15-30
HeB, HeC, HeD	0-6	Fine sandy loam	SM	A-2, A-4	0-5	85-95	75-90	55-80	25-45	<40	NP-10
Hermon	6-19	Gravelly coarse sandy loam, gravelly fine sandy loam, very gravelly sandy loam.	SM	A-1, A-2 A-4	20-35	70-90	50-75	30-60	15-40	<40	NP-10
	19-60	Gravelly loamy coarse sand, very gravelly loamy sand.	SP-SM, SM GP-GM GM	A-1, A-2 A-3	20-40	45-80	40-70	20-55	5-25	---	NP
HmB, HmC, HmD	0-4	Very stony fine sandy loam.	SM	A-1, A-2 A-4	5-35	70-95	50-90	30-80	15-45	<40	NP-10
Hermon	4-19	Gravelly coarse sandy loam, gravelly fine sandy loam, very gravelly sandy loam.	SM	A-1, A-2 A-4	20-35	70-90	50-75	30-60	15-40	<40	NP-10
	19-60	Gravelly loamy coarse sand, very gravelly loamy sand.	SP-SM, SM GP-GM, GM	A-1, A-2 A-3	20-40	45-80	40-70	20-55	5-25	---	NP
HnC, HnE	0-4	Extremely stony fine sandy loam.	SM	A-1, A-2 A-4	20-50	70-95	50-90	30-80	15-45	<40	NP-10
Hermon	4-19	Gravelly coarse sandy loam, gravelly fine sandy loam, very gravelly sandy loam.	SM	A-1, A-2 A-4	20-35	70-90	50-75	30-60	15-40	<40	NP-10
	19-60	Gravelly loamy coarse sand, very gravelly loamy sand.	SP-SM, SM GP-GM, GM	A-1, A-2 A-3	20-40	45-80	40-70	20-55	5-25	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES AND CLASSIFICATIONS--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	
LnB, LnC, LnD------	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-15	80-95	70-90	45-85	25-70	<30	NP-6
Lyman	4-18	Loam, gravelly sandy loam, very fine sandy loam.	SM, ML, GM	A-2, A-4	0-15	65-95	60-85	45-80	25-70	<30	NP-4
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
LyB*, LyC*, LyE*:											
Lyman----------	0-4	Fine sandy loam	SM, ML	A-2, A-4	0-15	80-95	70-90	45-85	25-70	<30	NP-6
	4-18	Loam, gravelly sandy loam, very fine sandy loam.	SM, ML, GM	A-2, A-4	0-15	65-95	60-85	45-80	25-70	<30	NP-4
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
MaB----------	0-10	Fine sandy loam	SM, ML	A-4	0	100	85-100	65-95	35-75	---	NP
Madawaska	10-23	Fine sandy loam, sandy loam.	SM, ML	A-4	0	100	85-100	65-95	35-75	---	NP
	23-60	Fine sand, sand, very fine sand.	SM, SP-SM	A-2, A-3 A-4	0	100	85-100	50-80	5-45	---	NP
MrB, MrC2, MrD2----	0-9	Fine sandy loam	CL-ML, SM, ML	A-2, A-4	0-5	80-95	70-90	55-85	30-60	<30	NP-8
Marlow	9-29	Fine sandy loam, loam, gravelly sandy loam.	ML, CL-ML, SM, ML	A-2, A-4	0-15	70-95	60-90	50-85	30-60	<30	NP-8
	29-60	Fine sandy loam, loam, gravelly sandy loam.	CL-ML, SM ML	A-2, A-4	0-15	70-90	60-85	50-80	25-55	<30	NP-8
MvB, MvC, MvD------	0-2	Very stony fine sandy loam.	CL-ML, SM ML	A-2, A-4	5-15	80-95	70-90	55-85	30-60	<30	NP-8
Marlow	2-29	Fine sandy loam, loam, gravelly sandy loam.	CL-ML, SM ML	A-2, A-4	5-15	70-95	60-90	50-85	30-60	<30	NP-8
	29-60	Fine sandy loam, loam, gravelly sandy loam.	CL-ML, SM ML	A-2, A-4	5-15	70-90	60-85	50-80	25-55	<30	NP-8
Na----------	0-5	Sand----------	SM, SW-SM, SP-SM	A-2, A-4	0	95-100	95-100	50-85	5-45	---	NP
Naumburg	5-28	Loamy fine sand, fine sand, sand.	SM, SW-SM, SP-SM	A-1, A-2, A-3	0	90-100	90-100	45-85	5-35	---	NP
	28-60	Sand, fine sand, loamy fine sand.	SM, SW-SM, SP-SM	A-1, A-2, A-3	0	90-100	90-100	45-80	5-35	---	NP
On----------	0-9	Fine sandy loam	SM, ML	A-2, A-4	0	100	95-100	60-100	30-60	<40	NP
Ondawa	9-30	Fine sandy loam, sandy loam, loam.	SM, ML	A-2, A-4	0	100	95-100	80-95	20-70	<40	NP
	30-60	Loamy fine sand, fine sand, sand.	SP, SM	A-2, A-3	0	90-100	80-100	70-90	0-35	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES AND CLASSIFICATIONS--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	
PeB---------- Peru	0-9	Fine sandy loam	SM, ML, CL-ML	A-2, A-4	0-10	80-95	70-90	50-85	25-60	<30	NP-8
	9-20	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SC, SM-SC	A-2, A-4	0-15	75-95	65-95	60-85	30-65	<30	NP-8
	20-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SC, SM-SC	A-2, A-4	0-15	70-90	60-90	55-85	20-60	<30	NP-8
Pg*. Pits											
Po*: Podunk----------	0-8	Silt loam-------	SM, ML	A-2, A-4	0	100	95-100	60-100	30-90	---	NP
	8-25	Fine sandy loam, sandy loam, loam.	SM, ML	A-2, A-4	0	100	95-100	60-95	30-75	---	NP
	25-60	Loamy fine sand, loamy sand, gravelly coarse sand.	SP-SM, SM	A-2, A-1, A-3	0	65-100	55-100	35-85	5-25	---	NP
Winooski----------	0-11	Very fine sandy loam.	ML, SM	A-4	0	100	95-100	90-100	40-90	<30	NP
	11-60	Silt loam, very fine sandy loam, loamy very fine sand.	ML, SM	A-4	0	100	95-100	90-100	40-90	<30	NP
Ra---------- Raynham	0-6	Silt loam-------	ML	A-4	0	100	95-100	80-100	55-95	20-35	NP-10
	6-36	Silt loam, silt, very fine sandy loam.	ML	A-4	0	100	95-100	80-100	55-95	20-35	NP-10
	36-60	Silt loam, silt, very fine sandy loam, silty clay loam.	ML	A-4	0	100	95-100	80-100	55-95	20-35	NP-10
RoC*, RoE*: Rock outcrop.											
Lyman----------	0-2	Fine sandy loam	SM, ML	A-2, A-4	0-15	80-95	70-90	45-85	25-70	<30	NP-6
	2-18	Loam, gravelly sandy loam, very fine sandy loam.	SM, ML, GM	A-2, A-4	0-15	65-95	60-85	45-80	25-70	<30	NP-4
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ru---------- Rumney	0-9	Loam----------	ML, SM	A-4	0	100	85-100	70-100	40-85	<40	NP
	9-25	Fine sandy loam, sandy loam, loam.	SM, ML	A-2, A-4	0	100	85-100	50-95	25-75	<40	NP
	25-60	Stratified loamy fine sand to gravelly sand.	SP-SM, SM	A-1, A-2, A-3	0	80-100	55-95	25-70	5-30	<40	NP
Sa---------- Saco	0-13	Mucky silt loam	ML, OL	A-4	0	100	100	95-100	70-95	<40	NP-10
	13-24	Silt loam, very fine sandy loam.	ML	A-4	0	100	90-100	80-100	55-95	<40	NP-10
	24-44	Silt loam, very fine sandy loam.	ML	A-4	0	100	90-100	80-100	50-95	<25	NP-5
	44-60	Coarse sand, gravelly sand.	SP, SM	A-1, A-2, A-3	0	80-100	50-85	35-70	0-15	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES AND CLASSIFICATIONS--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	
Sc---------- Scantic	0-14	Silt loam-------	ML, MH	A-4, A-6, A-7, A-5	0	100	95-100	90-100	70-100	36-55	5-20
	14-36	Silty clay loam, silt loam, clay.	CL, MH, ML, CL-ML	A-7, A-6, A-4, A-5	0	100	95-100	95-100	85-100	25-55	5-20
	36-60	Clay, silty clay loam, silty clay.	CL, CL-ML, ML	A-6, A-4, A-5	0	100	95-100	95-100	90-100	25-40	5-15
SeB, SeC, SeD------ Scio	0-7	Silt loam-------	ML	A-4	0	100	95-100	80-100	60-90	<20	NP-4
	7-26	Silt loam, very fine sandy loam.	ML	A-4	0	100	95-100	80-100	60-90	<20	NP-4
	26-60	Stratified very gravelly sand to silt loam.	ML, SM, SP, GP-GM	A-4, A-2, A-1, A-3	0	35-95	30-90	15-85	2-80	<10	NP-4
Sg---------- Sebago	0-66	Peat------------	Pt	A-8	0-15	---	---	---	---	---	---
SkB, SkC---------- Skerry	0-5	Fine sandy loam	SM	A-2, A-4	0-10	85-95	80-90	60-85	30-50	---	NP
	5-33	Fine sandy loam, sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-15	75-95	65-90	50-75	25-45	---	NP
	33-60	Gravelly loamy sand, gravelly loamy fine sand.	SM, GM	A-1, A-2	5-20	55-85	50-75	30-70	15-35	---	NP
SrB, SrC---------- Skerry	0-2	Very stony fine sandy loam.	SM	A-2, A-4	10-20	85-95	80-90	60-85	30-50	---	NP
	2-33	Fine sandy loam, sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-15	75-95	65-90	50-75	25-45	---	NP
	33-60	Gravelly loamy sand, gravelly loamy fine sand.	SM, GM	A-1, A-2	5-20	55-85	50-75	30-70	15-35	---	NP
SU*. Sulfihemists											
UD*: Udipsamments.											
Dune land.											
Ur*. Urban land											
UsA*: Urban land.											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES AND CLASSIFICATIONS--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	
UsA*:											
Scantic	0-14	Silt loam	ML, MH, CL	A-4, A-6, A-7, A-5	0	100	95-100	90-100	70-95	30-62	5-25
	14-36	Silty clay loam, silt loam, clay.	CL, MH, CH, CL-ML	A-7, A-6, A-4, A-5	0	100	95-100	90-100	75-100	24-54	6-27
	36-60	Clay, silty clay loam, silty clay.	CL, CL-ML, MH, ML	A-6, A-7, A-4, A-5	0	100	95-100	95-100	80-100	25-54	6-23
Va, Vp Vassalboro	0-77	Peat	Pt	A-8	0-20	---	---	---	---	---	---
Wa Waskish	0-95	Peat	Pt	A-8	---	---	---	---	---	---	---

* See the description of the map unit for the composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF 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 <2mm	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
AdB, AdC, AdD----	0-3	0-5	1.10-1.40	6.0-20	0.05-0.10	4.5-5.5	Low----------	0.17	5	1-4
Adams	3-18	0-5	1.25-1.55	6.0-20	0.04-0.08	4.5-5.5	Low----------	0.17		
	18-60	0-5	1.45-1.65	>20	0.03-0.04	4.5-6.0	Low----------	0.17		
AgB*:										
Adams----------	0-3	0-5	1.10-1.40	6.0-20	0.05-0.10	4.5-5.5	Low----------	0.17	5	1-4
	3-18	0-5	1.25-1.55	6.0-20	0.04-0.08	4.5-5.5	Low----------	0.17		
	18-60	0-5	1.45-1.65	>20	0.03-0.04	4.5-6.0	Low----------	0.17		
Urban land.										
AlB, AlC---------	0-7	3-13	0.95-1.25	2.0-6.0	0.16-0.22	4.5-6.5	Low----------	0.28	3	2-8
Allagash	7-20	2-12	1.20-1.50	2.0-6.0	0.08-0.24	4.5-6.5	Low----------	0.28		
	20-38	2-5	1.35-1.65	6.0-20	0.06-0.18	4.5-6.5	Low----------	0.28		
	38-60	1-4	1.40-1.70	6.0-20	0.01-0.10	4.5-6.5	Low----------	0.28		
Ba*.										
Beaches										
BcB, BcC, BcD----	0-6	3-8	0.90-1.20	0.6-2.0	0.10-0.23	4.5-6.5	Low----------	0.20	3	3-7
Becket	6-23	3-8	1.20-1.50	0.6-2.0	0.05-0.16	5.1-6.5	Low----------	0.28		
	23-60	1-4	1.65-1.80	0.06-0.6	0.03-0.09	5.1-6.5	Low----------	0.17		
BeB, BeC, BeD----	0-2	3-8	0.90-1.20	0.6-2.0	0.10-0.23	4.5-6.5	Low----------	0.20	3	---
Becket	2-23	3-8	1.20-1.50	0.6-2.0	0.05-0.16	5.0-6.5	Low----------	0.28		
	23-60	1-4	1.65-1.80	0.06-0.6	0.03-0.09	5.0-6.5	Low----------	0.17		
Bm----------	14-0	---	0.10-0.30	2.0-6.0	0.20-0.43	5.1-6.5	----------	----	---	---
Biddeford	0-5	20-50	0.90-1.20	0.2-0.6	0.24-0.34	5.1-7.3	Low----------	----		
	5-36	35-55	1.60-1.80	<0.2	0.13-0.23	5.6-7.8	Moderate-----	----		
	36-60	35-55	1.70-1.95	<0.2	0.06-0.16	6.1-7.8	Moderate-----	----		
BrB*:										
Brayton---------	0-5	6-12	0.90-1.20	0.6-6.0	0.10-0.20	4.5-6.5	Low----------	0.28	3	2-8
	5-11	6-12	1.40-1.70	0.6-6.0	0.08-0.17	4.5-6.5	Low----------	0.24		
	11-60	6-12	1.70-2.00	<0.2	0.01-0.05	5.6-7.3	Low----------	0.24		
Westbury--------	0-4	3-12	0.90-1.20	0.6-2.0	0.08-0.16	3.6-6.0	Low----------	0.24	3	2-8
	4-23	3-12	1.40-1.70	0.6-2.0	0.07-0.15	3.6-6.0	Low----------	0.24		
	23-36	3-12	1.70-2.00	0.06-0.2	0.02-0.06	4.5-6.0	Low----------	0.24		
	36-60	3-12	1.70-2.00	0.06-0.2	0.02-0.06	5.1-7.3	Low----------	0.24		
BsB*:										
Brayton---------	0-5	6-12	0.90-1.20	0.6-6.0	0.08-0.17	4.5-6.5	Low----------	0.24	3	---
	5-11	6-12	1.40-1.70	0.6-6.0	0.08-0.17	4.5-6.5	Low----------	0.24		
	11-60	6-12	1.70-2.00	<0.2	0.01-0.05	5.6-7.3	Low----------	0.24		
Westbury--------	0-4	3-12	0.90-1.20	0.6-2.0	0.08-0.16	3.6-6.0	Low----------	0.24	3	2-8
	4-23	3-12	1.40-1.70	0.6-2.0	0.07-0.15	3.6-6.0	Low----------	0.24		
	23-36	3-12	1.70-2.00	0.06-0.2	0.02-0.06	4.5-6.0	Low----------	0.24		
	36-60	3-12	1.70-2.00	0.06-0.2	0.02-0.06	5.1-7.3	Low----------	0.24		
BuB, BuC, BuD----	0-7	15-30	0.90-1.20	0.2-2.0	0.18-0.28	4.5-6.5	Low----------	0.28	3	4-7
Buxton	7-19	20-40	1.20-1.55	0.2-0.6	0.13-0.23	4.5-6.5	Low----------	0.49		
	19-60	35-55	1.75-1.95	<0.2	0.06-0.16	5.6-7.3	Moderate-----	0.49		
Ch----------	0-32	---	<0.30	0.6-6.0	0.20-0.25	3.6-4.5	----------	----	---	---
Chocorua	32-60	---	<0.30	>6.0	0.01-0.11	4.5-6.0	----------	----		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	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
CoB, CoC, CoD, CoE	0-10	1-5	1.10-1.40	>6.0	0.03-0.07	3.6-5.0	Low	0.17	3	3-7
Colton	10-18	1-5	1.25-1.55	>6.0	0.02-0.05	4.5-5.5	Low	0.17		
	18-60	0-3	1.45-1.65	>20	0.01-0.02	4.5-6.0	Low	0.17		
CrB	0-7	0-5	1.20-1.50	6.0-20	0.05-0.09	4.5-6.0	Low	0.17	5	2-9
Croghan	7-28	0-5	1.20-1.50	>20	0.03-0.07	4.5-6.0	Low	0.17		
	28-60	0-5	1.20-1.50	>20	0.03-0.06	4.5-6.0	Low	0.17		
CuB*:										
Croghan	0-7	0-5	1.20-1.50	6.0-20	0.05-0.09	4.5-6.0	Low	0.17	5	---
	7-28	0-5	1.20-1.50	>20	0.03-0.07	4.5-6.0	Low	0.17		
	28-60	0-5	1.20-1.50	>20	0.03-0.06	4.5-6.0	Low	0.17		
Urban land.										
Dm*.										
Dumps										
EmB, EmC	0-14	5-10	1.00-1.30	2.0-6.0	0.13-0.20	4.5-6.0	Low	0.32	3	3-7
Elmwood	14-20	5-12	1.15-1.45	2.0-6.0	0.13-0.22	5.6-6.5	Low	0.32		
	20-60	35-55	1.50-1.80	<0.2	0.12-0.18	6.1-7.3	Moderate	0.49		
HeB, HeC, HeD	0-6	2-6	0.95-1.20	6.0-20	0.10-0.20	3.6-5.5	Low	0.17	3	3-7
Hermon	6-19	2-7	1.00-1.30	6.0-20	0.07-0.14	3.6-6.0	Low	0.17		
	19-60	1-4	1.50-1.80	6.0-20	0.01-0.10	5.1-6.0	Low	0.17		
HmB, HmC, HmD	0-4	2-6	0.95-1.20	6.0-20	0.10-0.20	3.6-5.5	Low	0.17	3	---
Hermon	4-19	2-7	1.00-1.30	6.0-20	0.07-0.14	3.6-6.0	Low	0.17		
	19-60	1-4	1.50-1.80	6.0-20	0.01-0.10	5.1-6.0	Low	0.17		
HnC, HnE	0-4	2-6	0.95-1.20	6.0-20	0.08-0.18	3.6-5.5	Low	0.17	3	---
Hermon	4-19	2-7	1.00-1.30	6.0-20	0.07-0.14	3.6-6.0	Low	0.17		
	19-60	1-4	1.50-1.80	6.0-20	0.01-0.10	5.1-6.0	Low	0.17		
LnB, LnC, LnD	0-4	2-10	0.90-1.20	2.0-6.0	0.11-0.20	3.6-6.0	Low	0.20	2	1-4
Lyman	4-18	2-10	1.20-1.40	2.0-6.0	0.07-0.16	3.6-6.0	Low	0.20		
	18	---	---	---	---	---	---	---		
LyB*, LyC*, LyE*:										
Lyman	0-4	2-10	0.90-1.20	2.0-6.0	0.11-0.20	3.6-6.0	Low	0.20	2	1-4
	4-18	2-10	1.20-1.40	2.0-6.0	0.07-0.16	3.6-6.0	Low	0.20		
	18	---	---	---	---	---	---	---		
Rock outcrop.										
MaB	0-10	3-13	0.95-1.25	2.0-6.0	0.11-0.25	4.5-6.0	Low	0.28	3	3-9
Madawaska	10-23	2-12	1.20-1.50	2.0-6.0	0.09-0.18	4.5-6.0	Low	0.28		
	23-60	0-5	1.35-1.65	6.0-20	0.02-0.08	4.5-6.0	Low	0.28		
MrB, MrC2, MrD2	0-9	5-12	0.90-1.20	0.6-6.0	0.10-0.23	4.5-6.0	Low	0.24	3	3-8
Marlow	9-29	5-12	1.20-1.50	0.6-6.0	0.06-0.20	4.5-6.0	Low	0.43		
	29-60	5-12	1.70-2.00	0.06-0.6	0.05-0.12	4.5-6.0	Low	0.17		
MvB, MvC, MvD	0-2	5-12	0.90-1.20	0.6-6.0	0.10-0.23	4.5-6.0	Low	0.24	3	---
Marlow	2-29	5-12	1.20-1.50	0.6-6.0	0.06-0.20	4.5-6.0	Low	0.43		
	29-60	5-12	1.70-2.00	0.06-6.0	0.05-0.12	4.5-6.0	Low	0.17		
Na	0-5	0-5	1.10-1.40	2.0-6.0	0.05-0.09	3.6-5.5	Low	0.17	5	2-7
Naumburg	5-28	0-5	1.25-1.55	6.0-20	0.06-0.08	3.6-5.5	Low	0.17		
	28-60	0-5	1.45-1.65	6.0-20	0.04-0.06	4.5-6.5	Low	0.17		
On	0-9	0-10	1.10-1.40	2.0-6.0	0.12-0.26	4.5-6.5	Low	----	---	3-7
Ondawa	9-30	0-10	1.20-1.50	2.0-6.0	0.12-0.22	4.5-6.5	Low	----		
	30-60	0-5	1.20-1.50	2.0-20	0.01-0.13	4.5-6.5	Low	----		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	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
PeB----------	0-9	5-12	0.90-1.20	0.6-2.0	0.10-0.23	4.5-5.5	Low----------	0.24	3	3-8
Peru	9-20	5-12	1.20-1.50	0.6-2.0	0.06-0.20	4.5-6.0	Low----------	0.43		
	20-60	5-12	1.70-2.00	0.06-0.6	0.05-0.12	4.5-6.0	Low----------	0.17		
Pg*.										
Pits										
Po*:										
Podunk----------	0-8	0-10	1.10-1.40	0.6-6.0	0.11-0.24	4.5-6.5	Low----------	----	---	3-9
	8-18	0-10	1.20-1.50	2.0-6.0	0.09-0.18	4.5-6.5	Low----------	----		
	18-25	0-5	1.20-1.50	2.0-20	0.01-0.13	4.5-6.5	Low----------	----		
Winooski--------	0-11	1-10	1.10-1.40	0.6-6.0	0.15-0.30	4.5-7.3	Low----------	0.49	3	3-9
	11-60	1-10	1.20-1.50	0.6-6.0	0.13-0.26	4.5-7.3	Low----------	0.49		
Ra----------	0-6	2-15	1.10-1.40	0.6-2.0	0.20-0.25	5.1-7.3	Low----------	0.49	3	3-9
Raynham	6-36	2-15	1.20-1.50	0.2-2.0	0.18-0.22	5.1-7.3	Low----------	0.64		
	36-60	5-30	1.30-1.60	0.06-0.2	0.18-0.22	5.6-7.8	Low----------	0.64		
RoC*, RoE*:										
Rock outcrop.										
Lyman----------	0-2	2-10	0.90-1.20	2.0-6.0	0.11-0.20	3.6-6.0	Low----------	0.20	2	---
	2-18	2-10	1.20-1.40	2.0-6.0	0.07-0.16	3.6-6.0	Low----------	0.20		
	18	---	---	---	---	---	----------	----		
Ru----------	0-9	0-10	1.10-1.40	2.0-6.0	0.15-0.27	4.5-6.5	Low----------	----	---	4-9
Rumney	9-25	0-10	1.20-1.50	2.0-6.0	0.11-0.19	4.5-6.5	Low----------	----		
	25-60	0-5	1.20-1.50	>6.0	0.01-0.13	4.5-6.5	Low----------	----		
Sa----------	0-13	1-10	<0.90	0.6-2.0	0.20-0.30	5.1-6.5	Low----------	----	---	---
Saco	13-24	1-10	1.00-1.30	0.6-2.0	0.15-0.26	5.1-6.5	Low----------	0.64		
	24-44	1-10	1.20-1.50	0.6-2.0	0.10-0.26	5.6-7.3	Low----------	0.64		
	44-60	0-5	1.20-1.50	>6.0	0.01-0.13	5.6-7.3	Low----------	0.17		
Sc----------	0-14	10-40	1.05-1.22	0.2-2.0	0.24-0.34	5.1-7.3	Low----------	0.28	3	4-7
Scantic	14-36	20-60	1.15-1.75	<0.2	0.13-0.23	5.1-7.3	Moderate-----	0.49		
	36-60	35-60	1.50-1.75	<0.2	0.06-0.16	5.6-7.3	Moderate-----	0.49		
SeB, SeC, SeD----	0-7	2-15	1.20-1.50	0.6-2.0	0.18-0.21	4.5-6.0	Low----------	0.49	3	2-8
Scio	7-26	2-15	1.20-1.50	0.6-2.0	0.17-0.20	4.5-6.0	Low----------	0.64		
	26-60	0-5	1.45-1.65	2.0-20.0	0.02-0.19	5.1-7.8	Low----------	0.17		
Sg----------	0-66	---	0.10-0.30	2.0-6.0	0.20-0.40	3.5-4.5	----------	----	---	---
Sebago										
SkB, SkC---------	0-5	3-8	0.90-1.20	0.6-2.0	0.10-0.23	4.5-6.0	Low----------	0.24	3	3-7
Skerry	5-33	3-8	1.20-1.50	0.6-2.0	0.06-0.16	4.5-6.0	Low----------	0.28		
	33-60	1-4	1.65-1.80	0.06-0.6	0.03-0.09	4.5-6.0	Low----------	0.17		
SrB, SrC---------	0-2	3-8	0.90-1.20	0.6-2.0	0.10-0.23	4.5-6.0	Low----------	0.24	3	---
Skerry	2-33	3-8	1.20-1.50	0.6-2.0	0.06-0.16	4.5-6.0	Low----------	0.28		
	33-60	1-4	1.65-1.80	0.06-0.6	0.03-0.09	4.5-6.0	Low----------	0.17		
SU*.										
Sulfihemists										
UD*:										
Udipsamments.										
Dune land.										
Ur*.										
Urban land										
UsA*:										
Urban land.										

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm^3	In/hr	In/in	pH				Pct
UsA*:										
Scantic	0-14	10-40	1.05-1.22	0.2-2.0	0.14-0.30	5.1-7.3	Low	0.28	3	---
	14-36	20-60	1.15-1.75	<0.2	0.11-0.21	5.1-7.3	Moderate	0.49		
	36-60	35-60	1.50-1.75	<0.2	0.09-0.21	5.6-7.3	Moderate	0.49		
Va, Vp Vassalboro	0-77	---	0.10-0.30	2.0-6.0	0.20-0.40	3.6-4.5	---	---	---	---
Wa Waskish	0-95	---	0.02-0.10	>6.0	0.55-0.65	<4.5	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "rare," "brief," "apparent," and "perched." 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	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth		Uncoated steel	Concrete
					Ft			In			
AdB, AdC, AdD----- Adams	A	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.
AgB*: Adams----------	A	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.
Urban land.											
AlB, AlC---------- Allagash	B	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.
Ba*. Beaches											
BcB, BcC, BcD----- Becket	C	None--------	---	---	2.0-3.0	Perched	Nov-Mar	>60	Moderate----	Low------	Moderate.
BeB, BeC, BeD----- Becket	C	None--------	---	---	2.0-3.0	Perched	Nov-Mar	>60	Moderate----	Low------	Moderate.
Bm---------- Biddeford	D	None--------	---	---	+1-0.5	Perched	Nov-Aug	>60	High--------	High-----	Moderate.
BrB*: Brayton----------	C	None--------	---	---	0.0-1.5	Perched	Nov-May	>60	High--------	High-----	Moderate.
Westbury---------	C	None--------	---	---	0.5-1.5	Perched	Nov-May	>60	High--------	Moderate	High.
BsB*: Brayton----------	C	None--------	---	---	0.0-1.5	Perched	Nov-May	>60	High--------	High-----	Moderate.
Westbury---------	C	None--------	---	---	0.5-1.5	Perched	Nov-May	>60	High--------	Moderate	High.
BuB, BuC, BuD----- Buxton	C	None--------	---	---	1.0-3.0	Perched	Nov-May	>60	High--------	High-----	Moderate.
Ch---------- Chocorua	D	Common------	Very long	Nov-May	0-0.5	Apparent	Jan-Dec	>60	High--------	Moderate	High.
CoB, CoC, CoD, CoE---------- Colton	A	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.
CrB---------- Croghan	B	None--------	---	---	1.5-2.0	Apparent	Nov-May	>60	Moderate----	Low------	High.
CuB*: Croghan----------	B	None--------	---	---	1.5-2.0	Apparent	Nov-May	>60	Moderate----	Low------	High.
Urban land.											

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock	Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth		Uncoated steel	Concrete
					Ft			In			
Dm*. Dumps											
EmB, EmC---- Elmwood	C	None----	---	---	1.0-3.0	Perched	Nov-May	>60	High----	Moderate	Moderate.
HeB, HeC, HeD, HmB, HmC, HmD, HnC, HnE---- Hermon	A	None----	---	---	>6.0	---	---	>60	Low----	Low----	High.
LnB, LnC, LnD---- Lyman	C	None----	---	---	>6.0	---	---	10-20	Moderate----	Low----	High.
LyB*, LyC*, LyE*: Lyman----	C	None----	---	---	>6.0	---	---	10-20	Moderate----	Low----	High.
Rock outcrop.											
MaB---- Madawaska	B	None----	---	---	1.0-3.0	Apparent	Nov-May	>60	Moderate----	Moderate	High.
MrB, MrC2, MrD2, MvB, MvC, MvD---- Marlow	C	None----	---	---	2.0-3.0	Perched	Nov-Mar	>60	Moderate----	Low----	Moderate.
Na---- Naumburg	C	None----	---	---	0-1.5	Apparent	Nov-May	>60	Moderate----	High----	High.
On---- Ondawa	B	Common----	Brief----	Nov-Apr	3.0-6.0	Apparent	Nov-May	>60	Moderate----	Low----	Moderate.
PeB---- Peru	C	None----	---	---	1.5-3 0	Perched	Nov-Mar	>60	High----	Moderate	Moderate.
Pg*. Pits											
Po*: Podunk----	B	Occasional	Brief----	Oct-Apr	1.5-3.0	Apparent	Oct-Apr	>60	Moderate----	Moderate	Moderate.
Winooski----	B	Occasional	Brief----	Nov-May	1.0-3.0	Apparent	Oct-Apr	>60	High----	Moderate	Moderate.
Ra---- Raynham	C	None----	---	---	0.5-2.0	Apparent	Nov-Jun	>60	High----	High----	Moderate.
RoC*, RoE*: Rock outcrop.											
Lyman----	C	None----	---	---	>6.0	---	---	10-20	Moderate----	Low----	High.
Ru---- Rumney	C	Frequent----	Brief----	Nov-May	0-1.5	Apparent	Nov-Jun	>60	High----	High----	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock	Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth		Uncoated steel	Concrete
					Ft			In			
Sa---------- Saco	D	Frequent----	Brief-----	Nov-May	0-0.5	Apparent	Sep-Jun	>60	High--------	Low------	Moderate.
Sc---------- Scantic	C	None--------	---	---	0-1.0	Perched	Oct-Jun	>60	High--------	High-----	Moderate.
SeB, SeC, SeD----- Scio	B	None--------	---	---	.5-2.0	Apparent	Mar-May	>60	High--------	Moderate	Moderate.
Sg---------- Sebago	D	Rare--------	Brief-----	Mar-Jun	+1-0.5	Apparent	Sep-Jun	>60	High--------	High-----	High.
SkB, SkC, SrB, SrC---------- Skerry	C	None--------	---	---	1.5-3.0	Perched	Nov-Mar	>60	High--------	Low------	Moderate.
SU*. Sulfihemists											
UD*: Udipsamments.											
Dune land.											
Ur*. Urban land											
UsA*: Urban land.											
Scantic----------	C	None--------	---	---	0-1.0	Perched	Oct-Jun	>60	High--------	High-----	Moderate.
Va---------- Vassalboro	D	Rare--------	Brief-----	Mar-Jun	1-0.5	Apparent	Sep-Jul	>60	High--------	High-----	High.
Vp---------- Vassalboro	D	Frequent----	Very long	Jan-Dec	+1.5-0	Apparent	Jan-Dec	>60	High--------	High-----	High.
Wa---------- Waskish	D	Frequent----	Very long	Mar-Jun	0-2.0	Apparent	Sep-Jul	>60	High--------	High-----	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--ENGINEERING TEST DATA

[Dashes indicate data were not available. NP means nonplastic]

Soil name, report number, horizon, and depth in inches	Classification		Grain size distribution										Liquid limit	Plasticity index	Moisture density	
			Larger than 3 inches	Percentage passing sieve--						Percentage smaller than--					Max. dry density	Optimum moisture
	AASHTO	Unified		2 inch	3/4 inch	3/8 inch	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Lb/ ft^3	Pct
			Pct											Pct			
Brayton fsl:[1] (S72ME-016-001)																	
C1x------14 to 22	A-2-4(00)	SM	5	100	90	88	84	74	57	27	18	9	4	--	NP	131	8
C2x------22 to 40	A-2-4(00)	SM	5	100	93	92	88	84	63	31	20	10	6	--	NP	132	8
Raynham sil:[2] (S72ME-016-002)																	
B22g------7 to 15	A-4 (00)	ML	0	100	100	100	100	100	97	90	59	20	13	25	1	104	19
C--------21 to 40	A-4 (03)	ML	0	100	100	100	100	100	99	95	55	16	10	32	2	104	19
Peru fsl:[3] (S72ME-016-004)																	
B21-------9 to 15	A-4 (00)	SM	5	100	85	83	78	73	62	43	9	2	1	--	NP	107	16
C1x------20 to 34	A-2-4(00)	SM	3	100	88	87	82	75	59	34	20	8	2	--	NP	124	11

[1]Brayton fine sandy loam:
Town of Parsonsfield; Collomy Hill; north side of road, 150 feet east of John Hayes Childrens Home.

[2]Raynham sandy loam:
Town of Lyman; Rodney Hammond Farm; 50 feet from town line, on west side of field road.

[3]Peru fine sandy loam:
Town of Sanford; Hanson Ridge; 1,320 feet west of intersection, about 50 feet on south side of Maine Route 11A.

TABLE 18.--RELATIONSHIP BETWEEN SOIL SERIES AND POSITION, PARENT MATERIAL, AND DRAINAGE

Parent material	Excessively drained	Somewhat excessively drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained	Very poorly drained
	SOILS ON UPLANDS						
Shallow glacial till		Lyman					
Deep, coarse textured glacial till derived mainly from granite and gneiss		Hermon	Hermon				
Deep, moderately coarse textured to coarse textured, compact glacial till derived mainly from granite, gneiss, and schist			Becket	Skerry			
Deep, medium textured to moderately coarse textured, compact glacial till derived mainly from mica schist and granite			Marlow	Peru	Brayton	Brayton	
Deep, moderately coarse textured, compact glacial till derived from mainly, sulfidic schist, in part graphitic, and dark gray slate, schist, and gneiss				Westbury			
	SOILS ON OUTWASH PLAINS, TERRACES, OR ESKERS						
Deep, moderately coarse textured over coarse textured material			Allagash	Madawaska			
Deep, coarse textured and gravelly material	Colton						
Deep, coarse textured material	Adams			Croghan	Naumburg	Naumburg	
	SOILS ON MARINE OR LACUSTRINE PLAINS						
Deep, moderately coarse textured over moderately fine textured material				Elmwood			
Deep, medium textured materials				Scio		Raynham	
Deep, medium textured over moderately fine textured material				Buxton	Buxton	Scantic	Biddeford
	SOILS ON FLOOD PLAINS						
Deep, moderately coarse textured and medium textured over coarse textured material			Ondawa	Podunk		Rumney	
Deep, medium textured material				Winooski			Saco

TABLE 18.--RELATIONSHIP BETWEEN SOIL SERIES AND POSITION, PARENT MATERIAL, AND DRAINAGE--Continued

Parent material	Excessively drained	Somewhat excessively drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained	Very poorly drained
	SOILS ON WETLANDS (SWAMPS AND BOGS)						
Deep sphagnum moss							Waskish
Deep herbaceous, sphagnum, and woody fiber							Vassalboro
Deep herbaceous and woody fiber							Sebago
Deep herbaceous and woody fiber over coarse textured material							Chocorua
Deep saltwater marshgrasses							Sulfihemists
	SOILS ON DUNES						
Deep, coarse textured material	Udipsamments			Udipsamments			

TABLE 19.--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
Adams	Sandy, mixed, frigid Typic Haplorthods
Allagash	Coarse-loamy over sandy or sandy-skeletal, mixed, frigid Typic Haplorthods
*Becket	Coarse-loamy, mixed, frigid Typic Fragiorthods
Biddeford	Fine, illitic, nonacid, frigid Histic Humaquepts
Brayton	Coarse-loamy, mixed, frigid Aeric Fragiaquepts
Buxton	Fine, illitic, frigid Aquic Dystric Eutrochrepts
Chocorua	Sandy or sandy-skeletal, mixed, dysic Terric Borohemists
Colton	Sandy-skeletal, mixed, frigid Typic Haplorthods
*Croghan	Sandy, mixed, frigid Aquic Haplorthods
Elmwood	Coarse-loamy over clayey, mixed, frigid Aquic Dystric Eutrochrepts
*Hermon	Loamy-skeletal, mixed, frigid Typic Haplorthods
Lyman	Loamy, mixed, frigid Lithic Haplorthods
Madawaska	Coarse-loamy over sandy or sandy-skeletal, mixed, frigid Aquic Haplorthods
*Marlow	Coarse-loamy, mixed, frigid Typic Fragiorthods
Naumburg	Sandy, mixed, frigid Aeric Haplaquods
*Ondawa	Coarse-loamy, mixed, frigid Fluventic Dystrochrepts
*Peru	Coarse-loamy, mixed, frigid Aquic Fragiorthods
*Podunk	Coarse-loamy, mixed, frigid Fluvaquentic Dystrochrepts
*Raynham	Coarse-silty, mixed, nonacid, mesic Aeric Haplaquepts
*Rumney	Coarse-loamy, mixed, nonacid, frigid Aeric Fluvaquents
*Saco	Coarse-silty, mixed, nonacid, mesic Fluvaquentic Humaquepts
Scantic	Fine, illitic, nonacid, frigid Typic Haplaquepts
*Scio	Coarse-silty, mixed, mesic Aquic Dystrochrepts
Sebago	Dysic Fibric Borohemists
Skerry	Coarse-loamy, mixed, frigid Aquic Fragiorthods
Vassalboro	Dysic Typic Borofibrists
Waskish	Dysic, frigid Typic Sphagnofibrists
Westbury	Coarse-loamy, mixed, frigid Typic Fragiaquods
*Winooski	Coarse-silty, mixed, nonacid, mesic Aquic Udifluvents

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