United States
Department of
Agriculture

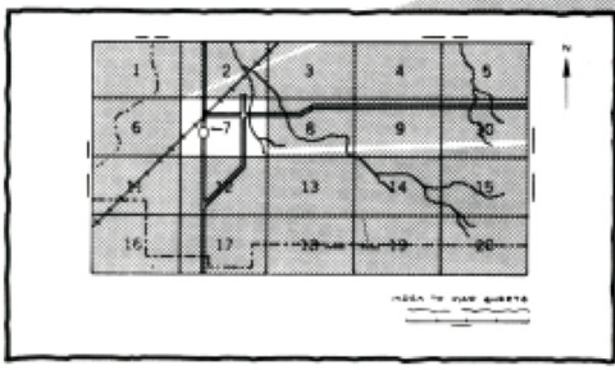
Soil
Conservation
Service

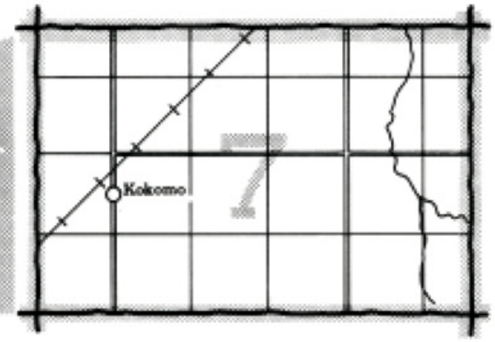
In cooperation with
Maine Agricultural
Experiment Station and
Maine Soil and Water
Conservation Commission

Soil Survey of Knox and Lincoln Counties Maine

HOW TO USE

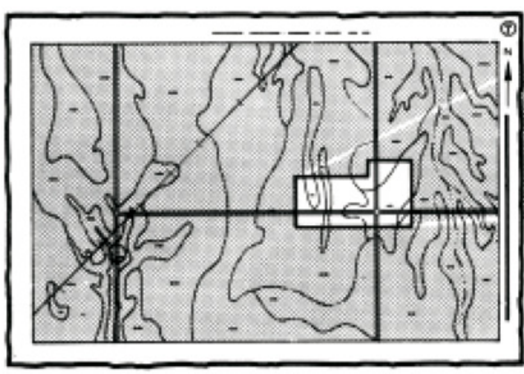
1. Locate your area of interest on the "Index to Map Sheets"

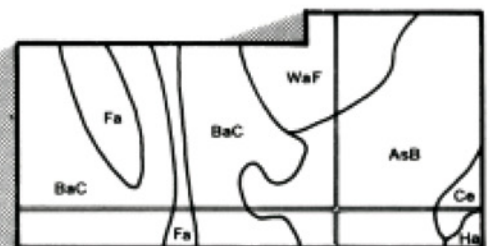




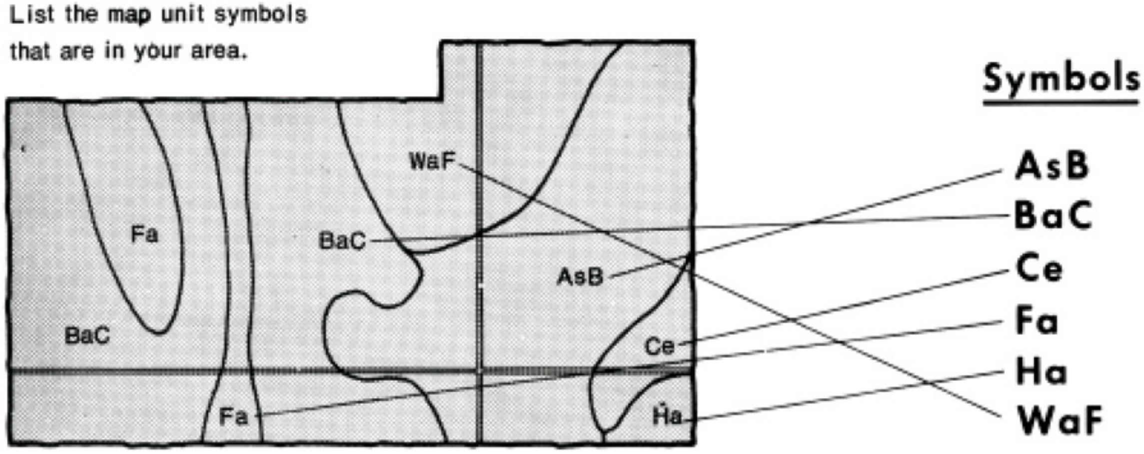
2. Note the number of the map sheet and turn to that sheet.

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



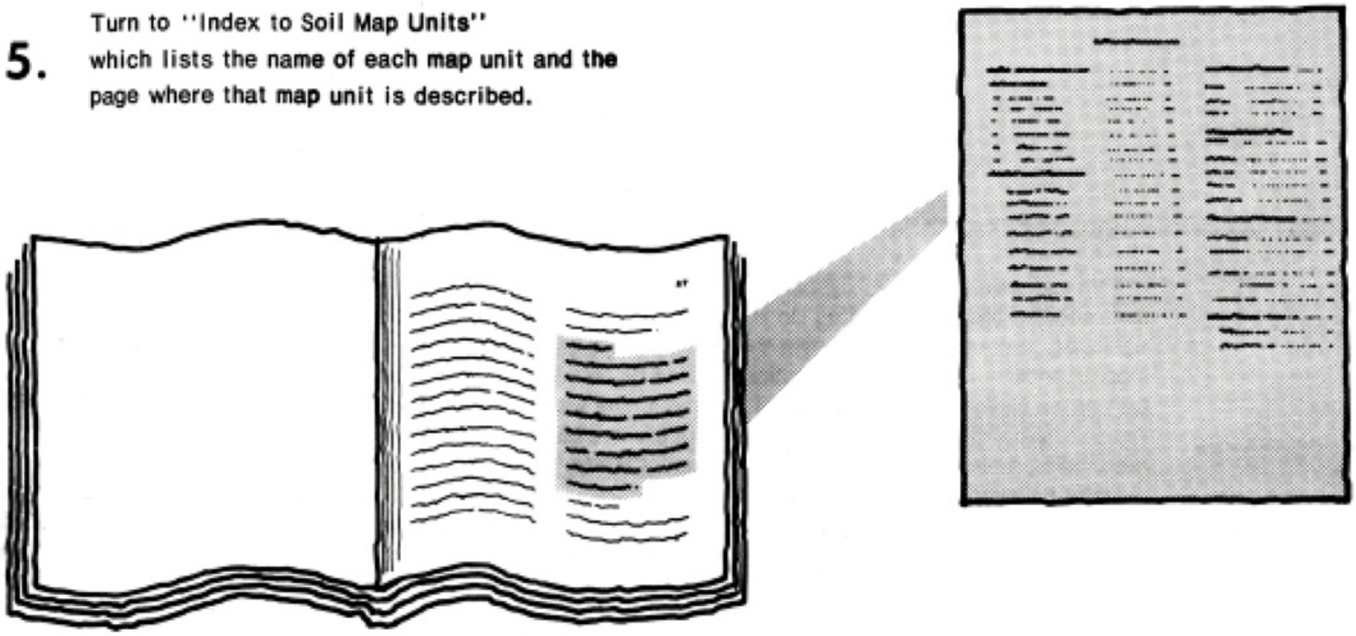


4. List the map unit symbols that are in your area.

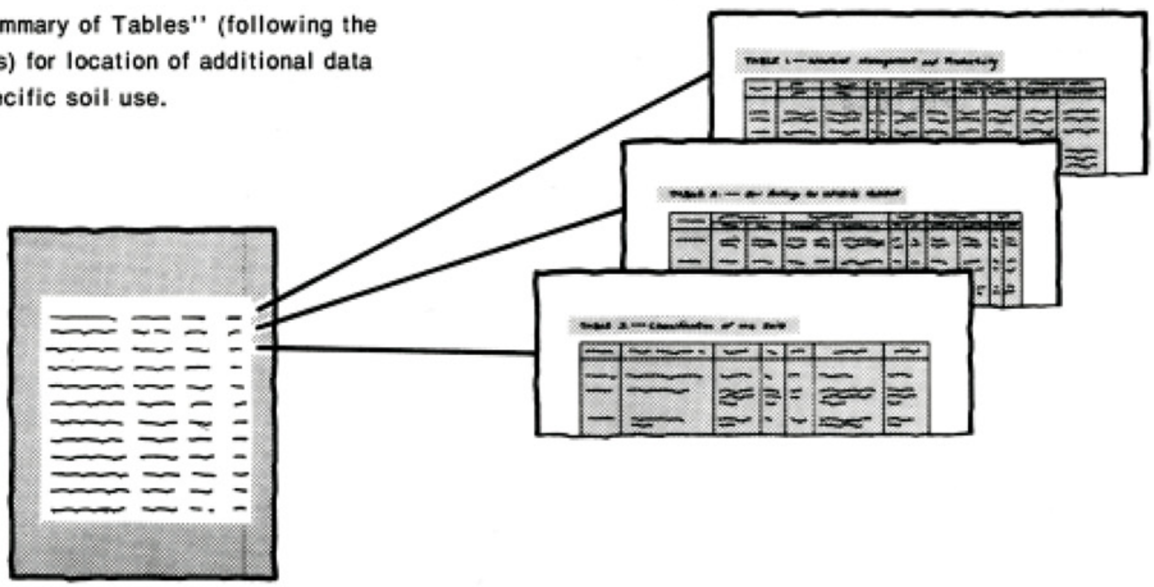


THIS SOIL SURVEY

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 completed in 1981. Soil names and descriptions were approved in 1983. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1981. 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 Knox-Lincoln 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: Pasture and hayland on Boothbay silt loam, 8 to 15 percent slopes, and Swanville silt loam. In the background, Peru very stony fine sandy loam, 8 to 15 percent slopes, and Marlow very stony fine sandy loam, 8 to 15 percent slopes, are on a drumlin-shaped ridge.

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Soil Series

Issued January 1987

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Summary of Tables

Foreword

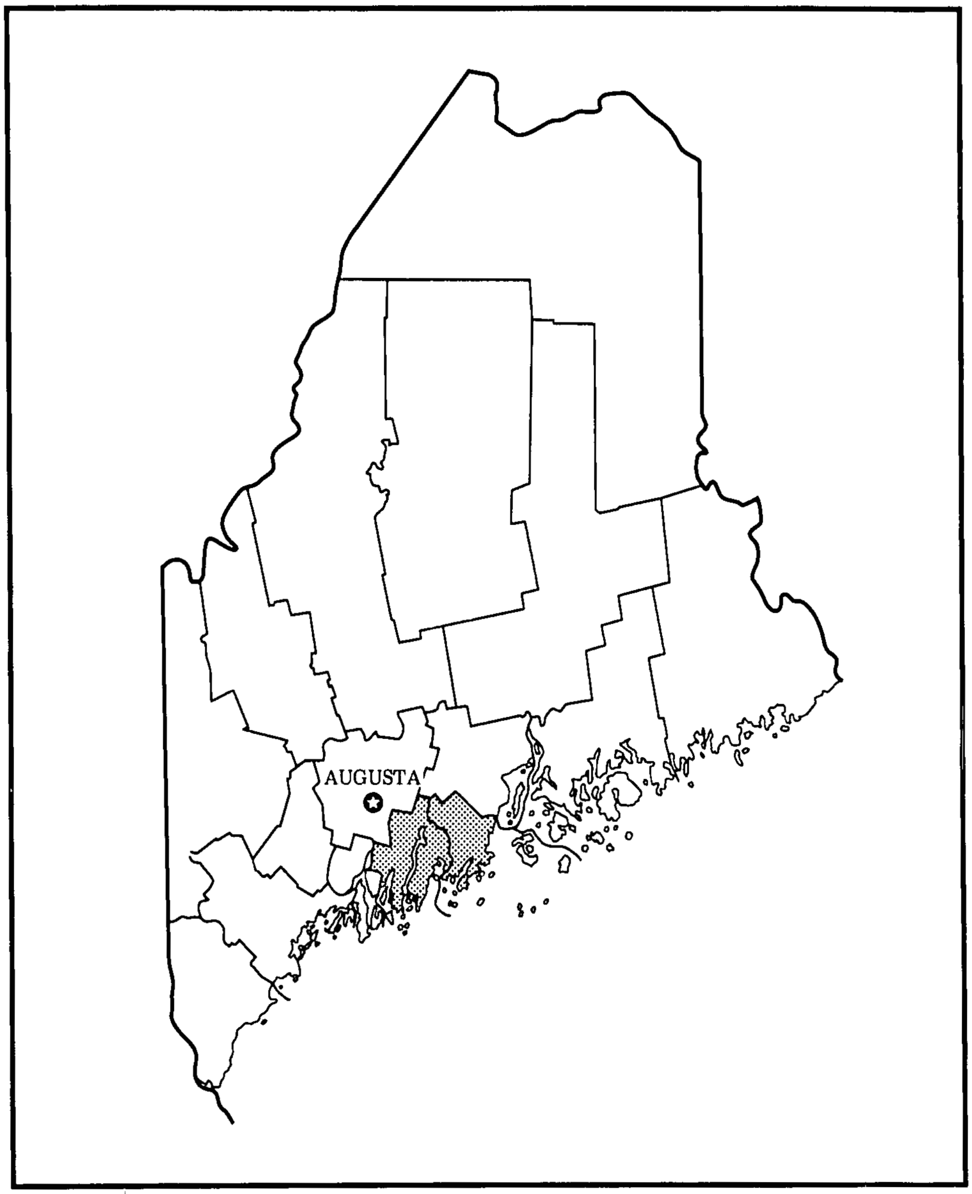
This soil survey contains information that can be used in land-planning programs in Knox and Lincoln Counties. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and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

Billy R. Abercrombie
State Conservationist
Soil Conservation Service



Location of Knox and Lincoln Counties in Maine.

Soil Survey of
Knox and Lincoln Counties, Maine

By Gary T. Hedstrom, Soil Conservation Service

Fieldwork by Manley H. Bailey, Albert P. Faust, Gary T. Hedstrom, Wayne D. Hoar, Glendon B. Jordon, David E. Wilkinson, Theodore H. Butler, Wayne E. Hall, Paul D. Hersey, David J. Popp, and Richard M. Riley, 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

KNOX and LINCOLN COUNTIES are in the southern, midcoastal part of Maine. The total land area of Knox County is 362 square miles, or 231,680 acres, and lakes, rivers, ponds, and streams take in about 60,000 acres. The population of Knox County is about 29,709, and that of Rockland, the county seat, is about 6,851. The total land area of Lincoln County is 457 square miles, or 292,480 acres, and lakes, rivers, ponds, and streams take in about 57,000 acres. The population of Lincoln County is about 25,600 and that of Wiscasset, the county seat, is about 2,830.

The survey area is in the coastal region of the New England glaciated uplands. Relief ranges from sea level, on the coast, to 1,385 feet above sea level, on Mount Megunticook, in the northeastern part of the survey area. The survey area is characterized generally by rolling hills and glacially formed ridges. The northeastern part of the survey area is mountainous.

The main economic enterprise in the survey area is tourism. The numerous historic sites and scenic areas along the rocky coastline attract many summer visitors annually as well as summer residents. The other industries include fishing, mainly lobstering, manufacturing, and farming. The agricultural products include dairy products, beef, blueberries, apples, poultry, and eggs. Fish processing, small boatbuilding, lime quarrying, and forestry are also economically important in these counties.

General Nature of the County

This section provides general information about the history and development, the climate, and the drainage patterns of Knox and Lincoln Counties.

History and Development

Parts of this survey area were explored by Captain John Smith in 1614. The first settlement in what is now Lincoln County was on Pemaquid Point in 1625. In 1765, the settlement, after having been destroyed several times during the French and Indian Wars, was incorporated as the Town of Bristol. The first settlement in Knox County, Camden, is dated 1769. The town of Camden was incorporated in 1790. The first major industries developed in the survey area were shipbuilding, lumbering, and fishing. They were developed because of the abundance of timber and the location of the survey area. During the nineteenth century, the major industries were limestone and granite quarrying, mainly in Knox County, brickmaking along the Damariscotta River, and ice harvesting.

In 1760, when Lincoln County was incorporated, it included parts of what are now Washington, Hancock, Kennebec, Waldo, Androscoggin, Sagadahoc, and Knox Counties. In 1860, the population of Lincoln County was about 29,860. Knox County was incorporated in 1860 from parts of Lincoln and Waldo Counties. Its population at that time was about 32,716.

Climate

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

In Knox and Lincoln Counties winters are cold, and summers are warm and have occasional hot spells. Both the start and the end of the warmer months are delayed somewhat because of the moderating influences of the Atlantic Ocean. In winter, the precipitation is mainly snow, but rainstorms are a common occurrence, especially near the coast. Snow covers the ground often, but not continuously.

Winter storms moving northeastward along the coast frequently bring rain and thawing, and then more snow and cold weather. In summer, sea breezes frequently moderate the temperature, particularly near the coast. Total annual precipitation is normally adequate for the crops commonly grown in the survey area.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Rockland, Maine, in the period 1951 to 1974. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 25 degrees F, and the average daily minimum temperature is 16 degrees. The lowest temperature on record, which occurred at Rockland, on January 17, 1971, is -18 degrees. In summer the average temperature is 65 degrees, and the average daily maximum temperature is 75 degrees. The highest recorded temperature, which occurred at Rockland on July 28, 1963, is 96 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.

The total annual precipitation is 49.7 inches. Of this, 22 inches, or 44 percent, usually falls in April through September. The growing season for most crops falls within this period. 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 6.21 inches at Rockland on September 11, 1954. Thunderstorms occur on about 18 days each year, and most occur in summer.

The average seasonal snowfall is 66 inches. The greatest snow depth at any one time during the period of record was 41 inches. On the average, 43 days of the year have at least 1 inch of snow 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 63 percent of the time possible in summer and 56 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 10 miles per hour, in March.

Drainage

Drainage in Knox and Lincoln Counties is mostly by the short streams and rivers that flow into the Kennebec River in the west, into the Atlantic Ocean in the south, and into Penobscot Bay in the east. There are several major rivers in the survey area. The Eastern River and the Sheepscot River are in the western part of Lincoln County, and the Damariscotta River is in the central part. The Medomak River is in the central part of the survey area, and the St. George River is in Knox County.

The rivers and streams generally are postglacial, and at some point almost all flow into or out of glacial lakes. These watercourses and lakes, along with connecting bogs and swamps, formed the general drainage pattern during the recession of the last ice sheet. This drainage pattern is northeast-southwest. The larger lakes and ponds range from 1 to 7 square miles in size. They are Damariscotta, Megunticook, and Alford Lakes and Pemaquid, Long, Crawford, Washington, South, and Sennebec Ponds.

The large flats and bogs in north Appleton and west Rockland and the swamps in isolated areas scattered throughout the survey area do not have pronounced drainage. However, these flats, bogs, and swamps are crossed by streams.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material has few or no roots or other living organisms and has been changed very little by other biologic activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with considerable accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties in terms of expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and new interpretations sometimes are developed to meet local needs. Data were assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management were assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can state with a fairly high degree of probability that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. These latter soils are called inclusions or included soils.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soil on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil map at the back of this publication shows the soil associations in this survey area. Each association has a distinctive pattern of soils, relief, and drainage. Each is a unique natural landscape. Typically, an association consists of three major soils and some minor soils. It is named for the major soils. The soils making up one association can occur in another 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.

The names and delineations of the soils on these maps do not, in all instances, agree with those on published maps of the surveys of adjacent counties. The differences are the result of changes in soil classification and mapping procedures.

Soil Descriptions

1. Peru-Tunbridge-Marlow

Moderately deep and deep, gently sloping to steep, moderately well drained and well drained soils; formed in glacial till

These soils generally are in long, narrow bands adjacent to marine sediments in lower areas, or on broad, upland ridges that were glaciated (figs. 1 and 2).

This map unit makes up about 32 percent of the survey area. About 26 percent of the map unit is Peru soils, 20 percent is Tunbridge soils, 14 percent is Marlow soils, and 40 percent is soils of minor extent. Tunbridge and Marlow soils are mainly on ridgetops and in areas at the higher elevations in the map unit. Peru soils are in areas at the lower elevations.

Peru soils are deep, gently sloping and strongly sloping, and moderately well drained. The surface layer and the subsoil are fine sandy loam. The substratum is compact and moderately coarse textured.

Tunbridge soils are moderately deep, gently sloping to steep, and well drained. The surface layer is fine sandy loam. The subsoil is fine sandy loam and gravelly fine sandy loam. The substratum is gravelly fine sandy loam. Below that, there is hard, unweathered bedrock.

Marlow soils are deep, gently sloping to moderately steep, and well drained. The surface layer and the subsoil are fine sandy loam. The substratum is compact and moderately coarse textured.

The minor soils in this map unit are mainly Brayton, Lyman, and Hermon soils and Borosaprists. Areas of Rock outcrop are a minor part of the map unit. Brayton soils are somewhat poorly drained and poorly drained. Borosaprists are very poorly drained. Brayton soils and Borosaprists are in depressions. Lyman soils are somewhat excessively drained. These soils and areas of Rock outcrop are on ridgetops. Hermon soils are somewhat excessively drained. These soils are on landscapes similar to those of Peru, Tunbridge, and Marlow soils. In addition, the other minor soils on the lower lying landscapes are Buxton, Boothbay, Scantic, Swanville, Masardis, and Adams soils. Buxton and Boothbay soils are moderately well drained or somewhat poorly drained. Scantic and Swanville soils are poorly drained. Masardis and Adams soils are somewhat excessively drained.

The soils making up this map unit are used mainly as woodland. Some areas are used for hay, pasture, and cultivated crops. A few small areas are used for lowbush blueberries. Some coastal areas are used as seasonal or year-round homesites and for recreation. The main limitations are depth to bedrock, the seasonal high water table, the slow permeability in the compact substratum, rock outcrops, and stones on the surface.

2. Buxton-Scantic-Lyman

Deep, nearly level to moderately steep, moderately well drained to poorly drained soils; formed in marine and lacustrine sediments; and shallow, gently sloping to steep, somewhat excessively drained soils; formed in glacial till

This map unit consists mainly of Buxton and Scantic soils on marine and lacustrine plains and Lyman soils on glacial till ridges (fig. 3).

The map unit makes up about 20 percent of the survey area. About 24 percent of the map unit is Buxton soils, 18 percent is Scantic soils, 16 percent is Lyman soils, and 42 percent is soils of minor extent.

Buxton soils are deep, moderately well drained or somewhat poorly drained, and gently sloping to

Figure 1.—A typical area of Peru, Tunbridge, and Marlow soils. Tunbridge soils are in the foreground, Marlow soils are on the lower slopes, and Peru soils are in the valley.

moderately steep. The surface layer is silt loam. The subsoil is silt loam, silty clay loam, and silty clay. The substratum is silty clay. These soils are wet for short periods, and workability is poor.

Scantic soils are deep, poorly drained, and nearly level. The surface layer is silt loam. The subsoil is silt loam, silty clay loam, and silty clay. These soils have a seasonal high water table, and workability is poor.

Lyman soils are shallow, somewhat excessively drained, and gently sloping to steep. The surface layer and the subsoil are fine sandy loam. Below that, there is hard, unweathered bedrock.

The minor soils in this map unit are mainly Hermon, Berkshire, Marlow, Tunbridge, Eldridge, Peru, Boothbay, and Swanville soils. Areas of Rock outcrop are a minor part of the map unit. These soils and areas of Rock outcrop are on landscapes similar to those of Buxton, Scantic, and Lyman soils. Hermon soils are somewhat excessively drained. Berkshire, Marlow, and Tunbridge soils are well drained. Eldridge and Peru soils are moderately well drained. Boothbay soils are moderately well drained or somewhat poorly drained. Swanville soils are poorly drained. Also included are scattered areas of Biddeford, Adams, Allagash, Sheepscot, Madawaska, Masardis, Charles, Lovewell, and Medomak soils, Sulfaquents, Sulfihemists, and scattered areas of Beaches. Biddeford soils and Borosaprists are in depressions. These soils are very poorly drained. Adams, Allagash, Sheepscot, Madawaska, and Masardis soils are on outwash plains and on high stream terraces. These soils are moderately coarse textured. Charles, Lovewell, and Medomak soils are near streams. Sulfaquents, Sulfihemists, and Beaches are in coastal areas.

In many areas, the soils making up this map unit are used as woodland or grassland. Some areas are used for hay, pasture, and cultivated crops. Some areas near the coast are used as seasonal and year-round homesites and for recreation. The main limitations are depth to bedrock, the seasonal high water table, the poor workability, the slow permeability, and slope.

3. Boothbay-Swanville-Lyman

Deep, nearly level to moderately steep, moderately well drained to poorly drained soils; formed in marine and lacustrine sediments; and shallow, gently sloping to steep, somewhat excessively drained soils; formed in glacial till

This map unit consists mainly of Boothbay and Swanville soils on marine and lacustrine plains and Lyman soils on glacial till ridges (fig. 4).

The map unit makes up about 16 percent of the survey area. About 24 percent of the map unit is Boothbay soils, 22 percent is Swanville soils, 18 percent is Lyman soils, and 36 percent is soils of minor extent.

Boothbay soils are deep, moderately well drained or somewhat poorly drained, and gently sloping to moderately steep. The surface layer and the subsoil are silt loam. The substratum is silt loam and silty clay loam. These soils are wet for short periods, and workability is poor.

Swanville soils are deep, poorly drained, and nearly level. The surface layer and the subsoil are silt loam. The substratum is silt loam and silty clay loam. These soils have a seasonal high water table, and workability is poor.

Lyman soils are shallow, somewhat excessively drained, and gently sloping to steep. The surface layer and the subsoil are fine sandy loam. Below that, there is hard, unweathered bedrock.

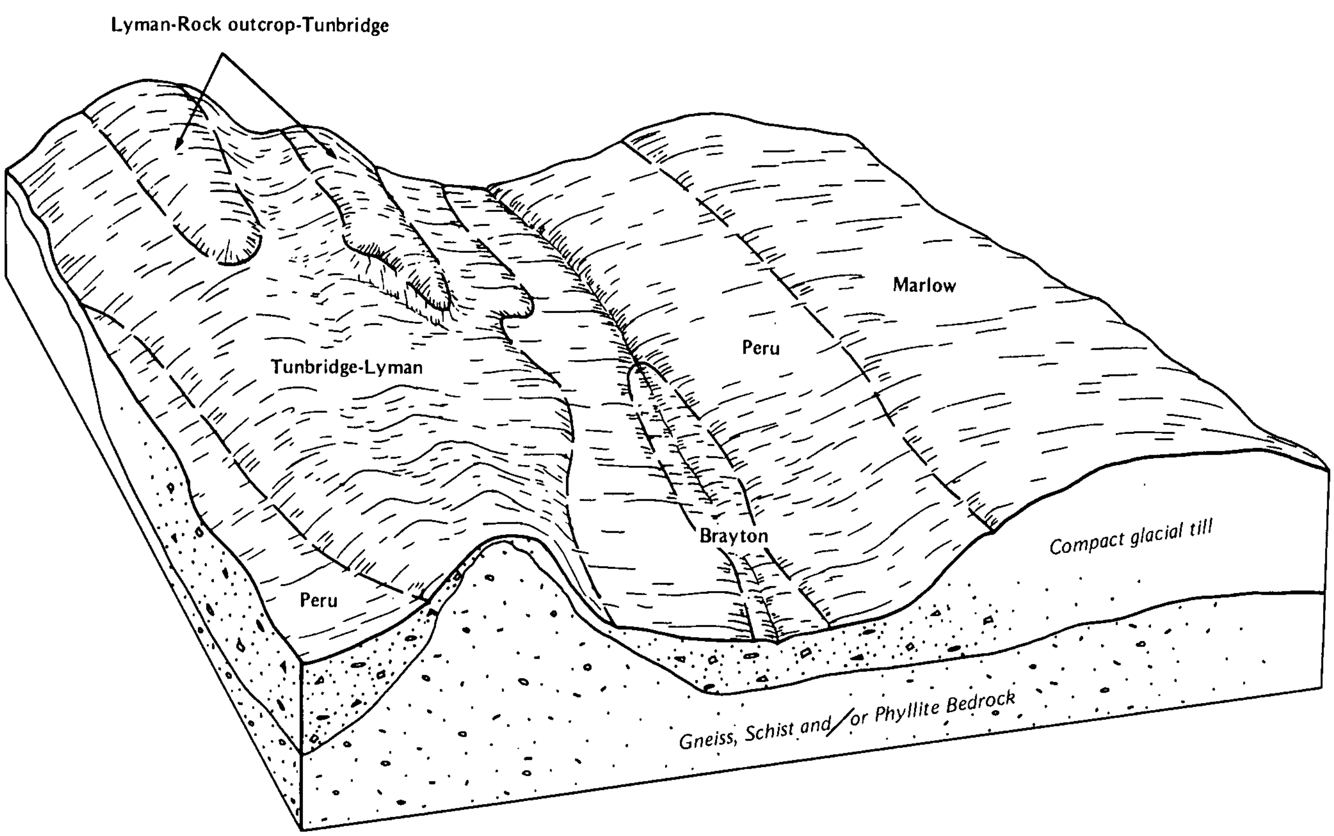


Figure 2.—The typical pattern of the soils on the landscape and the underlying material and bedrock in the Peru-Tunbridge-Marlow map unit.

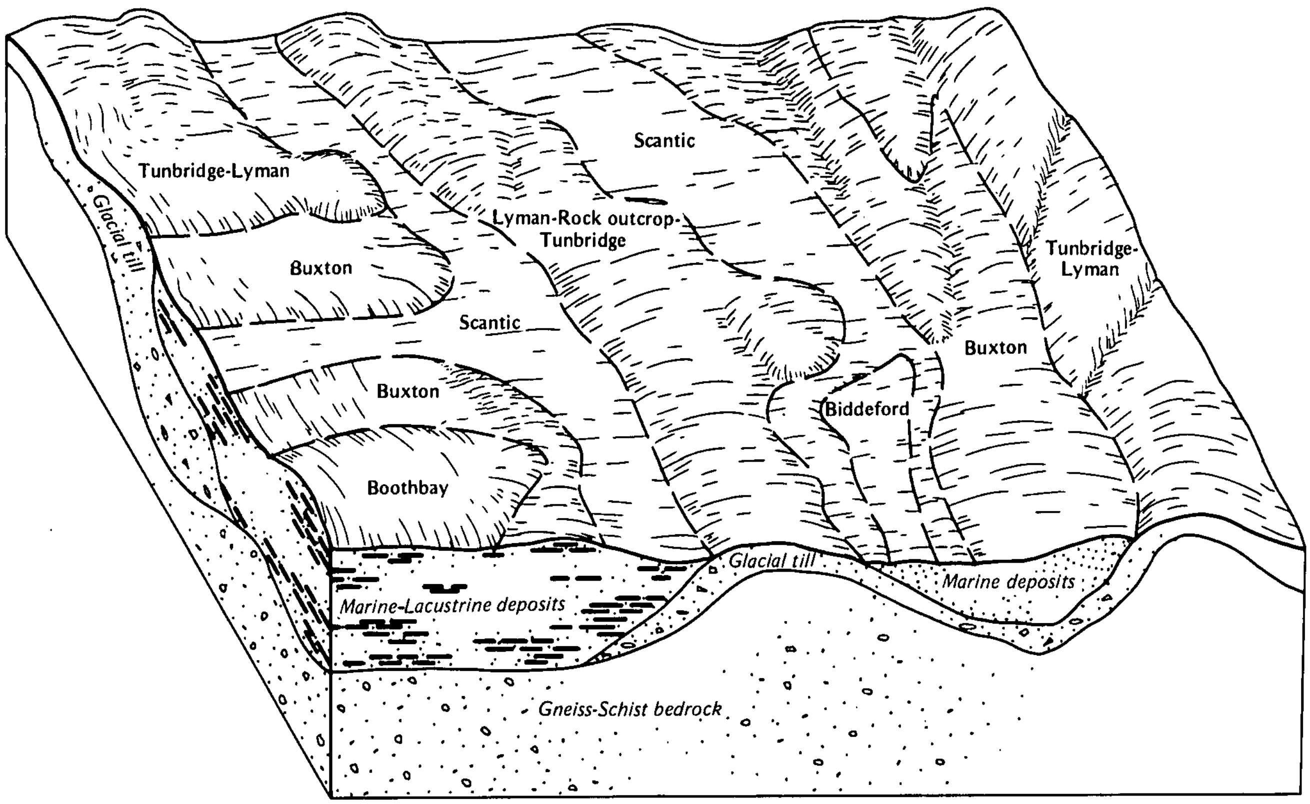


Figure 3.—The typical pattern of the soils on the landscape and the underlying material and bedrock in the Buxton-Scantic-Lyman map unit.

The minor soils in this map unit are mainly Hermon, Berkshire, Marlow, Tunbridge, Eldridge, and Peru soils. Areas of Rock outcrop are a minor part of the map unit. These soils and areas of Rock outcrop are on the higher parts of the map unit. Hermon soils are somewhat excessively drained. Berkshire, Marlow, and Tunbridge soils are well drained. Eldridge and Peru soils are moderately well drained. Also included are small areas of Biddeford, Borosaprists, Adams, Allagash, Sheepscot, Madawaska, Masardis, Charles, Lovewell, and Medomak soils, Borosaprists, Sulfaquents, Sulfihemists, and Beaches. Biddeford soils and Borosaprists are in depressions. These soils are very poorly drained. Adams, Allagash, Sheepscot, Madawaska, and Masardis soils are on outwash plains and on high, stream terraces. These soils are moderately coarse textured. Charles, Lovewell, and Medomak soils are near streams. Areas of Sulfaquents, Sulfihemists, and Beaches are in coastal areas.

In many areas the soils making up this map unit are used as woodland and grassland. Some areas are used for hay, pasture, and cultivated crops. Some areas near the coast are used as seasonal and year-round homesites and for recreation. The main limitations are depth to bedrock, the seasonal high water table, the poor workability, the slow permeability, and slope.

4. Peru-Swanville-Lyman

Deep and shallow, gently sloping to steep, moderately well drained and somewhat excessively drained soils; formed in glacial till; and deep, nearly level, poorly drained soils; formed in marine and lacustrine sediments

This map unit consists mainly of Peru and Lyman soils on glacial till ridges and Swanville soils on adjacent marine sediments in lower areas (fig. 5).

The map unit makes up about 12 percent of the survey area. About 28 percent of the map unit is Peru soils, 22 percent is Swanville soils, 18 percent is Lyman soils, and 32 percent is soils of minor extent. Peru and Lyman soils are mainly on the tops and sides of ridges and in areas at the higher elevations of the map unit. Swanville soils are in areas at the lower elevations.

Peru soils are deep, gently sloping and strongly sloping, and moderately well drained. The surface layer and the subsoil is fine sandy loam. The substratum is compact and moderately coarse textured.

Swanville soils are deep, nearly level, and poorly drained. The surface layer and the subsoil are silt loam. The substratum is silt loam and silty clay loam.

Lyman soils are shallow, gently sloping to steep, and somewhat excessively drained. The surface layer and the subsoil are fine sandy loam. Below that, there is hard, unweathered bedrock.

The minor soils in this map unit are mainly Scantic, Buxton, Boothbay, Marlow, Tunbridge, Brayton, and Hermon soils. Areas of Rock outcrop are a minor part of the map unit. These soils and areas of Rock outcrop are on landscapes similar to those of Peru, Swanville, and Lyman soils. Scantic soils are poorly drained. Buxton and Boothbay soils are moderately well drained or somewhat poorly drained. Marlow and Tunbridge soils are well drained. Brayton soils are somewhat poorly drained or poorly drained. Hermon soils are somewhat excessively drained. In addition, the other minor soils, in small areas, are Biddeford soils and Borosaprists in depressions. These soils are very poorly drained.

The soils making up this map unit are used mainly as woodland. Some areas are used for hay, pasture, and cultivated crops. A few small areas are used for lowbush blueberries. Some coastal areas are used as seasonal or year-round homesites and for recreation. The main limitations are depth to bedrock, the perched seasonal high water table, the slow permeability in the compact substratum, rock outcrops, and stones on the surface.

5. Lyman-Peru-Scantic

Shallow and deep, gently sloping to steep, somewhat excessively drained and moderately well drained soils; formed in glacial till; and deep, nearly level, poorly drained soils; formed in marine and lacustrine sediments

This map unit consists mainly of Lyman and Peru soils on glacial till ridges and Scantic soils on adjacent marine sediment in lower areas (fig. 6).

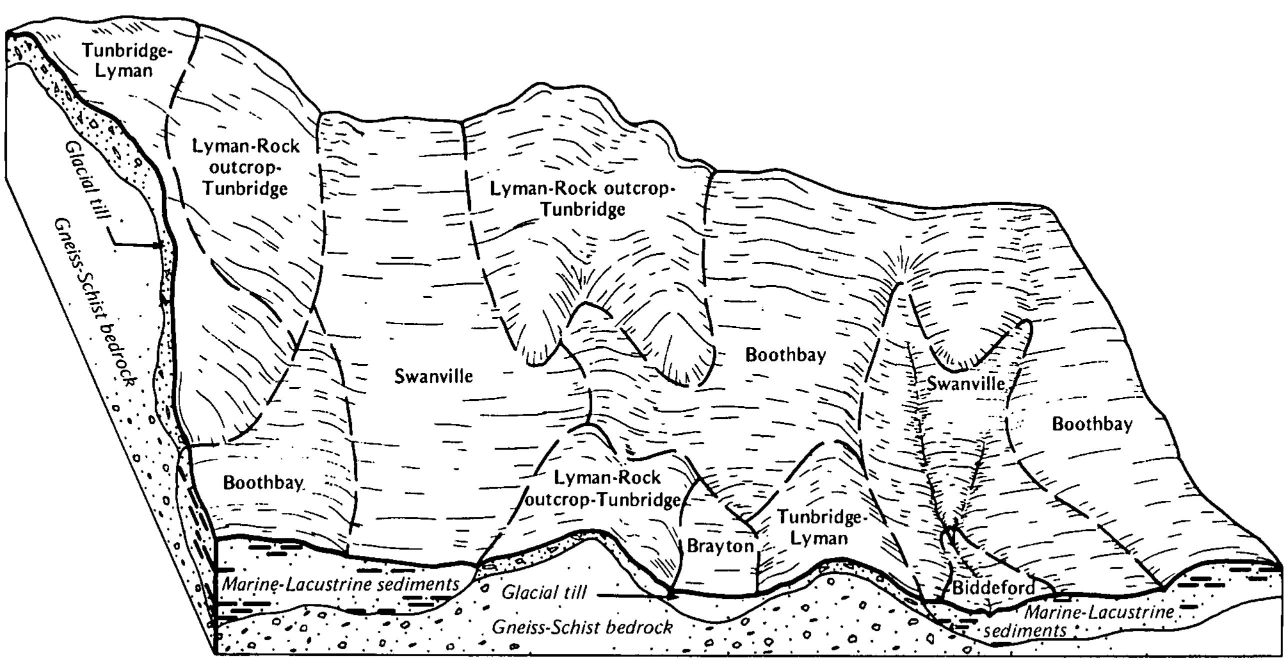


Figure 4.—The typical pattern of the soils on the landscape and the underlying material and bedrock in the Boothbay-Swanville-Lyman map unit.

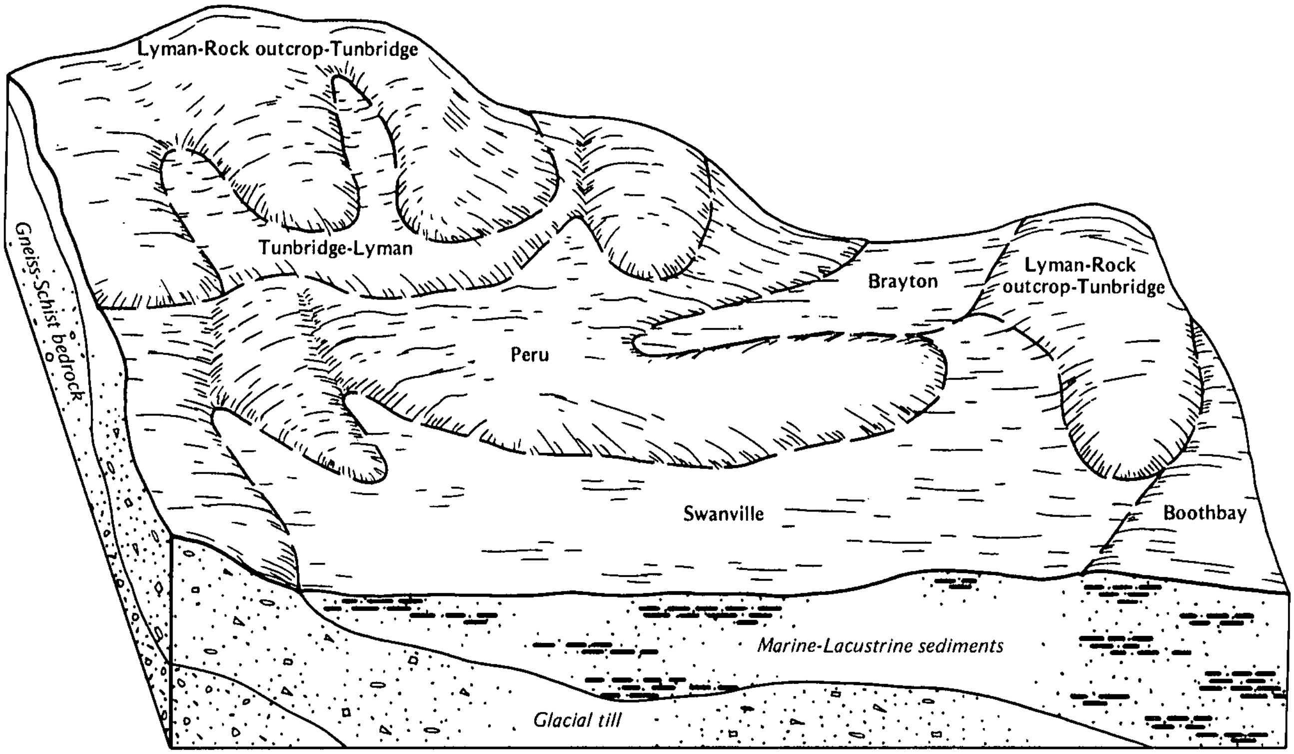


Figure 5.—The typical pattern of the soils on the landscape and the underlying material and bedrock in the Peru-Swanville-Lyman map unit.

This map unit makes up about 7 percent of the survey area. About 32 percent of the map unit is Lyman soils, 22 percent is Peru soils, 16 percent is Scantic soils, and 30 percent is soils of minor extent. Lyman and Peru soils are mainly on the tops and sides of ridges and in areas at higher elevations of the map unit. Scantic soils are in areas at the lower elevations.

Lyman soils are shallow, gently sloping to steep, and somewhat excessively drained. The surface layer and the subsoil is fine sandy loam. Below that, there is hard, unweathered bedrock.

Peru soils are deep, gently sloping to strongly sloping, and moderately well drained. The surface layer and the subsoil are fine sandy loam. The substratum is compact and moderately coarse textured.

Scantic soils are deep, nearly level, and poorly drained. The surface layer is silt loam. The subsoil is silt loam and silty clay. The substratum is silty clay.

The minor soils in this map unit are mainly Swanville, Buxton, Boothbay, Marlow, Tunbridge, Brayton, and Hermon soils. Areas of Rock outcrop are a small part of the map unit. These soils and areas of Rock outcrop are on landscapes similar to those of Lyman, Peru, and Scantic soils. Swanville soils are poorly drained. Buxton and Boothbay soils are moderately well drained or somewhat poorly drained. Marlow and Tunbridge soils are well drained. Brayton soils are somewhat poorly drained or poorly drained. Hermon soils are somewhat excessively drained. In addition, the other minor soils, in small areas in depressions, are Biddeford soils and Borosaprists. These soils are very poorly drained.

The soils making up this map unit are used mainly as woodland. Some areas are used for hay, pasture, and cultivated crops. A few small areas are used for lowbush blueberries. Some coastal areas are used as seasonal or year-round homesites and for recreation. The main limitations are depth to bedrock, the perched seasonal high water table, the slow permeability in the compact substratum, rock outcrops, and stones on the surface.

6. Rock outcrop-Lyman-Tunbridge

Gently sloping to very steep exposures of bedrock; and shallow and moderately deep, gently sloping to steep, *somewhat excessively drained and well drained soils; formed in glacial till*

This map unit consists mainly of Lyman and Tunbridge soils intermingled with areas of Rock outcrop (fig. 7).

This map unit makes up about 10 percent of the survey area. About 32 percent of the map unit is Rock outcrop, 23 percent is Lyman soils, 18 percent is Tunbridge soils, and 27 percent is soils of minor extent. Rock outcrop is on the peaks of ridges and on steep side slopes. Lyman and Tunbridge soils are mainly on the gently sloping and sloping side slopes.

Rock outcrop consists mainly of exposures of hard, unweathered bedrock.

Lyman soils are shallow, gently sloping to steep, and somewhat excessively drained. The surface layer and the subsoil are fine sandy loam. Below that, there is hard, unweathered bedrock.

Tunbridge soils are moderately deep, gently sloping to steep, and well drained. The surface layer and the subsoil are fine sandy loam and gravelly fine sandy loam. The substratum is gravelly fine sandy loam. Below that, there is hard, unweathered bedrock.

The minor soils in this map unit are mainly Peru, Berkshire, and Marlow soils on the lower side slopes. Peru soils are moderately well drained. Berkshire and Marlow soils are well drained. In addition, the other minor soils, in small areas in depressions and drainageways, are Brayton and Brayton Variant soils. These soils are somewhat poorly drained or poorly drained.

The soils making up this map unit are used mainly as woodland. Some areas are used for pasture and hay. A few small areas are used for lowbush blueberries. Some areas are in recreation use. The main limitations are slope, depth to bedrock, rock outcrops, the slow permeability in the compact substratum, and stones on the surface.

7. Masardis-Sheepscot-Adams

Deep, nearly level to moderately steep, somewhat excessively drained and moderately well drained soils; formed in glaciofluvial deposits

This map unit is on deltas, eskers, sand plains, and terraces (fig. 8). It makes up about 3 percent of the survey area. About 24 percent of the map unit is Masardis soils, 18 percent is Sheepscot soils, 12 percent is Adams soils, and 46 percent is soils of minor extent.

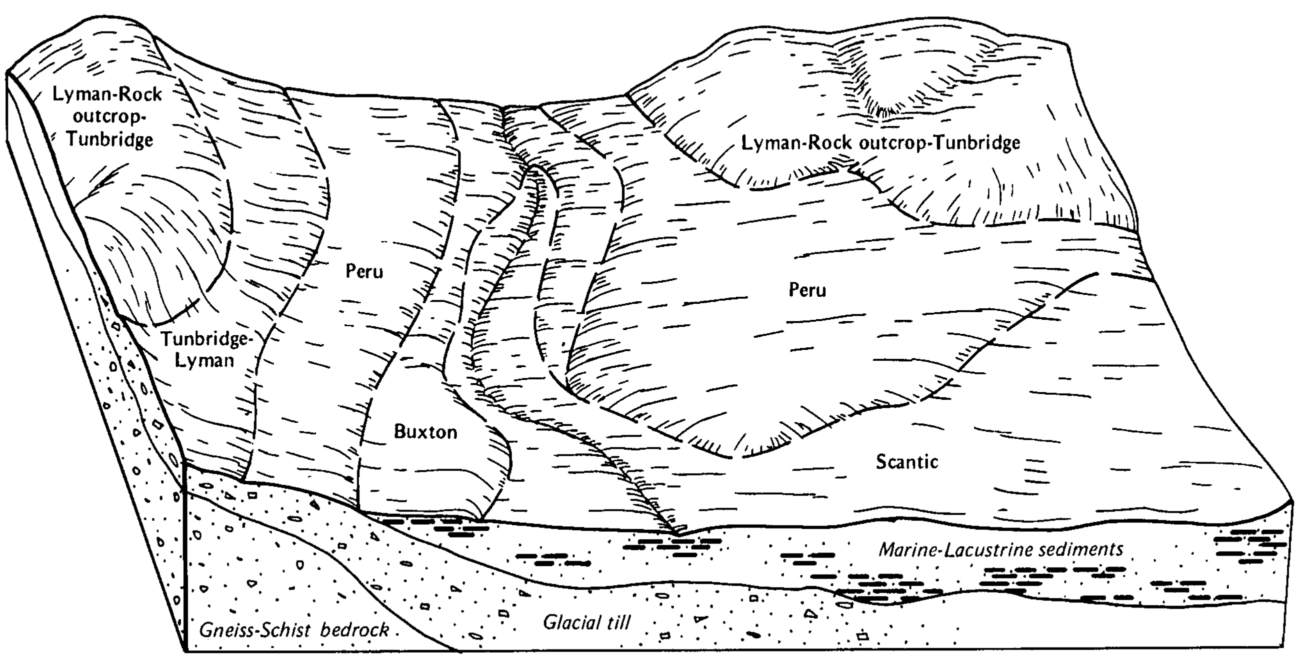


Figure 6.—The typical pattern of the soils on the landscape and the underlying material and bedrock in the Lyman-Peru-Scantic map unit.

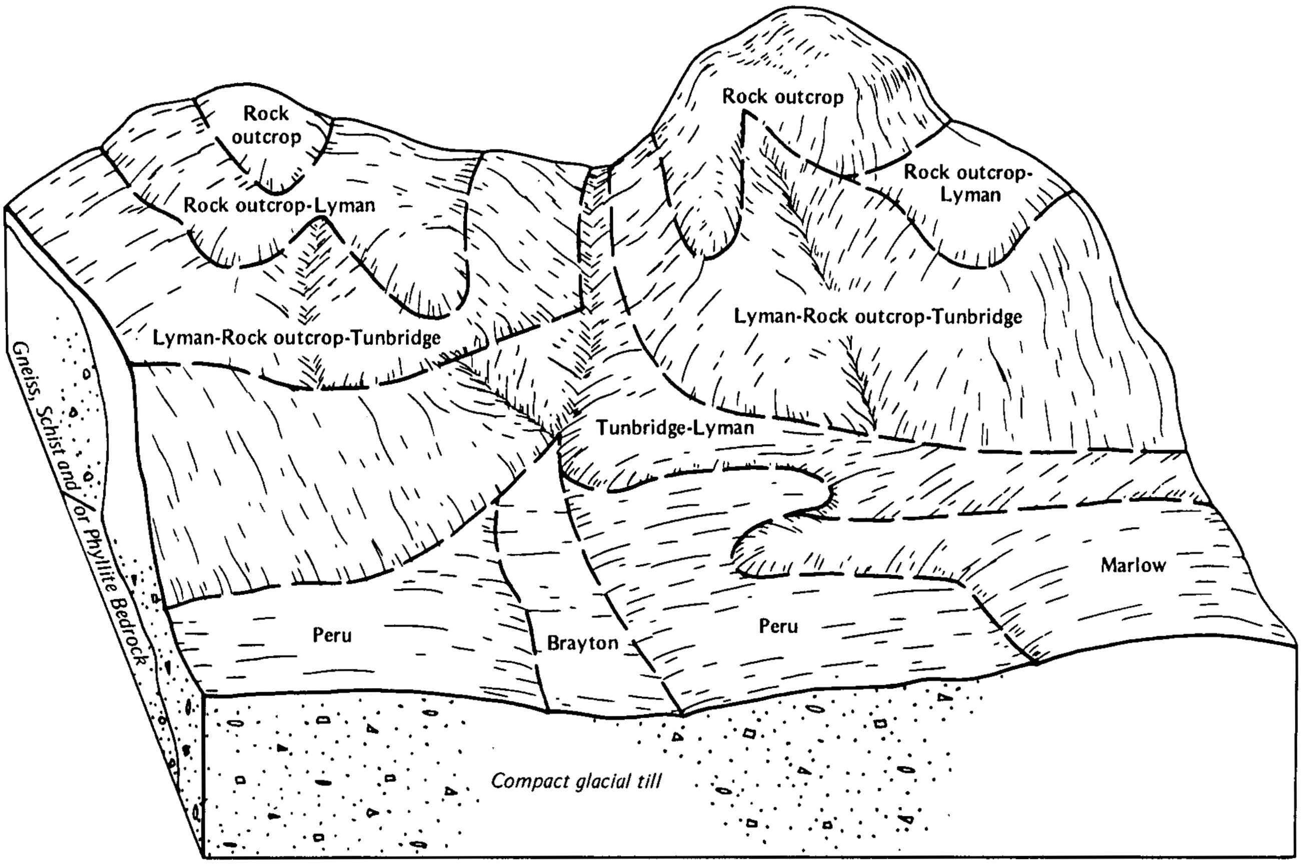


Figure 7.—The typical pattern of areas of Rock outcrop and the soils on the landscape and the underlying material and bedrock in the Rock outcrop-Lyman-Tunbridge map unit.

Masardis soils are gently sloping to moderately steep and somewhat excessively drained. The surface layer is fine sandy loam. The subsoil is gravelly fine sandy loam, very gravelly sandy loam, and very gravelly loamy sand. The substratum is very gravelly and extremely gravelly sand. These soils are mainly on terraces, deltas, kames, and eskers.

Sheepscot soils are nearly level and gently sloping and moderately well drained. The surface layer is fine sandy loam. The subsoil is gravelly fine sandy loam, gravelly sandy loam, and very gravelly loamy sand. The substratum is extremely gravelly sand. These soils are mainly on deltas and terraces.

Adams soils are gently sloping to moderately steep and somewhat excessively drained. They are sandy throughout. They are mainly on terraces, kames, deltas, and old beaches.

The minor soils in the map unit are mainly Allagash, Madawaska, and Naumburg soils. These soils are on landscapes similar to those of Masardis, Sheepscot, and Adams soils. Allagash soils are well drained. Madawaska soils are moderately well drained. Naumburg soils are poorly drained or somewhat poorly drained. In addition, there are other minor soils in scattered areas. Searsport soils and Borosaprists are in depressions and drainageways. These soils are very poorly drained. Charles, Lovewell, and Medomak soils are on flood plains. Some gravel and sand pits are also in the map unit.

In most areas the soils making up this map unit are used as grassland and woodland. Some areas are used for hay, pasture, and cultivated crops. Some areas are used as small gardens. In a few areas gravel and sand have been excavated. The main limitations are droughtiness and slope. If these soils are used for onsite waste disposal, the ground water can be contaminated.

Broad Land Use Considerations

The suitability for major land uses of the soils in Knox and Lincoln Counties differs widely. Approximately 3 percent of the survey area is used for crops, mainly hay and cultivated crops. The cropland is scattered throughout the survey area, but it is mainly in map units 1, 2, and 3 of the General Soil Map. The soils in map unit 1 are in upland areas where there are long ridges with broad tops. The major soils in this map unit are Peru, Tunbridge, and Marlow soils. The soils in map unit 2 are in low-lying areas with a rolling topography in the western part of the survey area. The major soils in this map unit are Buxton, Scantic, and Lyman soils.

The soils in map unit 3 are in low-lying areas where the topography is rolling. The major soils in this map unit are Boothbay, Swanville, and Lyman soils. A few areas in map units 4 and 5 are used for hay and pasture. The soils in these map units are shallow or wet, and they formed in glacial till. They are intermingled with wet soils that formed in marine or lacustrine deposits. The soils in map unit 6 are shallow or moderately deep and have exposed bedrock. Those in map unit 7 in most years are droughty during the growing season.

About 73 percent of the survey area is woodland. Potential productivity for softwoods is good on map units 1, 2, 3, 4, and 6. Potential productivity for hardwoods is good on map unit 1. The use of equipment is restricted on some soils in these map units except during the drier seasons and in winter.

Urban areas make up a very small acreage in the survey area. On most soils there are some limitations to urban use. The slow permeability, the seasonal high water table, slope, and stones on the surface limit the use of the soils as sites for septic sewage disposal systems, dwellings, area sanitary landfills, commercial buildings, and roads. Many limitations can be overcome by proper engineering.

Suitability of the soils for recreation use varies with the use and the intensity of use. Some soils in each map unit are suitable for recreational development.

Suitability of the soils for habitat for wildlife generally is good throughout the survey area. Some soils in each

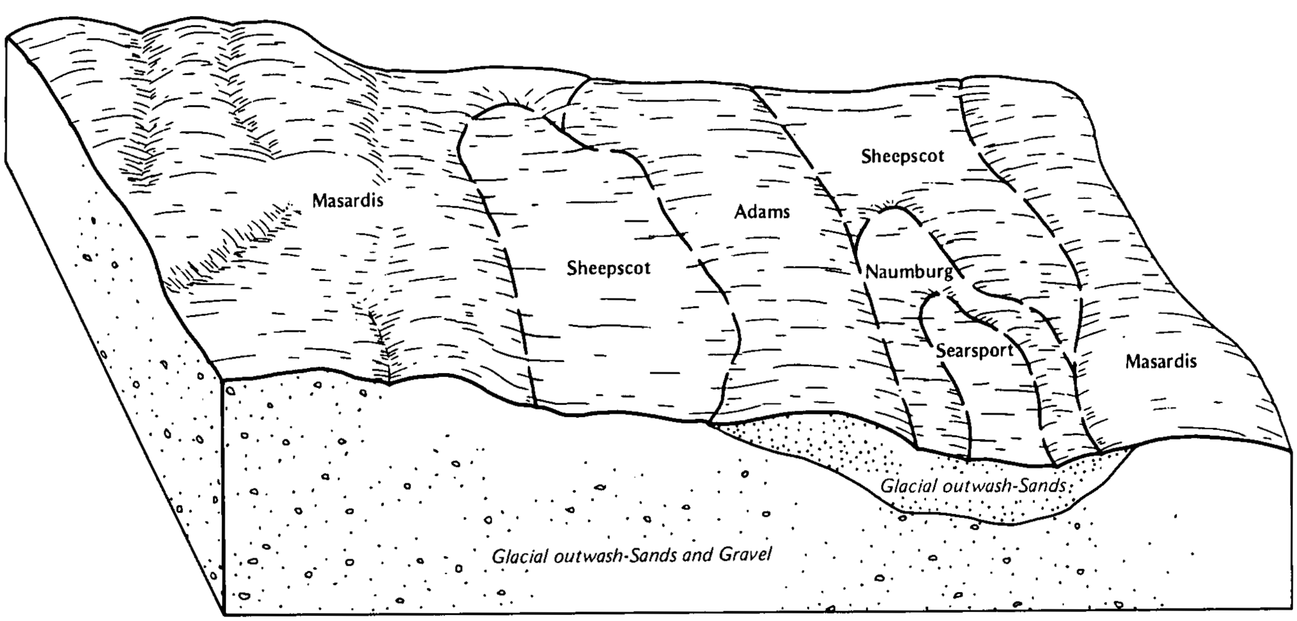


Figure 8.—The typical pattern of the soils on the landscape and the underlying material in the Masardis-Sheepscot-Adams map units.

map unit are suitable for use as habitat for openland or woodland wildlife. Suitability is good for use of some soils in map units 2, 3, 4, and 6 as habitat for wetland wildlife.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability (*6*) and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and Management of the Soils."

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

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

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, 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, Peru very stony fine sandy loam, 3 to 8 percent slopes, is one of several phases in the Peru 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, or one or more soils and a miscellaneous area, 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-Tunbridge complex, 8 to 15 percent slopes, 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 the mapped areas 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. Sulfaquents, frequently flooded, 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. Rock outcrop is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

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

Soil Descriptions

AdB—Adams loamy fine sand, 3 to 8 percent slopes. This soil is gently sloping, deep, and somewhat excessively drained. It is on kames, terraces, deltas, outwash plains, and old beaches. Slopes are smooth or convex and 100 to 400 feet long. Areas are mostly irregular in shape, but some are oval. They range from about 4 to 60 acres, but most range from 8 to 30 acres.

Typically, the surface layer is very dark grayish brown loamy fine sand about 6 inches thick. The subsoil is about 16 inches thick. It is dark brown loamy fine sand that grades with depth to light olive brown sand. The substratum is light yellowish brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Madawaska, Sheepscot, Naumburg, and Searsport soils in the lower positions or in depressions and Masardis soils in the higher positions. Madawaska and Sheepscot soils are moderately well drained. Naumburg soils are somewhat poorly drained or poorly drained. Searsport soils are very poorly drained. Masardis soils are somewhat excessively drained. Also included are some areas of soils that are similar to this Adams soil but that are moderately deep to bedrock and have scattered areas of rock outcrop. Also included are small areas of soils that have slope of less than 3 percent. The included soils make up about 20 percent of the map unit.

Permeability of this Adams soil is rapid in the surface layer and the subsoil and very rapid in the substratum. The available water capacity is very low. Surface runoff is slow, and erosion is a slight hazard. Bedrock generally is at a depth of more than 5 feet.

Most areas of this soil are wooded. Some areas are used for pasture, hay, and cultivated crops. A few areas are a source of sand and roadfill.

This soil is poorly suited to farming. The main limitations are droughtiness and the low natural fertility. Increasing both organic matter content and the available water capacity and liming and fertilizing are major management concerns. On pasture, rotation grazing and stocking rates within the carrying capacity of the pasture help to maintain pasture.

Potential productivity for eastern white pine on this soil is high. The main limitations are droughtiness and the low natural fertility. Mechanical planting is practical in the larger areas. Seedling mortality is high, and natural revegetation is slow.

If this soil is used as sites for septic sewage disposal systems, the rapid and very rapid permeability causes a hazard of ground water contamination. There are few limitations to use of the soil as building sites. It is a probable source of sand, but excavations are unstable.

There are few limitations to use of this soil for many recreation uses. In some areas irrigation is needed to establish and maintain sod.

This soil is in capability subclass IIIs.

AdC—Adams loamy fine sand, 8 to 15 percent slopes. This soil is strongly sloping, deep, and somewhat excessively drained. It is on kames, terraces, deltas, outwash plains, and old beaches. Slopes are smooth or convex and 100 to 300 feet long. Areas are mostly irregular in shape, but some are oval. They are mainly 8 to 20 acres, but the range is about 4 to 40 acres.

Typically, the surface layer is very dark grayish brown loamy fine sand about 6 inches thick. The subsoil is about 16 inches thick. It is dark brown loamy fine sand that grades with depth to light olive brown sand. The substratum is light yellowish brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Madawaska, Sheepscot, and Masardis soils. Madawaska and Sheepscot soils are moderately well drained. They are in the lower positions or in depressions. Masardis soils are somewhat excessively drained. They are in the higher positions. Also included are areas of soils that are similar to this Adams soil but that are moderately deep to bedrock and have scattered areas of rock outcrops. The included soils make up about 20 percent of the map unit.

Permeability in this Adams soil is rapid in the surface layer and the subsoil and very rapid in the substratum. The available water capacity is very low. Surface runoff is medium, and the erosion hazard is slight or moderate. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are wooded. Some areas are used for pasture, hay, and cultivated crops. A few areas are a source of sand and roadfill.

This soil is poorly suited to farming. The main limitations are slope, droughtiness and the low natural fertility. Increasing both organic matter content and the available water capacity and lime and fertilizer are major management concerns. Stripcropping, contour farming, and crop rotation help to control erosion. On pasture, using rotation grazing and stocking rates within the carrying capacity of the pasture helps to maintain pasture.

Potential productivity for eastern white pine on this soil is high. The main limitations are droughtiness and the low natural fertility. Mechanical planting is practical in the larger areas. Seedling mortality is high, and natural revegetation is slow.

If this soil is used as sites for septic sewage disposal systems, the rapid and very rapid permeability causes a hazard of ground water contamination. There are few limitations to use of the soil as building sites. It is a probable source of sand, but excavations are unstable.

Slope and the difficulty in establishing and maintaining good sod cover are the main limitations of this soil for many recreation uses.

This soil is in capability subclass IVs.

AdD—Adams loamy fine sand, 15 to 25 percent slopes. This soil is moderately steep, deep, and somewhat excessively drained. It is on the sides of terraces and on outwash plains. Slopes are convex and 100 to 200 feet long. Areas are mostly elongated in shape, but some are irregular. They are mainly 8 to 20 acres, but range from about 4 to 40 acres.

Typically, the surface layer is very dark grayish brown loamy fine sand about 6 inches thick. The subsoil is about 16 inches thick. It is dark brown loamy fine sand that grades with depth to light olive brown sand. The substratum is light yellowish brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Madawaska, Sheepscot, and Masardis soils. Madawaska and Sheepscot soils are moderately well drained. They are in the lower positions or in depressions. Masardis soils are somewhat excessively drained. They are in the higher positions. Also included are some areas of soils that are similar to this Adams soil but that are moderately deep to bedrock and have scattered areas of rock outcrops. Also included are small areas of soils that have slope of more than 25 percent. The included soils make up about 15 percent of the map unit.

Permeability in this Adams soil is rapid in the surface layer and the subsoil and very rapid in the substratum. The available water capacity is very low. Surface runoff is medium, and erosion is a severe hazard. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are wooded. Some areas are used for pasture and hay and are a source of sand and roadfill.

This soil is very poorly suited to farming. The main limitations are slope, droughtiness, and the low natural fertility. The soil is highly susceptible to erosion unless a vegetative cover is grown. Contour farming and stripcropping generally are needed to control erosion. On pasture, rotation grazing and stocking rates within the carrying capacity of the pasture help to maintain pasture. Use of equipment generally is impractical and unsafe because of slope.

Potential productivity for trees on this soil is poor. The main limitations are droughtiness and the low natural fertility. Mechanical planting is not practical because of slope. Seedling mortality is high, and natural revegetation is slow.

If this soil is used as sites for septic sewage disposal systems, the rapid permeability causes a hazard of ground water contamination. Slope is a limitation to use of the soil as building sites. The soil is a probable source of sand, but excavations are unstable.

Slope and the difficulty in establishing and maintaining good sod cover are the main limitations of this soil for most recreation uses.

This soil is in capability subclass VIs.

AgA—Allagash fine sandy loam, 0 to 3 percent slopes. This soil is nearly level, deep, and well drained. It is on high terraces along the large rivers and on outwash plains. Slopes are smooth or concave and less than 400 feet long. Areas are mostly irregular in shape. They are mainly 6 to 20 acres in size, but range from about 3 to 30 acres.

Typically, the surface layer is dark yellowish brown fine sandy loam about 8 inches thick. The subsoil is about 20 inches thick. It is yellowish brown fine sandy loam that grades with depth to olive brown fine sandy loam. The substratum is olive gray fine sand to a depth of 60 inches or more.

Included with the soil in mapping are small areas of Adams, Madawaska, and Sheepscot soils. Adams soils are somewhat excessively drained. Madawaska and Sheepscot soils are moderately well drained. Adams and Sheepscot soils are in the higher positions. Madawaska soils are in depressions. Also included are some areas of soils that are similar to this Allagash soil but that have a slightly finer textured surface layer. The included soils make up about 15 percent of the map unit.

Permeability in this Allagash soil is moderately rapid in the surface layer and the subsoil and rapid in the substratum. The available water capacity is high. Surface runoff is slow, and erosion is a slight hazard. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used for cultivated crops, mainly potatoes and strawberries. A few small areas are used as pasture and as woodland.

This soil is well suited to cultivated crops. It is free of stones and easy to work. Tilth is good if an adequate organic matter content is maintained. In most years, there is adequate moisture for good yields. In some years, however, irrigation is often needed during dry periods. Draining depressions after periods of heavy rainfall improves the workability of an entire field.

This soil is well suited to pasture and hay. Yields of hay and pasture are good if the soil is limed and fertilized.

Potential productivity for eastern white pine on this soil is high. There are few, if any, problems in woodland management.

If this soil is used as sites for septic sewage disposal systems, sewage lagoons, and sanitary landfills, the rapid permeability in the substratum causes a hazard of ground water contamination. The soil is a probable source of sand and gravel. There are few limitations to use of the soil as sites for roads and streets.

This soil is in capability class I.

AgB—Allagash fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, deep, and well drained. It is on high terraces along the large rivers and on outwash plains. Slopes are smooth or concave, and are less than 400 feet long. Areas are mostly irregular in shape. They are mainly 6 to 15 acres in size, but range from about 3 to 20 acres.

Typically, the surface layer is dark yellowish brown fine sandy loam about 8 inches thick. The subsoil is about 20 inches thick. It is yellowish brown fine sandy loam that grades with depth to olive brown fine sandy loam. The substratum is olive gray fine sand to a depth of 60 inches or more.

Included with the soil in mapping are small areas of Adams, Madawaska, and Sheepscot soils. Adams soils are somewhat excessively drained. Madawaska and Sheepscot soils are moderately well drained. Adams and Sheepscot soils are in the higher positions. Madawaska soils are in depressions. Also included are some areas of soils that are similar to this Allagash soil but that have a slightly finer textured surface layer. The included soils make up about 15 percent of the map unit.

Permeability in this Allagash soil is moderately rapid in the surface layer and the subsoil and rapid in the substratum. The available water capacity is high. Surface runoff is medium, and erosion is a moderate hazard. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used for cultivated crops, mainly potatoes and strawberries. A few small areas are used as pasture and as woodland.

This soil is suited to cultivated crops. The main limitation is slope. The soil is free of stones and easy to work. Tilth is good if an adequate organic matter content is maintained. In most years moisture is adequate for good yields. Irrigation is often needed during dry periods. Draining depressions after periods of heavy rainfall improves the workability of an entire field. Contour farming, stripcropping, and installing terraces help to control erosion.

The soil is well suited to pasture and hay. Yields of hay and pasture are good if the soil is limed and fertilized. If the soil is reseeded, it needs to be protected by erosion control practices, such as contour tillage or mulching.

Potential productivity for eastern white pine on this soil is very high. There are few, if any, problems in woodland management.

If this soil is used as sites for septic sewage disposal systems, sewage lagoons, and sanitary landfills, the rapid permeability in the substratum causes a hazard of ground water contamination. The soil is a probable source of sand and gravel. There are few limitations to use as sites for roads and streets.

This soil is in capability subclass IIe.

AgC—Allagash fine sandy loam, 8 to 15 percent slopes. This soil is strongly sloping, deep, and well drained. It is on high terraces along the large rivers and on outwash plains. Slopes are smooth or concave and less than 200 feet long. Areas are mostly irregular in shape. They range mainly from about 3 to 10 acres in size.

Typically, the surface layer is dark yellowish brown fine sandy loam about 8 inches thick. The subsoil is about 20 inches thick. It is yellowish brown fine sandy loam that grades with depth to olive brown fine sandy loam. The substratum is olive gray fine sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Adams, Madawaska, and Sheepscot soils. Adams soils are somewhat excessively drained. Madawaska and Sheepscot soils are moderately well drained. Adams and Sheepscot soils are in the higher positions. Madawaska soils are in depressions. Also included are small areas of soils that are similar to this Allagash soil, except that slope is more than 15 percent or the surface layer is slightly finer textured. The included soils make up about 15 percent of the map unit.

Permeability in this Allagash soil is moderately rapid in the surface layer and the subsoil and rapid in the substratum. The available water capacity is high. Surface runoff is medium, and erosion is a moderate hazard. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used as hayland and pasture. A few small areas are used for cultivated crops and trees.

The soil is poorly suited to cultivated crops. The main limitation is slope. This soil is free of stones and is easy to work. Tilth is good if an adequate organic matter content is maintained. In most years the moisture needed for good yields is adequate. In some years, however, irrigation is often needed during dry periods. Contour farming, stripcropping, and installing terraces help to control erosion.

The soil is well suited to pasture and hay. The main limitation is slope. Yields of hay and pasture are good if the soil is limed and fertilized. If the soil is reseeded, it needs to be protected by erosion control practices, such as contour tillage or mulching.

Potential productivity for trees on this soil is fair. In some areas erosion is a hazard on skid trails. Laying out the trails on the contour helps to prevent erosion

Slope is the main limitation to use of this soil as sites for community development. If the soil is used as sites for septic sewage disposal systems, sewage lagoons, and sanitary landfills, the rapid permeability in the substratum causes a hazard of ground water contamination. The soil is a probable source of sand and gravel.

This soil is in capability subclass IIIe.

Be—Beaches. Beaches consist of nearly level and gently sloping, long, narrow strips of loose, water-worked sand, gravel, or cobbly material. Generally, they are deep, but are also moderately deep and shallow. They are along the shoreline of lakes and ponds, along the coastal shoreline, and on offshore islands. Areas range from 4 to 10 acres.

Beaches along the coastal shoreline are often reshaped by high tides and by storms. They extend from the low watermark to as much as 200 feet inland from the high watermark. In some areas wave action has formed ridges of cobbles and stones.

Included with this unit in mapping are small areas of Sulfihemists and Sulfaquents. These soils are very poorly drained. Also included are a few areas of rock outcrop and small areas of Lyman soils. Lyman soils are shallow and somewhat excessively drained. The included areas make up about 10 percent of the map unit.

Permeability in Beaches is very rapid and rapid. Surface runoff varies from place to place, and the available water capacity is very low. Beaches are subject to frequent flooding. Vegetation in the areas of included soils is sparse, and it consists mainly of such salt-tolerant grasses as American beachgrass.

Beaches are poorly suited to cultivation and to use as woodland. They are well suited to some recreation uses, including use as bathing beaches. In some areas they are suited to use as habitat for wildlife.

This map unit is in capability subclass VIIIs.

Bg—Biddeford mucky peat. This soil is nearly level, deep, and very poorly drained. It is in low-lying areas and in slight depressions in the coastal areas and inland valleys. Areas are mostly circular or elongated, and range from 4 to 100 acres. Generally, slope ranges from 0 to 1 percent, and is smooth, concave, or flat.

Typically, the surface layer is black mucky peat about 12 inches thick. The subsurface layer is mottled, dark gray silty clay loam about 4 inches thick. The subsoil is about 22 inches thick. It is mottled, dark gray and olive gray silty clay loam and olive gray silty clay. The substratum is mottled, dark greenish gray silty clay to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Boothbay, Buxton, Swanville, Scantic, and Medomak soils and Borosaprists. Boothbay and Buxton soils are moderately well drained or somewhat poorly drained. Swanville and Scantic soils are poorly drained. Medomak soils are very poorly drained. Borosaprists are very poorly drained. Boothbay, Buxton, Scantic, and Swanville soils are in the higher positions. Medomak soils are along streams, and Borosaprists are in depressions. Also included are small areas of soils that are similar to this Biddeford soil but that have an organic surface layer less than 8 inches thick or a subsurface layer of silt loam or silty clay. In some areas the substratum is silt loam or very fine sandy loam. The included soils make up about 15 percent of the map unit.

Permeability in this Biddeford soil is moderately rapid in the surface layer, moderately slow in the subsurface layer, and slow or very slow in the subsoil and the substratum. Surface runoff is very slow, and sometimes water is ponded in some areas. The seasonal high water table is at or near the surface for most of the year, and it restricts the depth of the root zone. The available water capacity is high. Internal drainage is very slow. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are in idle fields reverting to bushes. Other areas are in idle grassland and in pasture. A few small areas are used as woodland.

This soil is very poorly suited to farming. The main limitations are the seasonal high water table, the poor workability, the low natural fertility, and the restricted root zone. The soil is difficult to drain because permeability is slow or very slow, surface runoff is very slow, and suitable outlets are not available. The seasonal high water table causes the soil to warm slowly in spring. Some areas can be used for unimproved pasture.

Potential productivity for balsam fir on this soil is high. Some woodland management practices can be used in winter, when the ground is frozen.

The seasonal high water table, the slow permeability, and the low strength are the main limitations to use of this soil as sites for community development. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

The soil is suited to some recreation uses or to use as habitat for some kinds of wetland wildlife.

This soil is in capability subclass VIw.

BoB—Boothbay silt loam, 3 to 8 percent slopes. This soil is gently sloping and undulating, deep, and moderately well drained or somewhat poorly drained. It is on plains and terraces in the coastal areas and in the inland valleys. Slopes generally are smooth and convex and less than 500 feet long. Most areas are irregular in shape, and range from 4 to 70 acres.

Typically, the surface layer is dark yellowish brown silt loam about 6 inches thick. The subsoil is about 22 inches thick. It is dark yellowish brown and light olive brown silt loam that grades with depth to mottled, olive silt loam. The substratum is mottled, olive gray silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Biddeford, Scantic, Swanville, Buxton, Eldridge, Peru, Lyman, and Tunbridge soils and areas of Rock outcrop. Biddeford soils are very poorly drained. Scantic and Swanville soils are poorly drained. These soils commonly are in the lower positions and in depressions. Buxton soils are moderately well drained or somewhat poorly drained. Eldridge soils are moderately well drained. These soils are in positions on the landscape similar to those of this Boothbay soil. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. These soils and areas of Rock outcrop are in the higher positions. Also included are areas of soils that have slope of less than 3 percent. The included areas make up about 20 percent of the map unit.

Permeability of this Boothbay soil is moderate in the surface layer and moderately slow or slow in the subsoil and the substratum. The available water capacity is high. Surface runoff is moderate, and erosion is a moderate hazard. The seasonal high water table is at a depth of 1 to 2 feet in spring, and it restricts the depth of the root zone. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used for hay and pasture. Other areas are used as woodland, for cultivated crops (fig. 9), or as idle grassland or are in residential use.

This soil is suited to most cultivated crops. The main limitation is the seasonal high water table. This soil dries slowly in spring and after heavy rains, and it is sticky when wet. Drainageways can be used to lower the seasonal high water table where adequate outlets are available. Cover crops and contour farming help to control erosion. Green manure crops helps to improve soil tilth.

This soil is suited to hay and pasture. Heaving of the soil by frost heave is a hazard if plants with tap roots,

Figure 9.—This field of cabbage is on Boothbay silt loam, 3 to 8 percent slopes. This soil is suited to most cultivated crops.

such as alfalfa, are grown. Leveling and smoothing can be used to remove excess surface water. Deferred grazing and rotation grazing help to control erosion and to prevent surface compaction. Pasture grasses respond well to applications of lime and fertilizer.

Potential productivity for eastern white pine on Boothbay silt loam, 3 to 8 percent slopes, is high. The seasonal high water table restricts the use of equipment for short periods in spring. Erosion is a hazard on skid trails and access roads.

The slow permeability and the seasonal high water table are the main limitations to use of this soil as sites for community development. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IIw.

BoC—Boothbay silt loam, 8 to 15 percent slopes. This soil is strongly sloping and rolling, deep, and moderately well drained or somewhat poorly drained. It is on plains and terraces in the coastal areas and the inland valleys. Slopes generally are smooth and convex and less than 400 feet long. Most areas are irregular in shape, and range from 4 to 70 acres.

Typically, the surface layer is dark yellowish brown silt loam about 6 inches thick. The subsoil is about 22 inches thick. It is dark yellowish brown and light olive brown silt loam that grades with depth to mottled, olive silt loam. The substratum is mottled, olive gray silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Scantic, Swanville, Buxton, Eldridge, Peru, Lyman, and Tunbridge soils and areas of Rock outcrop. Scantic and Swanville soils are poorly drained. Commonly, they are in the lower positions and in depressions. Buxton soils are moderately well drained or somewhat poorly drained. Eldridge soils are moderately well drained. They are in positions similar to those of this Boothbay soil. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Peru, Lyman, and Tunbridge soils and areas of Rock outcrop are in the higher positions. The included areas make up about 20 percent of the map unit.

Permeability in this Boothbay soil is moderate in the surface layer and moderately slow or slow in the subsoil and the substratum. The available water capacity is high. Surface runoff is moderate, and erosion is a severe hazard. The seasonal high water table is at a depth of 1 to 2 feet in spring, and it restricts the depth of the root zone. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used for hay and pasture. Other areas are used as woodland, for silage corn, and as idle grassland and are in residential uses.

This soil is poorly suited to most cultivated crops. It is suited to corn silage and potatoes. The main limitation is slope. Erosion is a hazard. Rotating crops, cover crops, and contour stripcropping help to reduce runoff and to control erosion. The soil dries slowly in spring and after heavy rains, and it is sticky when wet. Drainageways help to reduce wetness. Green manure crops help to improve soil tilth.

This soil is suited to hay and pasture. The main limitation is the seasonal high water table. In some areas heaving of the soil by frost action is a hazard for plants with tap roots, such as alfalfa. Deferred grazing and rotation grazing help to reduce erosion and to prevent soil compaction. Pasture grasses respond well to applications of lime and fertilizer.

Potential productivity for trees on this soil is moderate. The seasonal high water table limits the use of equipment for short periods. Erosion is a hazard on skid trails and access roads. Laying out trails and roads on the contour helps to control erosion.

The slow permeability, slope, and the seasonal high water table are the main limitations to use of this soil as sites for community development. In addition, in some areas heaving of the soil by frost action is a hazard for sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IIIe.

BoD2—Boothbay silt loam, 15 to 25 percent slopes, eroded. This soil is moderately steep and hilly, deep, and predominately moderately well drained but also somewhat poorly drained. It is on plains and terraces in the coastal areas and the inland valleys. Slopes generally are smooth and convex and less than 200 feet long. Most areas are irregular in shape, and range from 4 to 40 acres.

Typically, the surface layer is dark yellowish brown silt loam about 3 inches thick. The subsoil is about 22 inches thick. It is dark yellowish brown and light olive brown silt loam that grades with depth to mottled, olive silt loam. The substratum is mottled, olive gray silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Scantic, Swanville, Buxton, Eldridge, Peru, Lyman, and Tunbridge soils and areas of Rock outcrop. Scantic and Swanville soils are poorly drained. They are commonly in the lower positions and in depressions. Buxton soils are moderately well drained or somewhat poorly drained. Eldridge soils are moderately well drained. Buxton and Eldridge soils are in positions similar to those of this Boothbay soil. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Peru, Lyman, and Tunbridge soils and areas of Rock outcrop are in the higher positions. The included areas make up about 20 percent of the map units.

Permeability in this Boothbay soil is moderate in the surface layer and moderately slow or slow in the subsoil and the substratum. The available water capacity is high. Surface runoff is rapid, and the erosion hazard is severe. The seasonal high water table is at a depth of 1 to 2 feet in spring, and restricts the depth of the root zone. Bedrock generally is at a depth of more than 5 feet.

Most areas of this soil are used as woodland. Other areas are used for hay, for pasture, and as idle grassland and are in residential use.

This soil is poorly suited to cultivated crops. The main limitation is slope. Erosion is a hazard. Crop rotations, cover crops, and contour stripcropping help to reduce runoff and to control erosion. The soil dries slowly in spring and after heavy rains, and it is sticky when wet. Green manure crops help to improve soil tilth.

This soil is poorly suited to hay and pasture. The main limitation is slope. Erosion is a hazard, especially during reseeding. In some areas heaving of the soil by frost action is a hazard for plants with tap roots, such as alfalfa. Deferred grazing and rotation grazing help to control erosion and to prevent surface compaction. Pasture grasses respond well to applications of lime and fertilizer.

Potential productivity to trees on this soil is fair. The main limitations are slope and the seasonal high water table. Erosion is a hazard on skid trails and access roads.

Slope, the slow permeability, and the seasonal high water table are the main limitations to use of this soil as sites for community development. In some areas, heaving of the soil by frost action is a hazard for sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IVe.

Bp—Borosaprists, ponded. These soils are level, deep, and very poorly drained. They are in upland depressions, in basins, and in marshes adjacent to lakes or streams. Generally, they are in swamps and bogs. Borosaprists differ from place to place, but most areas are round or oblong and range mainly from about 4 to 100 acres. Slope ranges from 0 to 1 percent.

Typically, these soils consist of layers of dark reddish brown and black, highly decomposed organic material that extends, to a depth of 51 inches or more. In some areas bedrock or mineral material is at a depth of 16 to 51 inches.

Included with these soils in mapping are areas of organic soils that consist mainly of less decomposed material and areas of soils that have differing layers of organic and mineral material. Also included are small areas, slightly higher on the landscape, of Medomak, Searsport, and Biddeford soils and soils that have a surface layer of mucky peat less than 16 inches thick. Medomak, Searsport, and Biddeford soils are very poorly drained. Some small areas of Borosaprists are intermittently flooded because of beaver dams. The included areas make up about 35 percent of the map unit.

Permeability in Borosaprists is rapid in the organic layers. Surface runoff is very slow, and in most areas the surface is ponded. The available water capacity is high. The seasonal high water table is at or near the surface most of the year, and thus it restricts the depth of the root zone. In basins these soils are extremely acid to strongly acid and in marshes near lakes and streams are strongly acid to neutral.

Most areas of these soils are used as habitat for wetland wildlife. The vegetation in these areas consists of sphagnum moss and such low-growing shrubs as highbush cranberry, leather leaf, bog cranberry, and sheep laurel. Some areas are used as woodland. The soils are not suitable for most other uses. The main limitations are the low strength, the seasonal high water table, and the hazard of ponding.

Potential productivity for trees on these soils is poor. The limitations to woodland management are the seasonal high water table and the windthrow hazard. Most management practices are restricted except in winter, when the ground is frozen.

These soils are in capability subclass VIIIw.

BsB—Brayton fine sandy loam, 0 to 8 percent slopes. This soil is nearly level and gently sloping, deep, and somewhat poorly drained or poorly drained. It is along drainageways and in low-lying areas of glaciated uplands. Slopes generally are smooth and concave. Most areas are elongated or irregular in shape, and range from 4 to 50 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam about 8 inches thick. The subsoil is about 8 inches thick. It is mottled, dark grayish brown fine sandy loam that grades with depth to mottled, olive gray gravelly fine sandy loam. The substratum is 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 Marlow, Peru, and Brayton Variant soils, Borosaprists, and Lyman and Tunbridge soils. Marlow soils are well drained. Peru soils are moderately well drained. Brayton Variant soils are moderately deep and somewhat poorly drained or poorly drained. Borosaprists are very poorly drained. Marlow and Peru soils are in the higher positions on knolls, and Borosaprists are in depressions. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. These soils are in the higher positions. Also included are a few areas of very stony soils. Also included are some areas of soils that are similar to this Brayton soil but that have a surface layer of gravelly fine sandy loam or a friable substratum or that are very poorly drained. The included soils make up about 20 percent of the map unit.

Permeability in this Brayton soil is moderate or moderately rapid above the substratum and slow or very slow in the substratum. The available water capacity is low. Surface runoff is slow or medium, and erosion is a slight or moderate hazard. Bedrock generally is at a depth of more than 60 inches. The substratum restricts the depth of the root zone and water movement. From November through May, the seasonal high water table is perched near the surface.

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

This soil is poorly suited to farming. The main limitations are the seasonal high water table and the restricted root zone. Open and subsurface drainage can be used where adequate outlets are available. During wet periods using deferred grazing and restricting the use of equipment help to prevent surface compaction.

Potential productivity for eastern white pine on this soil is high. The main limitation is the seasonal high water table. Seedling mortality is high, and windthrow is a hazard. The use of heavy equipment is restricted, except in winter, when the ground is frozen.

The seasonal high water table is a limitation to use of this soil as sites for most types of community development. Slope is a limitation to use of the soil as sites for sewage lagoons. In some areas heaving of the soil by frost action is a hazard for sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IIIw.

BtB—Brayton very stony fine sandy loam, 0 to 8 percent slopes. This soil is nearly level and gently sloping, deep, and somewhat poorly drained or poorly drained. It is along drainageways and in low lying-areas on glaciated uplands. Slopes generally are smooth and concave. Most areas are elongated or irregular in shape, and range from about 10 to 50 acres. Stones cover as much as 15 percent of the surface.

Typically, the surface layer is very dark grayish brown fine sandy loam about 8 inches thick. The subsoil is about 8 inches thick. It is mottled, dark grayish brown fine sandy loam that grades with depth to mottled, olive gray gravelly fine sandy loam. The substratum is 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 Marlow, Peru, and Brayton Variant soils, Borosaprists, and Lyman and Tunbridge soils. Marlow soils are well drained. Peru soils are moderately well drained. Brayton Variant soils are moderately deep and somewhat poorly drained or poorly drained. Borosaprists are very poorly drained. Marlow and Peru soils are in the higher positions on knolls, and Borosaprists are in depressions. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Lyman and Tunbridge soils are in the higher positions. Also included are some areas of soils that are similar to this Brayton soil but that are not stony or extremely stony, have a substratum that is not very firm, or have a gravelly surface layer. Also included are small areas of soils that are very poorly drained and that formed in glacial till. The included soils make up about 20 percent of the map unit.

Permeability in this Brayton soil is moderate or moderately rapid above the substratum and slow or very slow in the substratum. The available water capacity is low. Surface runoff is slow or medium, and the erosion hazard is slight. Bedrock generally is at a depth of more than 60 inches. The substratum restricts the depth of the root zone and water movement. From November through May, the seasonal high water table is perched near the surface.

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

This soil is very poorly suited to farming because of the seasonal high water table, the restricted root zone, and the stony surface. It has been used as native pasture, but crop production generally is very low and management is very difficult. Installing drainage or clearing the surface of stones generally is impractical.

Potential productivity for eastern white pine on this soil is high. The main limitations are the seasonal high water table and stones on the surface. Seedling mortality is high, and windthrow is a hazard. Heavy equipment can be used only in winter, when the ground is frozen.

The seasonal high water table and stones on the surface are the main limitations to use of this soil as sites for most types of community development. Slope is a moderate limitation to use of the soil as sites for sewage lagoons. In some areas heaving of the soil by frost action is a hazard for sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass VIIs.

BuB—Buxton silt loam, 3 to 8 percent slopes. This soil is gently sloping and undulating, deep, and moderately well drained or somewhat poorly drained. It is on marine and lacustrine plains in the low valleys of coastal areas and in inland river basins. Slopes generally are smooth and convex and commonly are dissected by small drainageways. Most areas are irregular in shape, and range from 3 to 20 acres.

Typically, the surface layer is dark brown silt loam about 8 inches thick. The subsoil extends to a depth of 36 inches. In the upper part it is yellowish brown silt loam to a depth of 12 inches. In the lower part it is mottled, olive gray and olive silty clay loam. A layer of olive gray silty clay loam 3 inches thick separates the two parts. The substratum is mottled, olive gray silty clay to a depth of 60 inches or more.

Included with this soil in mapping are areas of Swanville, Scantic, Biddeford, Lyman, Tunbridge, and Boothbay soils. Swanville and Scantic soils are poorly drained. Biddeford soils are very poorly drained. These soils commonly are in low positions or in depressions. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Boothbay soils are moderately well drained or somewhat poorly drained. These soils generally are in the higher positions. Also included are areas of soils that are similar to this Buxton soil but that have slope of less than 3 percent or that have stones on the surface. Also included are some areas of soils that are similar to this Buxton soil but that have a finer textured surface layer. The included soils make up about 20 percent of the map unit.

Permeability in this Buxton soil is moderate or moderately slow in the surface layer and in the upper part of the subsoil and slow or very slow in the lower part of the subsoil and in the substratum. The available water capacity is high. Surface runoff is medium, and the erosion hazard is moderate. From November through May, the seasonal high water table is at a depth of 1 to 3 feet, and in spring it restricts the depth of the root zone. Bedrock generally is at a depth of more than 60 inches. The firm, lower part of the subsoil and the firm substratum restrict the depth of the root zone.

Most areas of this soil are used for hay and pasture (fig. 10). Some areas are used as woodland, for cultivated crops, and as idle grassland and are in residential use.

This soil is suited to cultivated crops. The main limitation is the seasonal high water table. The surface layer dries slowly in spring and after heavy rains, and it is sticky when wet. Drainageways can be used to reduce wetness if adequate outlets are available. In some areas

Figure 10.—Pasture on Buxton silt loam, 3 to 8 percent slopes. The woodland in the background is on Masardis gravelly fine sandy loam, 3 to 8 percent slopes.

land smoothing is an effective method of draining this soil. Crop rotations, cover crops, and contour plowing reduce runoff. These conservation practices also help to control erosion. Green manure crops help to improve soil tilth.

This soil is suited to hay and pasture. The main limitation is the seasonal high water table. In some areas heaving of the soil by frost action is a hazard for plants with tap roots, such as alfalfa. Deferred grazing and rotation grazing help to control erosion and to prevent surface compaction. Pasture grasses respond well to lime and fertilizer.

Potential productivity is good for eastern white pine on this soil is high. There are few concerns in management, except for seedling mortality caused by heaving of the soil by frost action. The seasonal high water table restricts the use of equipment for short periods. Erosion is a hazard on skid trails and access roads. Placing the trails and roads on the contour of the soil helps to control erosion.

The slow permeability and the seasonal high water table are the main limitations to use of this soil as sites for most types of community development. Slope is a moderate limitation to use of the soil as sites for sewage lagoons. In some places heaving of the soil by frost action is a hazard for sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IIw.

BuC—Buxton silt loam, 8 to 15 percent slopes. This soil is strongly sloping and rolling, deep, and moderately well drained or somewhat poorly drained. It is on marine and lacustrine plains in the low valleys of coastal areas and inland river basins. Slopes generally are smooth and convex, and commonly are dissected by small drainageways. Most areas are irregular in shape, and range from 3 to 30 acres.

Typically, the surface layer is dark brown silt loam about 8 inches thick. The subsoil is about 28 inches thick. It is yellowish brown silt loam that grades with depth to mottled, olive gray and olive silty clay loam. The substratum is mottled, olive gray silty clay to a depth of 60 inches or more.

Included with this soil in mapping are areas of Swanville, Scantic, and Biddeford soils. Swanville and Scantic soils are poorly drained. Biddeford soils are very poorly drained. These soils commonly are in low positions or in depressions. Also included are small areas of Lyman, Tunbridge, and Boothbay soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Boothbay soils are moderately well drained or somewhat poorly drained. These soils generally are in the higher positions. Also included are areas of soils that are similar to this Buxton soil but that have stones on the surface or a finer textured surface layer. The included soils make up about 20 percent of the map unit.

Permeability in this Buxton soil is moderate or moderately slow in the surface layer and in the upper part of the subsoil and slow or very slow in the lower part of the subsoil and in the substratum. The available water capacity is high. Surface runoff is medium to rapid, and the erosion hazard is severe. From November through May, the seasonal high water table is at a depth of 1 to 3 feet, and in spring it restricts the depth of the root zone. Bedrock generally is at a depth of more than 60 inches. The depth of the root zone is restricted somewhat by the firm, lower part of the subsoil and the firm substratum.

Most areas of this soil are used for hay and pasture. Some areas are used as woodland, for cultivated crops, and as idle grassland and are in residential use.

This soil is suited to cultivated crops. The main limitations are slope and the seasonal high water table. The surface layer dries slowly in spring and after heavy rains, and it is sticky when wet. Drainageways can be used to reduce wetness if adequate outlets are available. In some areas land smoothing is an effective method of draining this soil. Crop rotations, cover crops, and contour plowing help to reduce runoff and to control erosion. Green manure crops help to improve soil tilth.

This soil is suited to hay and pasture. The main limitation is the seasonal high water table. In some areas heaving of the soil by frost action is a hazard for plants with taproots, such as alfalfa. Deferred grazing and rotation grazing help to control erosion and to prevent surface compaction. Erosion is a hazard during reseeding. Pasture grasses respond well to liming and fertilizer.

Potential productivity for eastern white pine this soil is high. There are few concerns in management, except for seedling mortality caused by the heaving of the soil by frost action. The seasonal high water table restricts the use of equipment for short periods. Erosion is a hazard on skid trails and access roads. Placing the roads and trails on the contour helps to control erosion

The slow permeability, slope, and the seasonal high water table are the main limitations to use of this soil as sites for most types of community development. In some areas heaving of the soil by frost action is a hazard for sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by the frost action.

This soil is in capability subclass IIIe.

BuD2—Buxton silt loam, 15 to 25 percent slopes, eroded. This soil is hilly, deep, and predominantly moderately well drained but also somewhat poorly drained. It is on side slopes of marine and lacustrine plains in the low valleys of coastal areas and in inland river basins. Slopes generally are smooth and convex and commonly are dissected by small drainageways. Most areas are irregular in shape, and range from 3 to 20 acres.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsoil is about 28 inches thick. It is yellowish brown silt loam that grades with depth to mottled, olive gray and olive silty clay loam. The substratum is mottled, olive gray silty clay to a depth of 60 inches or more.

Included with this soil in mapping are areas of Lyman, Tunbridge, Boothbay, and Peru soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Boothbay soils are moderately well drained or somewhat poorly drained. Peru soils are moderately well drained. These soils generally are in the higher positions. Also included are areas of soils, especially along drainageways, that are similar to this Buxton soil but that have slopes of more than 25 percent. Also included are some areas of soils that are similar to this Buxton soil but that have a finer textured surface layer. The included soils make up about 20 percent of the map unit.

Permeability in this Buxton soil is moderate or moderately slow in the surface layer and in the upper part of the subsoil and slow or very slow in the lower part of the subsoil and in the substratum. The available water capacity is high. Surface runoff is very rapid, and the erosion hazard is severe. From November through May, the seasonal high water table is at a depth of 1 to 3 feet, and, in spring it restricts the depth of the root zone. Bedrock generally is at a depth of more than 60 inches. The depth of the root zone is restricted somewhat by the firm, lower part of the subsoil and the firm substratum.

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

This soil is poorly suited to cultivated crops. The main limitations are slope and the seasonal high water table. Erosion is a severe hazard unless a vegetative cover is maintained. Slope is a severe limitation to use of equipment.

This soil is poorly suited to hay and pasture. The main limitations are slope and the seasonal high water table. In some areas, heaving of the soil by frost action is a hazard for plants with taproots, such as alfalfa. Overgrazing causes excessive erosion. Deferred grazing and rotation grazing help to maintain pasture. Erosion is a hazard during reseeding. Grasses respond well to lime and fertilizer.

Potential productivity for eastern white pine on this soil is high. The main limitations are slope and the seasonal high water table. The seasonal high water table restricts the use of equipment for short periods. Erosion is a hazard on skid trails and access roads. Placing the roads and trails on the contour helps to control erosion.

Slope and the seasonal high water table are the main limitations to use of this soil as sites for most types of community development. The slow or very slow permeability is also a limitation for sites for septic sewage disposal systems.

This soil is in capability subclass IVe.

Ch—Charles silt loam. This soil is nearly level, deep, and poorly drained. It is on flood plains of rivers and streams. Slopes generally are smooth and slightly concave, and range from 0 to 2 percent. Most areas are elongated, and range from 3 to 50 acres.

Typically, the surface layer is dark grayish brown silt loam about 6 inches thick. It is mottled in the lower part. The substratum extends to a depth of 60 inches or more. It is mottled, dark grayish brown silt loam grading with depth to mottled, dark gray silt loam.

Included with this soil in mapping are small areas of Lovewell, Medomak, and Biddeford soils and Borosaprists. Lovewell soils are moderately well drained. Medomak and Biddeford soils are very poorly drained. Borosaprists are very poorly drained and ponded. Lovewell soils are on slightly higher convex spots adjacent to streams and rivers. Medomak and Biddeford soils and Borosaprists are in depressions and in narrow drainageways. Also included are some areas of soils that are similar to this Charles soil but that have coarser textures in both the surface and the substratum. The included soils make up 30 percent of the map unit.

Permeability in this Charles soil is moderate. The available water capacity is high. From November through June, the seasonal high water table is near the surface, and in spring it restricts the depth of the root zone. The soil is subject to frequent flooding during spring runoff. Surface runoff is slow, and the erosion hazard is slight. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used as woodland. Some areas are used as pasture, for hay, and as idle grassland.

This soil is poorly suited to farming. The main limitations are the seasonal high water table and periodic flooding. It is better suited to farming if the seasonal high water table is lowered and if periodic flooding is controlled. Installing drainage is difficult because in most areas suitable outlets are not available and flood control is costly. Grazing when these soils are wet causes surface compaction. Rotation grazing and deferred grazing help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. The seasonal high water table and periodic flooding restrict the use of equipment, and they increase the rate of seedling mortality.

Periodic flooding and the seasonal high water table are the main limitations to use of this soil as sites for most types of community development. In some areas heaving of the soil by frost action is a hazard for sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IVw.

Dp—Dumps-Pits complex. This map unit consists of nearly level to very steep, open excavations that have been mined mainly for granite bedrock. Areas of this map unit are surrounded by bedrock spoil or excavated soil material. Areas are irregular in shape, and range from 2 to 100 acres. The soil material is as much as 60 inches thick over undisturbed bedrock, but generally it is less than 10 inches. In some areas the bedrock is schist or limestone.

Included with this unit in mapping are areas of Rock outcrop and Lyman and Tunbridge soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. The areas of Rock outcrop and these soils make up about 15 percent of the map unit.

Permeability in the bedrock spoil and excavated soil material is rapid, but internal drainage differs from place to place. The available water capacity is very low, and surface runoff is very rapid to very slow. Some excavated areas are permanently flooded. The depth of the root zone is restricted by depth to bedrock, the fluctuating water table, mineral accumulation, and extreme acidity.

Most areas of this map unit used as quarries have been abandoned, and are not suitable for most uses other than as habitat for wildlife. Onsite investigation generally is required to determine the suitability of the map unit for reclamation.

This map unit is not assigned to a capability subclass.

EgB—Eldridge fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, deep, and moderately well drained. It is on small terraces and deltas. Slopes generally are smooth and concave. Most areas are irregular in shape, and range from 3 to 25 acres.

Typically, the surface layer is dark brown fine sandy loam about 8 inches thick. The subsoil is about 19 inches thick. It is dark yellowish brown loamy fine sand that grades with depth to mottled, light olive brown and olive gray loamy fine sand. The substratum is mottled, olive silt loam and silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are a few areas of Swanville, Scantic, Boothbay, and Buxton soils. Swanville and Scantic soils are poorly drained. Boothbay and Buxton soils are moderately well drained or somewhat poorly drained. These soils are in the lower positions. Also included are small areas of Madawaska soils in the higher positions. These soils are moderately well drained. Also included are some areas of soils that are similar to this Eldridge soil but that have a more clayey substratum. Also included are a few small areas of Eldridge soils that have slope of less than 3 percent or more than 8 percent. The included soils make up about 25 percent of the map unit.

Permeability in this Eldridge soil is rapid in the surface layer and the subsoil and moderately slow in the substratum. The available water capacity is moderate. Surface runoff is slow or medium, and erosion is a slight hazard. From January through May, the seasonal high water table is at a depth of 1 to 2 feet. Bedrock generally is at a depth of more than 60 inches. Water movement and the depth of the root zone are restricted by the substratum.

Most areas of the soil are used for hay and pasture and as woodland. A few small areas are cultivated.

This soil is suited to farming. The main limitation is the seasonal high water table, which causes the soil to warm slowly in spring. Surface drainage is needed in some areas. Irrigation during the growing season helps to reduce droughtiness. Deferred grazing during wet or droughty periods helps to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. The depth of the root zone is restricted by the seasonal high water table and the firm substratum. The use of heavy equipment is restricted by the seasonal high water table, but mechanical planting is practical in the larger areas.

The seasonal high water table and the slow permeability in the substratum are limitations to use of this soil as sites for many types of community development. During construction, erosion is a hazard because the substratum is erodible.

This soil is in capability subclass IIw.

HeB—Hermon fine sandy loam, 0 to 8 percent slopes. This soil is nearly level and gently sloping, deep, and somewhat excessively drained. It is on ridgetops and side slopes of glaciated uplands. Slopes generally are smooth and convex, but some are undulating. Most areas are irregular in shape, and range from 3 to 20 acres. Stones cover less than 0.1 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is dark brown fine sandy loam about 8 inches thick. The subsoil is about 14 inches thick. It is dark brown and strong brown gravelly sandy loam that grades with depth to yellowish brown very gravelly sandy loam. The substratum is light olive brown and grayish brown very gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are a few small areas of Marlow, Berkshire, Peru, Lyman, Tunbridge, and Masardis soils. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Masardis soils are somewhat excessively drained. Peru soils are in the lower positions, and Lyman and Tunbridge soils are in the higher positions on side slopes and ridgetops. The Marlow and Berkshire soils are on upland ridges and on side slopes of bedrock-controlled ridges. Masardis soils are on deltas or along streams. Also included are areas of soils that are similar to this Hermon soil but that are fine sandy loam in the lower part of the subsoil. Also included are a few small areas of soils that have stones on the surface. The included soils make up about 20 percent of the map unit.

Permeability in this Hermon soil is rapid. The available water capacity is low. Surface runoff is slow or medium, and erosion is a slight hazard. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are wooded. Some small areas are used for lowbush blueberries and permanent pasture.

This soil is suited to poorly suited to most cultivated crops. It is suited to potatoes. In most years it is droughty during the growing season, and natural fertility is low. Liming and fertilizing and irrigation commonly are needed for cultivated crops.

This soil is suited to pasture and hay. The main limitation is droughtiness during the growing season. The main concern in pasture management is overgrazing during dry periods. Rotation grazing and deferred grazing during droughty periods help to maintain pasture. Lime and fertilizer commonly are needed for hay and pasture.

Potential productivity for eastern white pine on this soil is high. Productivity is reduced by droughtiness during peak growing periods. The main management concerns are the rate of seedling mortality and slow revegetation.

The rapid permeability and stones on the surface are the main limitations to use of this soil as sites for most types of community development. If the soil is used as sites for sanitary landfills or septic sewage disposal systems, the rapid permeability causes a hazard of ground water contamination. The unstable substratum is a concern in excavations. The soil is a good source of roadfill, but coarse fragments can hinder grading.

This soil is in capability subclass IIs.

HeC—Hermon fine sandy loam, 8 to 15 percent slopes. This soil is strongly sloping, deep, and somewhat excessively drained. It is on ridgetops and side slopes of glaciated uplands. Slopes generally are smooth and convex, but some are rolling. Most areas are irregular in shape, and range from 3 to 25 acres. Stones cover less than 0.1 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is dark brown fine sandy loam about 8 inches thick. The subsoil is about 14 inches thick. It is dark brown and strong brown gravelly sandy loam that grades with depth to yellowish brown very gravelly sandy loam. The substratum is light olive brown and grayish brown very gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are a few small areas of Marlow, Berkshire, Peru, Lyman, Tunbridge, and Masardis soils. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Masardis soils are somewhat excessively drained. Marlow and Berkshire soils are in positions similar to those of this Hermon soil. Peru soils are in the lower positions, and Lyman and Tunbridge soils are in the higher positions on side slopes and ridgetops. Masardis soils are on deltas or along streams. Also included are areas of soils that are similar to this Hermon soil but that are fine sandy loam in the lower part of the subsoil. Also included are a few small areas of soils that have stones on the surface and areas of soils that have slope of more than 15 percent. The included soils make up about 20 percent of the map unit.

Permeability is rapid in this Hermon soil. The available water capacity is low. Surface runoff is medium, and erosion is a moderate hazard. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are wooded. Some small areas are used for lowbush blueberries and permanent pasture.

This soil is poorly suited to most cultivated crops. It is suited to potatoes. Erosion is a hazard. The main limitation is slope. The soil is droughty during most growing seasons, and natural fertility is low. Lime and fertilizer commonly are needed for cultivated crops. Contour farming, stripcropping, and terraces help to control erosion.

This soil is suited to pasture and hay. The main limitation is droughtiness during the growing season. The main concern in pasture management is overgrazing during dry periods. Rotation grazing during droughty periods and deferred grazing help to maintain the carrying capacity of pasture. Lime and fertilizer commonly are needed for hay and pasture.

Potential productivity for eastern white pine on this soil is high. Productivity is reduced by droughtiness during the peak growing periods. The main management concerns are seedling mortality and slow revegetation.

The rapid permeability, slope, and stones on the surface are the main limitations to use of this soil as sites for most types of community development. If this soil is used as sites for sanitary landfills and septic sewage disposal systems, the rapid permeability causes a hazard of ground water contamination. The unstable substratum is a concern in excavations. The soil is a good source of roadfill, but coarse fragments can hinder grading.

This soil is in capability subclass IIIe.

HtB—Hermon very stony fine sandy loam, 0 to 8 percent slopes. This soil is nearly level and gently sloping, deep, and somewhat excessively drained. It is on the crests and side slopes of glaciated uplands (fig. 11). Slopes generally are smooth and convex, but some are undulating. Most areas are irregular in shape, and range from 3 to 65 acres. Stones cover as much as 15 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is gray fine sandy loam about 1 inch thick. The subsoil is about 21 inches thick. It is dark reddish brown fine sandy loam that grades with depth to yellowish brown very gravelly sandy loam. The substratum is light olive brown and grayish brown very gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are a few small areas of Marlow, Berkshire, Peru, Lyman, Tunbridge, and Masardis soils and areas of Rock outcrop. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Masardis soils are somewhat excessively drained. Marlow and Berkshire soils are in positions similar to those of this Hermon soil. Peru soils are in the lower positions. Lyman and Tunbridge soils and areas of Rock outcrop are in the higher positions on side slopes and ridgetops. Masardis soils are on deltas and along streams. Also included are a few areas of soils that are similar to this Hermon soil but that are fine sandy loam in the lower part of the subsoil. Also included are a few small areas of soils where stones cover less than 0.1 percent of the surface and a few small areas where boulders are on the surface. The included soils and areas of Rock outcrop make up about 15 percent of the map unit.

Permeability in this Hermon soil is rapid. The available water capacity is low. Surface runoff is slow or medium, and the erosion hazard is slight. Bedrock generally is at a depth of more than 60 inches.

Figure 11.—An area of Hermon very stony fine sandy loam, 0 to 8 percent slopes. Stones and boulders are common on the surface of this soil.

Most areas of this soil are used as woodland. Some small areas have been cleared and are used for lowbush blueberries and unimproved pasture.

This soil is very poorly suited to farming. The main limitation is stones on the surface. Removing the stones from the surface generally is not practical.

Potential productivity for eastern white pine on this soil is high. Productivity is reduced by droughtiness during peak growing periods. The main management concerns are seedling mortality and slow revegetation. Stones on the surface limit the use of timber harvesting equipment.

The rapid permeability and stones on the surface are the main limitations to use of this soil as sites for community development. If the soil is used as sites for septic sewage disposal systems and sanitary landfill, the rapid permeability causes a hazard of ground water contamination. The unstable substratum is a concern in excavations. The soil is a good source of roadfill, but coarse fragments can hinder grading.

This soil is in capability subclass VIs.

HtC—Hermon very stony fine sandy loam, 8 to 15 percent slopes. This soil is strongly sloping, deep, and somewhat excessively drained. It is on the crests and side slopes of glaciated uplands. Slopes generally are smooth and convex, but some are rolling. Most areas are irregular in shape, and range from 3 to 65 acres. Stones cover as much as 15 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is gray fine sandy loam about 1 inch thick. The subsoil is about 21 inches thick. It is dark reddish brown fine sandy loam that grades with depth to yellowish brown very gravelly sandy loam. The substratum is light olive brown and grayish brown very gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are a few small areas of Marlow, Berkshire, Peru, Lyman, Tunbridge, and Masardis soils and areas of Rock outcrop. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Masardis soils are somewhat excessively drained. Marlow and Berkshire soils are in positions similar to those of this Hermon soil. Peru soils are in the lower positions, and Lyman and Tunbridge soils and areas of Rock outcrop are in the higher positions on side slopes and ridgetops. Masardis soils are on deltas and along streams. Also included are a few areas of soils that are similar to this Hermon soil but that are fine sandy loam in the lower part of the subsoil. Also included are a few small areas of soils where boulders are on the surface. The included areas make up about 15 percent of the map unit.

Permeability in this Hermon soil is rapid. The available water capacity is low. Surface runoff is slow or medium, and the erosion hazard is moderate. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used as woodland. Some small areas have been cleared and are used for lowbush blueberries and unimproved pasture.

This soil is very poorly suited to farming. The main limitations are slope and stones on the surface. Removing the stones from the surface generally is not practical.

Potential productivity for eastern white pine on this soil is high. Productivity is reduced by droughtiness during peak growing periods. The main management concerns are seedling mortality and slow revegetation. Stones on the surface limit the use of timber harvesting equipment.

The rapid permeability, stones on the surface, and slope are the main limitations to use of this soil as sites for community development. If the soil is used as sites for septic sewage disposal systems and sanitary landfills, the rapid permeability causes a hazard of ground water contamination. The unstable substratum is a concern in excavations. The soil is a good source of roadfill, but coarse fragments can hinder grading.

This soil is in capability subclass VIs.

HtD—Hermon very stony fine sandy loam, 15 to 25 percent slopes. This soil is hilly, deep, and somewhat excessively drained. It is on the steeper side slopes of glaciated uplands. Slopes generally are short and complex. Most areas are irregular in shape, and range from 3 to 40 acres. Stones cover as much as 15 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is gray fine sandy loam about 1 inch thick. The subsoil is about 21 inches thick. It is dark reddish brown fine sandy loam that grades with depth to yellowish brown very gravelly sandy loam. The substratum is light olive brown and grayish brown very gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are a few small areas of Marlow, Berkshire, Peru, Lyman, Tunbridge, and Masardis soils and areas of Rock outcrop. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Masardis soils are somewhat excessively drained. Marlow and Berkshire soils are in positions similar to those of this Hermon soil. Peru soils are in the lower positions, and Lyman and Tunbridge soils and areas of Rock outcrop are in the higher positions on side slopes and ridgetops. Masardis soils are on deltas and along streams. Also included are a few small areas of soils that have slope of more than 25 percent. Also included are a few areas of soils that are similar to this Hermon soil but that are fine sandy loam in the lower part of the subsoil and a few small areas of soils where boulders are on the surface. The included areas make up about 15 percent of the map unit.

Permeability in this Hermon soil is rapid. The available water capacity is low. Surface runoff is medium, and erosion is a moderate hazard. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used as woodland. Some small areas have been cleared and are used for lowbush blueberries and unimproved pasture.

This soil is very poorly suited to farming. The main limitations are slope and stones on the surface. Removing the stones from the surface generally is not practical.

Potential productivity for eastern white pine on this soil is high. Productivity is reduced by droughtiness during peak growing periods. The main management concerns are seedling mortality and slow revegetation. Stones on the surface and slope limit the use of timber harvesting equipment.

The rapid permeability, slope, and stones on the surface are the main limitations to use of this soil as sites for community development. If the soil is used as sites for septic sewage disposal systems and sanitary landfills, the rapid permeability causes a hazard of ground water contamination. The unstable substratum is a concern in excavations. The soil is a fair source of roadfill, but coarse fragments can hinder grading.

This soil is in capability subclass VIs.

HxB—Hermon extremely bouldery fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, deep, and somewhat excessively drained. It is on the side slopes of glaciated uplands. Slopes generally are smooth and convex, but some are undulating. Most areas are irregular in shape, and range from 3 to 65 acres. Boulders and stones cover from 15 to 50 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is gray fine sandy loam about 1 inch thick. The subsoil is about 21 inches thick. It is dark reddish brown fine sandy loam that grades with depth to strong yellowish brown very gravelly sandy loam. The substratum is light olive brown and grayish brown very gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are a few areas of Berkshire, Marlow, Peru, Lyman, and Tunbridge soils and areas of Rock outcrop. Berkshire and Marlow soils are well drained. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Berkshire and Marlow soils are in positions similar to these of this Hermon soil. Peru soils are in the lower positions. Lyman and Tunbridge soils and areas of Rock outcrop are in the higher positions on side slopes and ridgetops. Also included are a few areas of soils that have slope of less than 3 percent and small areas of soils where stones and boulders cover less than 15 percent or more than 50 percent of the surface. Also included are some areas of soils that are similar to this Hermon soil but that are fine sandy loam in the lower subsoil. The included areas make up about 15 percent of the map unit.

Permeability in this Hermon soil is rapid. The available water capacity is low. Surface runoff is slow, and the erosion hazard is slight. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used as woodland. The cleared areas are used mostly as idle grassland and for lowbush blueberries.

This soil is very poorly suited to farming. The main limitations are boulders and stones on the surface. Removing the boulders and stones from the surface generally is impractical.

Potential productivity for eastern white pine on this soil is high. Productivity is reduced by droughtiness during peak growing periods. The main management concerns are seedling mortality and slow revegetation. The boulders and stones on the surface limit timber harvest operations.

The rapid permeability, boulders and stones on the surface, and slope are the main limitations to use of this soil as sites for community development. Removing the boulders and stones from the surface commonly is unfeasible. If the soil is used as septic sewage disposal systems, sewage lagoons, and sanitary landfills, the rapid permeability causes a hazard of ground water contamination. This soil is a fair source of roadfill, but the boulders and stones can hinder grading.

This soil is in capability subclass VIIs.

HxC—Hermon extremely bouldery fine sandy loam, 8 to 15 percent slopes. This soil is strongly sloping, deep, and somewhat excessively drained. It is on the side slopes of glaciated uplands. Slopes generally are smooth and convex, but some are rolling. Most areas are irregular in shape, and range from 3 to 65 acres. Boulders and stones cover 15 to 50 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is gray fine sandy loam about 1 inch thick. The subsoil is about 21 inches thick. It is dark reddish brown fine sandy loam that grades with depth to yellowish brown very gravelly sandy loam. The substratum is light olive brown and grayish brown very gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are a few areas of Berkshire, Marlow, Peru, Lyman, and Tunbridge soils and areas of Rock outcrop. Berkshire and Marlow soils are well drained. Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Berkshire and Marlow soils are in positions similar to those of this Hermon soil. Peru soils are in the lower positions. Lyman and Tunbridge soils and areas of Rock outcrop are in the higher positions on side slopes and ridgetops. Also included are a few small areas of soils where boulders and stones cover less than 15 percent of the surface. Also included are some areas of soils that are similar to this Hermon soil but that are fine sandy loam in the lower part of the subsoil. The included areas make up about 15 percent of the map unit.

Permeability in this Hermon soil is rapid. The available water capacity is low. Surface runoff is slow or medium, and erosion is a slight hazard. Bedrock generally is at a depth of more than 5 feet.

Most areas of this soil are used as woodland. The cleared areas are used mostly as idle grassland and for lowbush blueberries.

This soil is very poorly suited to farming. The main limitations are slope and boulders and stones on the surface. Removing the boulders and stones from the surface generally is impractical.

Potential productivity for eastern white pine on this soil is high. Productivity is reduced by droughtiness during peak growing periods. The main management concerns are seedling mortality and slow revegetation. The boulders and stones on the surface and slope limit the use of timber harvesting equipment.

The rapid permeability, boulders and stones on the surface, and slope are the main limitations to use of this soil as sites for most types of community development. Removing boulders and stones from the surface commonly is unfeasible. If the soil is used as sites for septic sewage disposal systems, sewage lagoons, and sanitary landfills, the rapid permeability causes a hazard of ground water contamination. The soil is a fair source of roadfill, but the boulders and stones can hinder grading.

This soil is in capability subclass VIIs.

Le—Lovewell very fine sandy loam. This soil is nearly level, deep, and moderately well drained. It is on the flood plains of major streams and rivers. Slopes generally are smooth and concave, and are 50 to 200 feet long. They range from 0 to 2 percent. Most areas are elongated, and range from 4 to 40 acres.

Typically, the surface layer is dark grayish brown very fine sandy loam about 12 inches thick. The subsoil is about 17 inches thick. It is dark yellowish brown and dark brown silt loam that is mottled in the lower part. The substratum is mottled, dark yellowish brown silt loam that grades with depth to olive gray and light olive gray gravelly coarse sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Charles and Medomak soils. Charles soils are poorly drained. Medomak soils are very poorly drained. These soils are in the lower positions and in depressions. Also included are small areas of Madawaska soils in the higher positions that are not subject to flooding. These soils are moderately well drained. Also included are some areas of Borosaprists. These soils are very poorly drained. The included soils make up about 20 percent of the map unit.

Permeability in this Lovewell soil is moderate in the surface layer, the subsoil, and the upper part of the substratum and moderately rapid to very rapid in the lower part of the substratum. Surface runoff is slow, and erosion is a slight hazard. From November through May, the seasonal high water table is at a depth of 1.5 to 3 feet. The soil is occasionally flooded for short periods in spring, or during periods of high rainfall, depending on the amount of runoff. The available water capacity is high. Bedrock generally is at a depth of more than 60 inches. The depth of the root zone is restricted by the seasonal high water table.

Most of the larger areas of this soil are used for hay, pasture, and cultivated crops. The smaller areas generally are used as woodland.

This soil is suited to well suited to most cultivated crops, such as silage corn and potatoes, depending on the frequency of flooding. In some years the soil is subject to flooding during the growing season. The seasonal high water table causes the soil to warm slowly in spring, and thus delays planting. Surface drainage can be used if adequate outlets are available.

This soil is well suited to hay and pasture. In some years spring flooding damages plants and reduces yields. The seasonal high water table limits the use of equipment and restricts grazing. Deferred grazing and rotation grazing help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is very high. Some trees are girdled or uprooted by ice where flooding occurs in winter.

Flooding and the seasonal high water table are the main limitations to use of this soil as sites for community development.

This soil is in capability subclass IIw.

LmB—Lyman-Brayton Variant-Rock outcrop complex, 0 to 8 percent slopes. This map unit consists of nearly level and undulating soils in the low-lying areas of glaciated uplands and in low-lying coastal areas. A typical map unit is 40 percent Lyman soil, 25 percent Brayton Variant soil, 15 percent areas of Rock outcrop, and 20 percent other soils. The Lyman soil is shallow and somewhat excessively drained. The Brayton Variant soil is moderately deep and somewhat poorly drained or poorly drained. The Lyman and Brayton Variant soils and areas of Rock outcrop are in such an intricate pattern on the landscape that it was not practical to separate them. Areas of these soils are irregular in shape and are mainly 10 to 100 acres in size, but range from 3 to 200 acres. Slopes generally are complex. Stones cover as much as 15 percent of the surface of the Lyman and Brayton Variant soils.

Typically, the surface layer of the Lyman soil is covered by a layer of forest litter about 3 inches thick. The surface layer is pinkish gray fine sandy loam about 2 inches thick. The subsoil is about 14 inches thick. It is dusky red fine sandy loam that grades with depth to yellowish brown gravelly fine sandy loam. Bedrock is at a depth of 16 inches.

Typically, the surface layer of the Brayton Variant soil is covered by a layer of organic matter about 3 inches thick. The surface layer is dark reddish brown loam about 2 inches thick. The subsurface layer is grayish brown fine sandy loam about 1 inch thick. The subsoil is about 17 inches thick. It is mottled, dark brown fine sandy loam that grades with depth to olive gray gravelly fine sandy loam. The substratum is mottled, olive gray gravelly sandy loam to a depth of about 32 inches. Bedrock is at a depth of about 32 inches.

Rock outcrop consists mainly of outcrops of gneiss, mica schist, phyllite, rhyolite, or granite bedrock that has insufficient soil material to support plant growth.

Included with this unit in mapping are small areas of Tunbridge, Naumburg, Scantic, Swanville, Biddeford, and Searsport soils and Borosaprists. Tunbridge soils are moderately deep and well drained. Naumburg soils are somewhat poorly drained or poorly drained. Scantic and Swanville soils are poorly drained. Biddeford and Searsport soils are very poorly drained. Borosaprists are very poorly drained and ponded. Also included are areas of soils that are similar to the Lyman and Brayton Variant soils but that have slope of more than 8 percent. These soils are in scattered depressions and along shallow drainageways. They are commonly less than 40 inches deep over bedrock. In places the Brayton Variant soils do not have a firm, dense substratum. The included soils make up about 20 percent of the map unit.

Permeability is moderately rapid in this Lyman soil and moderate to moderately rapid in the Brayton Variant soil. The available water capacity is low in the Lyman soil and moderate in the Brayton Variant soil. On both soils, surface runoff is slow to medium and erosion is a slight hazard. From November through May, the seasonal high water table on the Brayton Variant soil is between the surface and a depth of 1.5 feet. Bedrock is at a depth of 10 to 20 inches in the Lyman soil and 20 to 40 inches in the Brayton Variant soil. In both soils it restricts the depth of the root zone and the movement of water through the soils.

Most areas of these soils are used as woodland. Some areas are used for unimproved pasture.

These soils are very poorly suited to farming. The main limitations are stones on the surface and rock outcrops. On the Lyman soil, depth to bedrock is also a limitation. On the Brayton Variant soil, the seasonal high water table is also a limitation. It is generally impractical to install drainage and to remove the stones from the surface of these soils.

Potential productivity for eastern white pine on these soils is high. The main limitations are depth to bedrock and the seasonal high water table. Seedling mortality is high, and windthrow is a hazard because of depth to bedrock on the Lyman soil and the seasonal high water table in the Brayton Variant soil. The seasonal high water table in the Brayton Variant soil limits the use of equipment.

Depth to bedrock and rock outcrops and the seasonal high water table in the Brayton Variant soil are the main limitations to use of these soils as sites for community development.

These soils are in capability subclass VIIs.

LrB—Lyman-Rock outcrop-Tunbridge complex, 3 to 8 percent slopes. This map unit consists of gently sloping and undulating soils in glaciated upland areas and on low, coastal ridges. A typical map unit is 40 percent Lyman soil, 20 percent Rock outcrop, 20 percent Tunbridge soil, and 20 percent other soils. The Lyman soil is shallow and somewhat excessively drained. The Tunbridge soil is moderately deep and well drained. The Lyman and Tunbridge soils and the areas of Rock outcrop are in such an intricate pattern on the landscape that it was not practical to map them separately. Most areas are oblong or round, and range from about 4 to 50 acres. Slopes are complex or smooth and 50 to 300 feet long. Stones cover as much as 15 percent of the surface of the Lyman and Tunbridge soils.

Typically, the surface layer of the Lyman soil is covered by a layer of forest litter about 3 inches thick. The surface layer is pinkish gray fine sandy loam about 2 inches thick. The subsoil is about 14 inches thick. It is dusky red fine sandy loam that grades with depth to yellowish brown gravelly fine sandy loam. Bedrock is at a depth of 16 inches.

Rock outcrop consists mainly of gneiss, mica schist, phyllite, rhyolite, or granite bedrock and soil material that is insufficient to support plant growth.

Typically, the surface layer of the Tunbridge soil is covered by a layer of forest litter about 3 inches thick. The surface layer is very dark brown fine sandy loam about 2 inches thick. The subsoil is about 24 inches thick. It is dark reddish brown fine sandy loam that grades with depth to dark yellowish brown gravelly fine sandy loam. The substratum is olive gravelly fine sandy loam to a depth of about 21 inches. Bedrock is at a depth of about 31 inches.

Included with these soils in mapping are small, low-lying areas of Hermon, Marlow, Berkshire, Peru, Brayton, and Brayton Variant soils and Borosaprists. Hermon soils are somewhat excessively drained. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Brayton and Brayton Variant soils are somewhat poorly drained or poorly drained. Borosaprists are very poorly drained. Also included on the lower slopes of knolls in some units adjacent to the coast are areas of Biddeford, Buxton, Boothbay, Scantic, and Swanville soils. Biddeford soils are very poorly drained. Buxton and Boothbay soils are moderately well drained or somewhat poorly drained, and Scantic and Swanville soils are poorly drained. Also included, in some map units, are small areas of soils where stones cover more than 15 percent of the surface and soils that are less than 10 inches deep to bedrock. The included soils make up about 20 percent of the map unit.

Permeability in these Lyman and Tunbridge soils is moderately rapid. The available water capacity is low in the Lyman soil and moderate in the Tunbridge soil. On both soils, surface runoff is slow or medium, and the erosion hazard is slight. In areas of Rock outcrop, surface runoff is very rapid. The depth of the root zone and the movement of water through the soils are restricted by bedrock at a depth of 20 to 40 inches in the Tunbridge soil and 10 to 20 inches in the Lyman soil.

Most areas of these soils are used as woodland. Some areas are used for pasture, lowbush blueberries, and residential development.

These soils are very poorly suited to farming. The main limitations are stones on the surface, numerous rock outcrops, and droughtiness. Generally, it has been impractical to use these soils as cropland.

Potential productivity for eastern white pine is high on the Lyman soil and very high on the Tunbridge soil. On the Lyman soil, seedling mortality is high because of droughtiness. On the Lyman soil, windthrow is a hazard because of depth to bedrock. Mechanical planting is difficult because of depth to bedrock on the Lyman soil and numerous rock outcrops.

Depth to bedrock is the main limitation to use of these soils as sites for most types of community development.

These soils are in capability subclass VIs.

LrC—Lyman-Rock outcrop-Tunbridge complex, 8 to 15 percent slopes. This map unit consists of strongly sloping and rolling soils in glaciated, upland areas and on low coastal ridges. A typical map unit is 40 percent Lyman soil, 20 percent Rock outcrop, 20 percent Tunbridge soil, and 20 percent other soils. The Lyman soil is shallow and somewhat excessively drained. The Tunbridge soil is moderately deep and well drained. The Lyman and Tunbridge soils and the areas of Rock outcrop are in such an intricate pattern on the landscape that it is not practical to map them separately. Most areas are oblong or round, and range from about 4 to 100 acres. Slopes are complex or smooth, and are 50 to 300 feet long. Stones cover as much as 15 percent of the surface of the Lyman and Tunbridge soils.

Typically, the surface layer of the Lyman soil is covered by a layer of forest litter about 3 inches thick. The surface layer is pinkish gray fine sandy loam about 2 inches thick. The subsoil is about 14 inches thick. It is dusky red fine sandy loam that grades with depth to yellowish brown gravelly fine sandy loam. Bedrock is at a depth of 16 inches.

Rock outcrop consists mainly of gneiss, mica schist, phyllite, rhyolite, or granite bedrock and soil material that is insufficient to support plant growth.

Typically, the surface layer of the Tunbridge soil is covered by a layer of forest litter about 3 inches thick. The surface layer is very dark brown fine sandy loam about 2 inches thick. The subsoil is 24 inches thick. It is dark reddish brown fine sandy loam that grades with depth to dark yellowish brown gravelly fine sandy loam. The substratum is olive gravelly fine sandy loam to a depth of 31 inches. Bedrock is at a depth of 31 inches.

Included with these soils in mapping are small, low-lying areas of Hermon, Marlow, Berkshire, Peru, Brayton, and Brayton Variant soils and Borosaprists. Hermon soils are somewhat excessively drained. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Brayton and Brayton Variant soils are somewhat poorly drained or poorly drained. Borosaprists are very poorly drained. Also included, on the lower slopes of knolls in some map units adjacent to the coast, are areas of Biddeford, Buxton, Boothbay, Scantic, and Swanville soils. Biddeford soils are very poorly drained. Buxton and Boothbay soils are moderately well drained or somewhat poorly drained. Scantic and Swanville soils are poorly drained. Also included, in some map units, are small areas of soils where stones cover more than 15 percent of the surface and soils that are less than 10 inches deep to bedrock. The included soils make up about 20 percent of the map unit.

Permeability in these Lyman and Tunbridge soils is moderately rapid. The available water capacity is low in the Lyman soil and moderate in the Tunbridge soil. On both soils, surface runoff is slow or medium, and erosion is a moderate hazard. In areas of Rock outcrop, surface runoff is very rapid. The depth of the root zone and movement of water through the soil are restricted by bedrock at a depth of 20 to 40 inches in the Tunbridge soil and 10 to 20 inches in the Lyman soil.

Most areas of these soils are used as woodland. Some areas are used for pasture, lowbush blueberries, and residential development.

These soils are very poorly suited to farming. The main limitations are stones on the surface, depth to bedrock, slope, and droughtiness. Generally, it has been impractical to use these soils as cropland.

Potential productivity for eastern white pine is high on the Lyman soil and very high on the Tunbridge soil. On the Lyman soil, seedling mortality is high because of droughtiness. On the Lyman soil, windthrow is a hazard because of depth to bedrock. Mechanical planting is difficult because of depth to rock on the Lyman soil and numerous rock outcrops.

Depth to bedrock and slope are the main limitations to use of these soils as sites for most types of community development.

These soils are in capability subclass VIs.

LrE—Lyman-Rock outcrop-Tunbridge complex, 15 to 45 percent slopes. This map unit consists of soils in glaciated, upland areas and on low, coastal ridges. A typical map unit is 40 percent Lyman soils, 30 percent areas of Rock outcrop, 10 percent Tunbridge soils, and 20 percent other soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. The Lyman and Tunbridge soils and areas of Rock outcrop are in such an intricate pattern on the landscape that it is not practical to map them separately. Most areas are elongated or irregular, and range from about 4 to 50 acres. Slopes are complex or smooth, and are 50 to 200 feet long. Stones cover as much as 15 percent of the surface of the Lyman and Tunbridge soils.

Typically, the surface layer of the Lyman soil is covered by a layer of forest litter about 3 inches thick. The surface layer is pinkish gray fine sandy loam about 2 inches thick. The subsoil, to a depth of 16 inches, is dusky red fine sandy loam that grades with depth to yellowish brown gravelly fine sandy loam. Bedrock is at a depth of 16 inches.

Rock outcrop consists mainly of gneiss, mica schist, phyllite, rhyolite, or granite bedrock and soil material that is insufficient to support plant growth.

Typically, the surface layer of the Tunbridge soil is covered by a layer of forest litter about 3 inches thick. The surface layer is very dark brown fine sandy loam about 2 inches thick. The subsoil is 24 inches thick. It is dark reddish brown fine sandy loam that grades with depth to dark yellowish brown gravelly fine sandy loam. The substratum is olive gravelly fine sandy loam to a depth of 31 inches. Bedrock is at a depth of 31 inches.

Included with these soils in mapping are small, low-lying areas of Hermon, Marlow, Berkshire, Peru, Brayton, and Brayton Variant soils and Borosaprists. Hermon soils are somewhat excessively drained. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Brayton and Brayton Variant soils are somewhat poorly drained or poorly drained. Borosaprists are very poorly drained. Also included, on the lower slopes of knolls in some map units adjacent to the coast, are some areas of Biddeford, Buxton, Boothbay, Scantic, and Swanville soils. Biddeford soils are very poorly drained. Buxton and Boothbay soils are moderately well drained or somewhat poorly drained. Scantic and Swanville soils are poorly drained. Also included, in some map units, are small areas of soils where stones cover more than 15 percent of the surface and soils that are less than 10 inches deep to bedrock. Also included are areas of soils that have slope of more than 45 percent. The included soils make up about 20 percent of the map unit.

Permeability of these Lyman and Tunbridge soils is moderately rapid. The available water capacity is low in the Lyman soil and moderate in the Tunbridge soil. Surface runoff on both soils is rapid or very rapid, and erosion is a moderate hazard. Surface runoff in areas of Rock outcrop is very rapid. The depth of the root zone and the movement of water through the soils are restricted by bedrock at a depth of 20 to 40 inches in the Tunbridge soil and at a depth of 10 to 20 inches in the Lyman soil.

Most areas of these soils are used as woodland. Some areas are used for pasture and lowbush blueberries.

These soils are very poorly suited to farming. The main limitations are slope, stones on the surface, depth to bedrock, and droughtiness.

Potential productivity for eastern white pine is high on the Lyman soil and very high on the Tunbridge soil. Erosion is a hazard and the use of equipment is limited because of slope. On the Lyman soil, seedling mortality is high because of droughtiness. On the Lyman soil, windthrow is a hazard because of depth to bedrock.

Slope and depth to bedrock are the main limitations to use of these soils as sites for most types of community development.

These soils are in capability subclass VIIs.

MaB—Madawaska fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, deep, and moderately well drained. It is in depressions on outwash plains and on stream terraces. Slopes generally are smooth. Most areas are irregular in shape, and range from 5 to 50 acres.

Typically, the surface layer is dark brown fine sandy loam about 10 inches thick. The subsoil is 18 inches thick. It is dark yellowish brown, yellowish brown, and light olive brown fine sandy loam. It is mottled below a depth of 16 inches. The substratum is mottled, olive fine sand and olive gray sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Adams, Masardis, Allagash, Eldridge, Boothbay, Naumburg, and Searsport soils. Adams and Masardis soils are somewhat excessively drained. Allagash soils are well drained. Eldridge soils are moderately well drained. Boothbay soils are moderately well drained or somewhat poorly drained. Naumburg soils are somewhat poorly drained or poorly drained. Searsport soils are very poorly drained. Adams, Allagash, and Masardis soils are in the higher positions on the landscape. Eldridge soils are in similar positions. Boothbay, Naumburg, and Searsport soils are in the lower positions on the landscape. Also included are small areas of similar soils that have slope of less than 3 percent and similar soils that are coarser textured in the surface layer and the subsoil. The included soils make up about 15 percent of the map unit.

Permeability in this Madawaska soil is moderately rapid in the surface layer and the subsoil and rapid in the substratum. From November through May, the seasonal high water table is at a depth of 1.5 to 3 feet, and in spring it restricts the depth of the root zone. The available water capacity is high. Surface runoff is slow, and erosion is a slight or moderate hazard. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used for pasture, hay, and corn silage and as woodland. Some small areas are in potatoes, strawberries, and small vegetable crops.

This soil is suited to farming. The main limitations for cultivated crops are the seasonal high water table and slope. If drainage is installed where suitable outlets are available, the soil is better suited to cultivated crops and hay and pasture. Growing green manure crops increases the organic matter content and improves workability. The main limitations for hay and pasture are the seasonal high water table early in the growing season and droughtiness during the peak growing season. Deferred grazing during wet or droughty periods helps to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. The seasonal high water table limits use of equipment. There are few other limitations to woodland use and management.

The seasonal high water table and the rapid permeability in the substratum are limitations to use of this soil as sites for most types of community development. If the soil is used as sites for septic sewage disposal systems, the rapid permeability in the substratum causes a hazard of ground water contamination. The unstable substratum is a concern in excavations. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing drainage helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IIw.

MrB—Marlow fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, deep, and well drained. It is on crests of drumlin-shaped ridges generally trending northwest and southeast and on northwest-facing slopes of ridges trending northeast and southwest. Slopes generally are smooth and convex, and are 200 to 400 feet long. Most areas are oval, circular, or elongated in shape, are 5 to 20 acres, and are at an elevation of more than 300 feet above sea level.

Typically, the surface layer is dark brown fine sandy loam about 8 inches thick. The subsoil is 20 inches thick. It is dark yellowish brown and yellowish brown fine sandy loam and olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Lyman, Tunbridge, Berkshire, Peru, and Brayton soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Berkshire soils are well drained. Peru soils are moderately well drained. Brayton soils are somewhat poorly drained or poorly drained. Lyman and Tunbridge soils are on ridgetops or on adjacent, steeper side slopes. Berkshire soils are in positions on the landscape that are similar to this Marlow soil, and Peru and Brayton soils are in the lower positions. Also included are small areas of soils that have slope of less than 3 percent and small areas of soils where stones cover the surface. The included areas make up about 20 percent of the map unit.

Permeability in this Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate. Surface runoff is medium, and the erosion hazard is slight. For short periods in March and April, the seasonal high water table is perched above the compact substratum. Bedrock generally is at a depth of more than 60 inches. The substratum restricts the depth of the root zone.

This soil is used mainly for crops, hay, and pasture, as woodland, and as sites for residential development.

This soil is suited to cultivated crops and to use as apple orchards. The main limitations for crops are slope and the restricted depth of the root zone. Winter cover crops and conservation tillage help to reduce erosion. During March and April, the seasonal high water table causes the soil to warm slowly and thus delays early planting. The soil is suited to use as apple orchards. In some areas removing stones is often needed after plowing.

This soil is suited to pasture and hay. Grazing when the soil is wet causes surface compaction, and overgrazing causes excessive erosion. Rotation grazing and deferred grazing when the soil is wet help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. Mechanical planting on this soil is practical.

The seasonal high water table and the slow permeability are limitations to use of this soil as sites for most types of community development. The compact substratum is a limitation for shallow excavations. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IIe.

MrC—Marlow fine sandy loam, 8 to 15 percent slopes. This soil is strongly sloping, deep, and well drained. It is on the upper side slopes of drumlin-shaped ridges generally trending northwest and southeast and on northwest-facing slopes of ridges trending northeast and southwest (fig. 12). Slopes generally are smooth and convex, and are 100 to 400 feet long. Most areas are elongated, range from 5 to 60 acres, and are at an elevation of more than 300 feet above sea level.

Typically, the surface layer is dark brown fine sandy loam about 8 inches thick. The subsoil is 20 inches thick. It is dark yellowish brown and yellowish brown fine sandy loam and olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Lyman, Tunbridge, Berkshire, Peru, and Brayton soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Berkshire soils are well drained. Peru soils are moderately well drained. Brayton soils are somewhat poorly drained or poorly drained. Lyman and Tunbridge soils are on ridgetops or on the adjacent, steeper side slopes. Berkshire soils are in positions on the landscape similar to those of this Marlow soil. Peru and Brayton soils are in the lower positions. Also included are small areas of soils where stones cover the surface. The included areas make up about 20 percent of the map unit.

Permeability in this Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate.

Figure 12.—An area of Marlow fine sandy loam, 8 to 15 percent slopes, on a drumlin-shaped ridge. Drumlin-shaped ridges typically are smooth.

Surface runoff is medium to rapid, and erosion is a moderate hazard. For short periods in March and April, the seasonal high water table is perched above the compact substratum. Bedrock generally is at a depth of more than 60 inches. The substratum restricts the depth of the root zone.

This soil is used mostly for crops, hay, and pasture, as woodland, and as sites for residential development.

This soil is poorly suited to cultivated crops. The main limitations for crops are slope and the restricted depth of the root zone. Winter cover crops and conservation tillage help to reduce erosion. During March and April, the seasonal high water table causes the soil to warm slowly and thus delays early planting. The soil is suited to use as apple orchards. In some areas removing stones is often needed after plowing.

This soil is suited to pasture and hay. Grazing when the soil is wet causes soil compaction, and overgrazing causes excessive erosion. Rotation grazing and deferred grazing when the soil is wet help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. Mechanical planting on this soil is practical.

Slope, the seasonal high water table, and the slow permeability are limitations to use of this soil as sites for most types of community development. The compact substratum and slope are limitations for sites for shallow excavations. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action. Erosion is a hazard during construction.

This soil is in capability subclass IIIe.

MrD—Marlow fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep, deep, and well drained. It is on the side slopes of drumlin-shaped ridges generally trending northwest and southeast and on northwest-facing slopes of ridges trending northeast and southwest. Slopes generally are smooth and convex, and are 100 to 300 feet long. Most areas are elongated, range from 5 to 50 acres, and are at an elevation of more than 300 feet above sea level.

Typically, the surface layer is dark brown fine sandy loam about 8 inches thick. The subsoil is 20 inches thick. It is dark yellowish brown and yellowish brown fine sandy loam and olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Lyman, Tunbridge, Berkshire, Peru, and Brayton soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Berkshire soils are well drained. Peru soils are moderately well drained. Brayton soils are somewhat poorly drained or poorly drained. Lyman and Tunbridge soils are on ridgetops and on the adjacent, steeper side slopes. Berkshire soils are in positions on the landscape similar to those of this Marlow soil. Peru and Brayton soils are in lower positions. Also included are small areas of soils that have slopes of more than 25 percent and small areas of soils where stones cover the surface. The included areas make up about 20 percent of the map unit.

Permeability of this Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate. Surface runoff is rapid, and erosion is a severe hazard. For short periods in March and April, the seasonal high water table is perched above the compact substratum. Bedrock generally is at a depth of more than 60 inches. The substratum restricts the depth of the root zone.

This soil is used mostly for hay and pasture and as woodland.

This soil is poorly suited to cultivated crops. The main limitation is slope. Winter cover crops, contour farming, installing terraces, and conservation tillage help to reduce erosion. In most areas, however, these conservation practices are not feasible because of slope. In some areas removing stones is often needed after plowing.

This soil is poorly suited to pasture and hay. The main limitation is slope. Erosion is a severe hazard when the soil is being reseeded. Grazing when the soil is wet causes surface compaction, and overgrazing causes excessive erosion. Rotation grazing and deferred grazing when the soil is wet help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. Slope limits the use of equipment. Laying out logging roads and skid trails on the contour and installing water bars help to control erosion.

Slope, the seasonal high water table, the slow permeability, and the very firm substratum are limitations to use of this soil as sites for most types of community development. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action. Erosion is a hazard during construction.

This soil is in capability subclass IVe.

MsB—Marlow very stony fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, deep, and well drained. It is on the crests of drumlin-shaped ridges generally trending northwest and southeast and on northwest-facing slopes of ridges trending northeast and southwest. Slopes generally are smooth and convex, and are 100 to 400 feet long. Most areas are oval, circular, or elongated, range from 5 to 25 acres, and are at an elevation of more than 300 feet above sea level. Stones cover as much as 15 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is dark brown fine sandy loam about 2 inches thick. The subsurface layer is gray fine sandy loam about 1 inch thick. The subsoil is 25 inches thick. It is dark brown fine sandy loam that grades with depth to yellowish brown fine sandy loam and olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Lyman, Tunbridge, Berkshire, Peru, and Brayton soils and areas of Rock outcrop. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Berkshire soils are well drained. Peru soils are moderately well drained. Brayton soils are somewhat poorly drained or poorly drained. Lyman and Tunbridge soils and areas of Rock outcrop are on ridgetops or the adjacent side slopes. Berkshire soils are on side slopes, and Peru and Brayton soils are in the lower areas and in depressions. Also included are small areas of soils that have slope of less than 3 percent and small areas of soils where stones cover more than 15 percent of the surface. The included areas make up about 20 percent of the map unit.

Permeability in this Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate. Surface runoff is medium, and erosion is a slight hazard. For short periods in March and April, the seasonal high water table is perched above the compact substratum. Bedrock generally is at a depth of more than 60 inches. The substratum restricts the depth of the root zone.

This soil is used mainly as woodland. Some areas are used for unimproved pasture.

This soil is very poorly suited to farming. The main limitation is stones on the surface. It is suited to farming if the stones are removed from the surface. Overgrazing causes excessive erosion. Grazing when the soil is wet causes surface compaction.

Potential productivity for eastern white pine on this soil is high. Stones on the surface limit mechanical planting.

Stones on the surface, the seasonal high water table, and the slow permeability in the substratum are limitations to use of this soil as sites for most types of community development. The seasonal high water table and the compact substratum are limitations for sites for shallow excavations. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass VIs.

MsC—Marlow very stony fine sandy loam, 8 to 15 percent slopes. This soil is strongly sloping, deep, and well drained. It is on the crests and the side slopes of drumlin-shaped ridges generally trending northwest and southeast, and on northwest-facing slopes of ridges trending northeast and southwest. Slopes generally are smooth and convex, and are 100 to 500 feet long. Most areas are oval, circular, or elongated, range from 5 to 40 acres, and are at an elevation of more than 300 feet above sea level. Stones cover as much as 15 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is dark brown fine sandy loam about 2 inches thick. The subsurface layer is gray fine sandy loam about 1 inch thick. The subsoil is 25 inches thick. It is dark brown fine sandy loam that grades with depth to yellowish brown fine sandy loam and olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Lyman, Tunbridge, Berkshire, Peru, and Brayton soils and areas of Rock outcrop. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Berkshire soils are well drained. Peru soils are moderately well drained. Brayton soils are somewhat poorly drained or poorly drained. Lyman and Tunbridge soils and areas of Rock outcrop are on ridgetops or the adjacent side slopes. Berkshire soils are on side slopes, and Peru and Brayton soils are in the lower areas and in depressions. Also included are small areas of soils where stones cover more than 15 percent of the surface. The included areas make up about 20 percent of the map unit.

Permeability in this Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate. Surface runoff is medium or rapid, and erosion is a moderate hazard. For short periods in March and April, the seasonal high water table is perched above the compact substratum. Bedrock generally is at a depth of more than 60 inches. The substratum restricts the depth of the root zone.

This soil is used mainly as woodland. Some areas are used for unimproved pasture.

This soil is very poorly suited to farming. The main limitations are slope and stones on the surface. In some areas, if the stones are removed from the surface, the soil is suited to farming. Overgrazing causes excessive erosion. Grazing when the soil is wet often causes surface compaction. Rotation grazing and deferred grazing help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. There are few limitations to woodland use and management. Stones on the surface limit mechanical planting.

Stones on the surface, slope, the seasonal high water table, and the slow permeability in the substratum are limitations to use of this soil as sites for most types of community development. The compact substratum, the seasonal high water table, and slope are limitations for sites for shallow excavations. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage caused by frost action roads and streets.

This soil is in capability subclass VIs.

MsD—Marlow very stony fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep, deep, and well drained. It is on the slopes of drumlin-shaped ridges generally trending northwest and southeast and on northwest-facing slopes of ridges trending northeast and southwest. Slopes generally are smooth and convex, and are 100 to 400 feet long. Most areas are oval or elongated, range from 5 to 45 acres, and are at an elevation of more than 300 feet above sea level. Stones cover as much as 15 percent of the surface.

Typically, the surface layer is covered by a layer of forest litter about 2 inches thick. The surface layer is dark brown fine sandy loam about 2 inches thick. The subsurface layer of gray fine sandy loam is about 1 inch thick. The subsoil is 25 inches thick. It is dark brown fine sandy loam that grades with depth to yellowish brown fine sandy loam and olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Lyman, Tunbridge, Berkshire, and Peru soils and areas of Rock outcrop. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Berkshire soils are well drained. Peru soils are moderately well drained. Lyman and Tunbridge soils and areas of Rock outcrop are on ridgetops or the adjacent side slopes. Berkshire soils are on side slopes, and Peru soils are in the lower areas and in depressions. Also included are small areas of soils that have slope of more than 25 percent and small areas of soils where stones cover more than 15 percent of the surface. The included areas make up about 20 percent of the map unit.

Permeability in this Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate. Surface runoff is rapid, and erosion is a moderate hazard. During short periods in March and April, the seasonal high water table is perched above the compact substratum. Bedrock generally is at a depth of more than 60 inches. The substratum restricts the depth of the root zone.

This soil is used mainly as woodland. Some areas are used for unimproved pasture.

This soil is very poorly suited to farming. The main limitations are stones on the surface and slope. In most areas clearing the surface of stones for farming is not practical. On pasture, overgrazing causes excessive erosion. Grazing when the soil is wet often causes surface compaction. Rotation grazing and deferred grazing help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. Stones on the surface and slope are limitations to mechanical planting. Laying out skid trails and logging roads on the contour helps to control erosion.

Slope, stones on the surface, the seasonal high water table, and the slow permeability in the substratum are limitations to use of this soil as sites for most types of community development. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage for roads and streets caused by frost action.

This soil is in capability subclass VIs.

MtB—Marlow-Berkshire fine sandy loams, 3 to 8 percent slopes. This map unit consists of gently sloping, deep, well drained soils. In a typical area it is 50 percent Marlow soils, 30 percent Berkshire soils, and 20 percent other soils. The Marlow and Berkshire soils are intermingled so closely that it was not practical to map them separately. Areas of this map unit generally are on drumlin-shaped ridges trending northwest and southeast and on uplands that were glaciated. Most areas are oval, circular, or elongated and range from about 5 to 30 acres. Slopes generally are smooth and convex.

Typically, the surface layer of the Marlow soil is dark brown fine sandy loam about 8 inches thick. The subsoil is about 20 inches thick. It is dark yellowish brown and yellowish brown fine sandy loam that grades with increasing depth to olive brown gravelly sandy loam. The substratum is very firm and brittle, olive gravelly fine sandy loam to a depth of 60 inches or more.

Typically, the surface layer of the Berkshire soil is dark brown fine sandy loam about 8 inches thick. The subsoil is about 16 inches thick. It is mostly dark yellowish brown gravelly fine sandy loam. The substratum is olive brown gravelly fine sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of Lyman, Tunbridge, Peru, Brayton, and Hermon soils and areas of Rock outcrop. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Lyman and Tunbridge soils and areas of Rock outcrop are on ridgetops and on adjacent side slopes. Peru soils are moderately well drained, and Brayton soils are somewhat poorly drained and poorly drained. Peru and Brayton soils generally are in the lower lying areas. Hermon soils are somewhat excessively drained. They are on adjacent side slopes. Also included are small areas that have slope of less than 3 percent and areas where stones are on the surface. The included areas make up about 20 percent of the map unit.

Permeability in the Marlow soil is moderate above the substratum and moderately slow and slow in the substratum. Permeability in the Berkshire soil is moderate or moderately rapid. The available water capacity is moderate in the Marlow soil and high in the Berkshire soil. On both soils, surface runoff is medium and erosion is a moderate hazard. For short periods in March and April, the seasonal high water table in the Marlow soil is perched above the compact substratum. Bedrock in both soils generally is at a depth of more than 60 inches. The depth to the root zone is restricted by the substratum in the Marlow soil, but is not restricted by that in the Berkshire soil.

Most areas of these soils are used for cultivated crops, hay and pasture, as woodland, and as sites for residential development. Some areas are in idle grassland.

These soils are suited to well suited to cultivated crops. The main limitations are slope and the restricted depth of the root zone. Winter cover crops and conservation tillage help to control erosion. In March and April, the seasonal high water table causes the Marlow soil to warm slowly and thus delays early planting. In some areas, clearing the surface of stones is often needed after plowing.

These soils are well suited to suited to hay and pasture. In some areas grazing when these soils are wet causes surface compaction. Overgrazing causes excessive erosion. Deferred grazing and rotation grazing help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine is high on the Marlow soil and very high on the Berkshire soil. On the Marlow soil, the depth of the root zone is restricted. There are few problems in woodland management on these soils. Mechanical planting is practical in the large areas.

The seasonal high water table of the Marlow soil is the main limitation to use of these soils as sites for most types of community development. The moderate or moderately rapid permeability in the Berkshire soil is a limitation for sites for trench and area sanitary landfills. The compact substratum in the Marlow soil is a limitation for sites for shallow excavations. In some areas heaving of these soils by frost action is a hazard if the soils are used as sites for roads and streets. Providing a coarser subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

These soils are in capability subclass IIe.

MtC—Marlow-Berkshire fine sandy loams, 8 to 15 percent slopes. This map unit consists of strongly sloping, deep, well drained soils. In a typical area it is 50 percent Marlow soil, 30 percent Berkshire soil, and 20 percent other soils. The Marlow and Berkshire soils are intermingled so closely that it was not practical to map them separately. Areas of the map unit generally are on drumlin-shaped ridges trending northwest and southeast and on glaciated uplands. Most areas are oval, circular, or elongated, and range from about 5 to 30 acres. Slopes generally are smooth and convex.

Typically, the surface layer of the Marlow soil is dark brown fine sandy loam about 8 inches thick. The subsoil is 20 inches thick. It is dark yellowish brown and yellowish brown fine sandy loam that grades with depth to olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Typically, the surface layer of the Berkshire soil is dark brown fine sandy loam about 8 inches thick. The subsoil is 16 inches thick. It is mostly dark yellowish brown gravelly fine sandy loam. The substratum is olive brown gravelly fine sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of Lyman, Tunbridge, Peru, Brayton, and Hermon soils and areas of Rock outcrop. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Peru soils are moderately well drained. Brayton soils are somewhat poorly drained or poorly drained. Hermon soils are somewhat excessively drained. Lyman and Tunbridge soils and areas of Rock outcrop are on ridgetops or on the adjacent side slopes. Peru and Brayton soils generally are in lower areas. Hermon soils are on the adjacent side slopes. Also included are small areas of soils where stones cover the surface. The included soils make up about 20 percent of the map unit.

Permeability in this Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. Permeability in this Berkshire soil is moderate or moderately rapid. The available water capacity is moderate in the Marlow soil and high in the Berkshire soil. On both soils, surface runoff is medium to rapid, and erosion is a moderate hazard. For short periods in March and April, the seasonal high water table in the Marlow soil is perched above the compact substratum. Bedrock in both soils generally is at a depth of more than 60 inches. The depth of the root zone is restricted by the substratum in the Marlow soil, but is not restricted by that in the Berkshire soil.

Most areas of these soils are used for hay and pasture and as woodland. Some areas are idle grassland.

These soils are poorly suited to most cultivated crops. The main limitations are slope and the restricted root zone. Winter cover crops and conservation tillage help to control erosion. The seasonal high water table causes the Marlow soil to warm slowly in spring, and thus delays early planting. In some areas removing stones from the surface is often needed after plowing.

These soils are well suited to suited to hay and pasture. The main limitation is the restricted root zone of the Marlow soil. Grazing when these soils are wet causes surface compaction. Overgrazing causes excessive erosion. Rotation grazing and deferred grazing help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine is high on the Marlow soil and very high n the Berkshire soil. On the Marlow soil, the depth of the root zone is restricted. There are few problems in woodland management. Mechanical planting is practical in the large areas.

The seasonal high water table of the Marlow soil and slope are the main limitations to use of these soils as sites for most types of community development. The moderate or moderately rapid permeability in the Berkshire soil is a limitation for sites for trench and area sanitary landfills. The compact substratum of the Marlow soil is a limitation for sites for shallow excavations. In some areas heaving of these soils by frost action is a hazard if the soils are used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

These soils are in capability subclass IIIe.

MwB—Marlow-Berkshire very stony fine sandy loams, 3 to 8 percent slopes. This map unit consists of gently sloping, deep, well drained soils. In a typical area it is 50 percent Marlow soil, 30 percent Berkshire soil, and 20 percent other soils. The Marlow and Berkshire soils are intermingled so closely that it was not practical to map them separately. Areas of the map unit generally are on drumlin-shaped ridges trending northwest and southeast and on glaciated uplands. Most areas are oval, circular, or elongated, and range from about 5 to 30 acres. Slopes generally are smooth and convex. Stones cover as much as 15 percent of the surface.

Typically, the surface layer of the Marlow soil is covered by a layer of forest litter about 2 inches thick. The surface layer is dark brown fine sandy loam about 2 inches thick. The subsurface layer is gray fine sandy loam about 1 inch thick. The subsoil is 25 inches thick. It grades with depth from dark brown to yellowish brown fine sandy loam to olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Typically, the surface layer of the Berkshire soil is covered by a layer of forest litter about 2 inches thick. The surface layer is gray fine sandy loam about 1 inch thick. The subsoil is 23 inches thick. It is dark reddish brown fine sandy loam that grades with depth to dark yellowish brown gravelly fine sandy loam. The substratum is olive brown gravelly fine sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of Lyman, Tunbridge, Peru, Brayton, and Hermon soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Peru soils are moderately well drained. Brayton soils are somewhat poorly drained or poorly drained. Hermon soils are somewhat excessively drained. Lyman and Tunbridge soils are on ridgetops or on the adjacent side slopes. Peru and Brayton soils generally are in low areas. Hermon soils are on side slopes. Also included are small areas of soils that have slope of less than 3 percent and small areas of soils where stones cover more than 15 percent of the surface. The included soils make up about 20 percent of the map unit.

Permeability in this Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. Permeability in this Berkshire soil is moderate to moderately rapid. The available water capacity is moderate in the Marlow soil and high in the Berkshire soil. On both soils, surface runoff is medium and erosion is a slight hazard. For short periods in March and April, the seasonal high water table in the Marlow soil is perched above the compact substratum. Bedrock in both soils generally is at a depth of more than 60 inches. The depth of the root zone is restricted by the substratum in the Marlow soil, but is not restricted by that in the Berkshire soil.

Most areas of these soils are used as woodland. Unwooded areas are used for unimproved pasture and are idle grassland.

These soils are very poorly suited to cultivated crops, pasture, and hay. The main limitation is stones on the surface. In some areas these soils are suited to these uses if the stones are removed from the surface. On pasture, overgrazing causes excessive erosion. Grazing when the soils are wet causes surface compaction. Rotation grazing and deferred grazing helps to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine is high on the Marlow soil and very high on the Berkshire soil. On the Marlow soil, the depth of the root zone is restricted. There are few problems in woodland management. Stones on the surface limit mechanical planting.

The seasonal high water table and the slow permeability in the substratum of the Marlow soil and stones on the surface are the main limitations to use of these soils as sites for most types of community development. In some areas heaving of these soils by frost action is a hazard if the soils are used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

These soils are in capability subclass VIs.

MwC—Marlow-Berkshire very stony fine sandy loams, 8 to 15 percent slopes. This map unit consists of strongly sloping, deep, well drained soils. In a typical area it is 50 percent Marlow soil, 30 percent Berkshire soil, and 20 percent other soils. The Marlow and Berkshire soils are intermingled so closely that it was not practical to map them separately. Areas of the map unit generally are on drumlin-shaped ridges trending northwest and southeast and on glaciated uplands. Most areas are oval, circular, or elongated, and range from about 5 to 50 acres. Stones cover as much as 15 percent of the surface. Slopes generally are smooth and convex.

Typically, the surface layer of the Marlow soil is covered by a layer of forest litter about 2 inches thick. The surface layer is dark brown fine sandy loam about 2 inches thick. The subsurface layer is gray fine sandy loam about 1 inch thick. The subsoil is about 25 inches thick. It is dark brown fine sandy loam that grades with depth to yellowish brown fine sandy loam and olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Typically, the surface layer of the Berkshire soil is covered by a layer of forest litter about 2 inches thick. The surface layer is gray fine sandy loam about 1 inch thick. The subsoil is about 23 inches thick. It is dark reddish brown fine sandy loam that grades with depth to dark yellowish brown gravelly fine sandy loam. The substratum is olive brown gravelly fine sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of Lyman, Tunbridge, Peru, Brayton, and Hermon soils and areas of Rock outcrop. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Peru soils are moderately well drained. Brayton soils are somewhat poorly drained or poorly drained. Hermon soils are somewhat excessively drained. Lyman and Tunbridge soils and areas of Rock outcrop are on ridgetops or on the adjacent side slopes. Peru and Brayton soils generally are in low areas. Hermon soils are on side slopes. Also included are small areas of soils where stones cover more than 15 percent of the surface. The included soils make up about 20 percent of the map unit.

Permeability in this Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. Permeability in this Berkshire soil is moderate or moderately rapid. The available water capacity is moderate in the Marlow soil and high in the Berkshire soil. On both soils, surface runoff is medium, and erosion is a slight hazard. For short periods in March and April, the seasonal high water table in the Marlow soil is perched above the compact substratum. Bedrock in both soils generally is at a depth of more than 60 inches. The depth of the root zone is restricted by the substratum in the Marlow soil, but is not restricted by that in the Berkshire soil.

Most areas of these soils are used as woodland. Unwooded areas are used for unimproved pasture or are idle grassland.

These soils are very poorly suited to cultivated crops, pasture, and hay. The main limitations are slope and stones on the surface. In some areas these soils are suited to these uses if stones are removed from the surface. On pasture, overgrazing causes excessive erosion. Grazing when the soil is wet causes surface compaction. Rotation grazing and deferred grazing help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine is high on the Marlow soil and very high on the Berkshire soil. On the Marlow soil, the depth of the root zone is restricted. Laying out skid trails and roads on the contour helps to reduce erosion. Stones on the surface limit mechanical planting.

The seasonal high water table and the slow permeability in the substratum of the Marlow soil, stones on the surface, and slope are the main limitations to use of these soils as sites for most types of community development. In some areas heaving of the soils by frost action is a hazard if the soils are used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

These soils are in capability subclass VIs.

MwD—Marlow-Berkshire very stony fine sandy loams, 15 to 25 percent slopes. This map unit consists of moderately steep, deep, well drained soils. In a typical area it is 50 percent Marlow soils, 30 percent Berkshire soils, and 20 percent other soils. The Marlow and Berkshire soils are intermingled so closely that it was not practical to map them separately. Areas of the map unit generally are on drumlin-shaped ridges trending northwest and southeast and on glaciated uplands. Most areas are oval, circular, or elongated, and range from about 5 to 30 acres. Slopes generally are smooth and convex. Stones cover as much as 15 percent of the surface.

Typically, the surface layer of the Marlow soil is covered by a layer of forest litter about 2 inches thick. The surface layer is dark brown fine sandy loam about 2 inches thick. The subsurface layer is gray fine sandy loam about 1 inch thick. The subsoil is about 25 inches thick. It is dark brown fine sandy loam that grades with depth to yellowish brown fine sandy loam and olive brown gravelly sandy loam. The substratum is very firm and brittle olive gravelly fine sandy loam to a depth of 60 inches or more.

Typically, the surface layer of the Berkshire soil is covered by a layer of forest litter about 2 inches thick. The surface layer is gray fine sandy loam about 1 inch thick. The subsoil is about 23 inches thick. It is dark reddish brown fine sandy loam that grades with depth to dark yellowish brown gravelly fine sandy loam. The substratum is olive brown gravelly fine sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of Lyman, Tunbridge, Peru, and Hermon soils and areas of Rock outcrop. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Peru soils are moderately well drained. Hermon soils are somewhat excessively drained. Lyman and Tunbridge soils and areas of Rock outcrop are on ridgetops or on the adjacent side slopes. Peru soils generally are on lower areas. Hermon soils are on side slopes. Also included are small areas of soils that have slope of more than 25 percent, and small areas of soils where stones cover more than 15 percent of the surface. The included areas make up about 20 percent of the map unit.

Permeability in the Marlow soil is moderate above the substratum and moderately slow or slow in the substratum. Permeability in the Berkshire soil is moderate or moderately rapid. The available water capacity is moderate in the Marlow soil and high in the Berkshire soil. On both soils, surface runoff is rapid, and erosion is a slight hazard. For short periods in March and April, the seasonal high water table in the Marlow soil is perched above the compact substratum. Bedrock in both soils generally is at a depth of more than 60 inches. The depth of the root zone is restricted by the substratum in the Marlow soil, but it is not restricted by that in the Berkshire soil.

Most areas of these soils are used as woodland. Unwooded areas are used for unimproved pasture or are idle grassland.

These soils are very poorly suited to cultivated crops, pasture, and hay. The main limitations are slope and stones on the surface. In most areas clearing the surface of stones for these uses is not practical. On pasture, overgrazing causes excessive erosion. Grazing when the soil is wet causes surface compaction. Rotation grazing and deferred grazing when the soils are wet help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine is high on the Marlow soil and verh high on the Berkshire soil. On the Marlow soil, the depth of the root zone is restricted. In some areas slope limits the use of equipment. Laying out skid trails and roads on the contour helps to control erosion.

The seasonal high water table and the slow permeability in the substratum of the Marlow soil, stones on the surface, and slope are the main limitations to use of these soils as sites for most types of community development. In some areas heaving of the soils by frost action is a hazard if the soils are used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to road sand streets caused by frost action.

These soils are in capability subclass VIs.

MxB—Masardis gravelly fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, deep, and somewhat excessively drained. It is on terraces, deltas, kames, and eskers near streams and rivers. Slopes generally are smooth and concave, and are 100 feet to several hundred feet long. Most areas are elongated or oblong, and range from 4 to 200 acres.

Typically, the surface layer is covered by a layer of forest litter about 3 inches thick. The surface layer is light brownish gray fine sandy loam about 2 inches thick. The subsoil is about 20 inches thick. It is dark reddish brown and reddish brown gravelly fine sandy loam that grades with depth to yellowish brown very gravelly loamy sand. The substratum is dark grayish brown very gravelly sand and grayish brown extremely gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Adams, Hermon, Madawaska, Naumburg, and Searsport soils. Adams and Hermon soils are somewhat excessively drained. Madawaska soils are moderately well drained. Naumburg soils are somewhat poorly drained or poorly drained. Searsport soils are very poorly drained. Adams soils are on adjacent slopes, and Hermon soils are on upland knolls. Madawaska, Naumburg, and Searsport soils are in lower areas and in depressions. Also included are some areas of soils that are similar to this Masardis soil except for a surface layer that is not gravelly. The included soils make up about 15 percent of the map unit.

Permeability in this Masardis soil is moderately rapid in the surface layer and the upper part of the subsoil and rapid or very rapid in the lower part of the subsoil and the substratum. The available water capacity is moderate. Surface runoff is slow, and the erosion hazard is slight. Bedrock generally is at a depth of more than 120 inches.

Most areas of this soil are used as woodland. Some areas are used for hay and pasture, and have been excavated for gravel and sand.

This soil is poorly suited to cultivated crops. The main limitations are the low natural fertility and droughtiness during the growing season. The main management concerns are irrigation and adding organic material to the soil. The soil can be worked very early in spring.

This soil is poorly suited to hay and pasture. The main limitation is droughtiness during the growing season. Overgrazing causes excessive erosion. Deferred grazing, restricted grazing, and organic material added to the soil help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. Seedling mortality is high because of periods of droughtiness. Otherwise, there are few concerns in management.

If this soil is used as sites for septic tank absorption fields and sanitary landfills, the rapid permeability causes a hazard of ground water contamination. The soil is a probable source of gravel and a good source of roadfill. Excavations in the soil are unstable.

This soil is in capability subclass IIIs.

MxC—Masardis gravelly fine sandy loam, 8 to 15 percent slopes. This soil is strongly sloping, deep, and somewhat excessively drained. It is on terraces, deltas, kames, and eskers near streams and rivers. Slopes generally are smooth and concave and are 100 to several hundred feet long. Most areas are elongated or oblong, and range from 4 to 150 acres.

Typically, the surface layer is covered by a layer of forest litter about 3 inches thick. The surface layer is light brownish gray fine sandy loam about 2 inches thick. The subsoil is about 20 inches thick. It is dark reddish brown and reddish brown gravelly fine sandy loam that grades with depth to yellowish brown very gravelly loamy sand. The substratum is dark grayish brown very gravelly sand and grayish brown extremely gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Adams, Hermon, Madawaska, Naumburg, and Searsport soils. Adams and Hermon soils are somewhat excessively drained. Madawaska soils are moderately well drained. Naumburg soils are somewhat poorly drained or poorly drained. Searsport soils are very poorly drained. Adams soils are on adjacent slopes, and Hermon soils are on upland knolls. Madawaska, Naumburg, and Searsport soils are in lower areas and in depressions. Also included are some areas of soils that are similar to this Masardis soil except for a surface layer that is not gravelly. The included soils make up about 15 percent of the map unit.

Permeability in this Masardis soil is moderately rapid in the surface layer and in the upper part of the subsoil and rapid or very rapid in the lower part of the subsoil and the substratum. The available water capacity is moderate. Surface runoff is medium, and erosion generally is a slight hazard. Bedrock generally is at a depth of more than 120 inches.

Most areas of this soil are used as woodland. Some areas are used for hay and pasture, and some have been excavated for gravel and sand.

This soil is poorly suited to cultivated crops. The main limitations are slope, the low natural fertility, and droughtiness during the growing season. Contour farming and stripcropping help to control erosion. The main management concern is adding organic material to the soil. The soil can be worked very early in spring.

This soil is poorly suited to hay and pasture. The main limitation is droughtiness during the growing season. Overgrazing causes excessive erosion. Deferred grazing, irrigation, and organic material added to the soil help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. The rate of seedling mortality is high because of periods of droughtiness. Laying out skid trails and roads on the contour help to control erosion.

If this soil is used as sites for septic tank absorption fields and sanitary landfills, the rapid permeability causes a hazard of ground water contamination. The soil is a probable source of gravel and a good source of roadfill. Excavations in the soil are unstable.

This soil is in capability subclass IVs.

MxD—Masardis gravelly fine sandy loam, 15 to 25 percent slopes. This soil is moderately steep, deep, and somewhat excessively drained. It is on terraces, deltas, kames, and eskers near streams and rivers. Slopes generally are smooth and concave, and are 50 to 200 feet long. Most areas are elongated or oblong, and range from 4 to 100 acres.

Typically, the surface layer is light brownish gray fine sandy loam about 2 inches thick. The subsoil is about 20 inches thick. It is dark reddish brown and reddish brown gravelly fine sandy loam that grades with depth to yellowish brown very gravelly loamy sand. The substratum is dark grayish brown very gravelly sand and grayish brown extremely gravelly sand to a depth of 60 inches or more.

Included with this Masardis soil in mapping are small areas of Adams, Hermon, Madawaska, Naumburg, and Searsport soils. Adams and Hermon soils are somewhat excessively drained. Madawaska soils are moderately well drained. Naumburg soils are somewhat poorly drained or poorly drained. Searsport soils are very poorly drained. Adams soils are on the adjacent slopes, and Hermon soils are on upland knolls. Madawaska, Naumburg, and Searsport soils are in the lower areas and in depressions. Also included are some areas of soils that are similar to this Masardis soil except the surface layer is not gravelly. Also included are areas of soils that have slope of more than 25 percent. The included soils make up about 15 percent of the map unit.

Permeability in this Masardis soil is moderately rapid in the surface layer and the upper part of the subsoil and rapid or very rapid in the lower part of the subsoil and the substratum. The available water capacity is moderate. Surface runoff is rapid, and erosion generally is a moderate hazard. Bedrock generally is at a depth of more than 120 inches.

Most areas of this soil are used as woodland. Some areas are used for hay and pasture, and have been excavated for gravel and sand.

This soil is very poorly suited to farming. Erosion is a hazard. The main limitations are slope, the low natural fertility, and droughtiness during the growing season. If the soil is used for cultivated crops, contour farming and stripcropping help to control erosion. On pasture, overgrazing causes excessive erosion. Deferred grazing helps to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. Slope limits the use of equipment, and seedling mortality is high because of periods of droughtiness. Laying out roads and skid trails on the contour helps to control erosion.

Slope and the rapid permeability are limitations to use of this soil as sites for community development. If the soil is used as sites for septic tank absorption fields and sanitary landfills, the rapid permeability causes a hazard of ground water contamination. The soil is a probable source of gravel and a fair source of roadfill. Excavations in the soil are unstable.

This soil is in capability subclass VIs.

My—Medomak silt loam. This soil is nearly level, deep, and very poorly drained. It is on flood plains of large streams and rivers and is adjacent to lakes. Slopes are concave, and generally range from 0 to 1 percent. Most areas are elongated or oval, and range from about 5 to 30 acres.

Typically, the surface layer is very dark grayish brown silt loam about 12 inches thick. The substratum extends to a depth of 60 inches or more. In the upper part it is mottled, dark gray silt loam, and in the lower part it is very dark gray silt loam.

Included with this Medomak soil in mapping are small areas of Charles and Biddeford soils and Borosaprists. Charles soils are poorly drained. They are on flood plains. Biddeford soils are very poorly drained. Borosaprists are very poorly drained. Biddeford soils and Borosaprists are on landscapes similar to those of this Medomak soil. Also included are areas of soils that are similar to this Medomak soil but that have a mucky or a coarser textured surface layer. The included soils make up about 20 percent of the map unit.

Permeability in this Medomak soil is moderate. In some places, below a depth of 40 inches the soil is coarse textured and permeability is rapid or very rapid. For most of the year, the seasonal high water table is above or at the surface. Drainage and the depth of the root zone are restricted by the seasonal high water table. The available water capacity is high. Surface runoff is slow or very slow, and erosion is a slight hazard. Flooding from stream overflow is common in early spring and after periods of heavy rainfall. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are used as woodland or is marshland used as habitat for wetland wildlife.

Frequent flooding and the seasonal high water table are limitations to use of this soil as sites for community development and woodland.

Potential productivity for eastern white pine on this soil is high. Most woodland management practices are restricted except when the soil is frozen. Potential for habitat for wetland wildlife is good.

This soil is in capability subclass VIw.

Na—Naumburg loamy sand. This soil is nearly level, deep, and somewhat poorly drained or poorly drained. It is at low elevations on outwash plains, deltas, and terraces. Slopes are smooth and concave, and range from 0 to 3 percent. Most areas are irregular in shape, and range from 3 to 20 acres.

Typically, the surface layer is covered by a layer of forest litter about 4 inches thick. The surface layer is gray loamy sand about 8 inches thick. The subsoil is about 23 inches thick. It is mottled, dark reddish brown and dark brown loamy sand and mottled, dark brown sand. The substratum is very dark grayish brown and dark grayish brown sand to a depth of 60 inches or more.

Included with this soil in mapping are areas of Masardis, Adams, Sheepscot, and Searsport soils. Masardis and Adams soils are somewhat excessively drained. Sheepscot soils are moderately well drained. Searsport soils are very poorly drained. Also included are a few small areas of Lyman soils. Lyman soils are shallow and somewhat excessively drained. Adams, Masardis, Sheepscot, and Lyman soils are in the higher positions, and Searsport soils are in depressions. Also included are some areas of soils that are similar to this Naumburg soil except for a cemented subsoil or a finer textured surface layer. The included soils make up about 15 percent of the map unit.

Permeability in this Naumburg soil is moderately rapid in the surface layer and rapid in the subsoil and the substratum. The available water capacity is low. The seasonal high water table is near the surface in winter and spring and at a depth of more than 4 feet during dry periods in summer. Surface runoff is very slow, and erosion is a slight hazard. Bedrock generally is at a depth of more than 60 inches.

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

This soil is poorly suited to farming. The main limitation is the seasonal high water table. Drainage can be used where suitable outlets are available. Lime and fertilizer are needed for good yields. Irrigation is often needed during dry periods.

Potential productivity for black spruce on this soil is high. The seasonal high water table limits the use of equipment. Seedling mortality is high. Harvesting operations are easier when the ground is frozen.

The seasonal high water table and the rapid permeability are limitations to use of this soil as sites for most types of community development. If the soil is used as sites for septic tank absorption fields and sanitary landfills, the rapid permeability causes a hazard of ground water contamination. Excavating in the soil is difficult because of the unstable substratum and seepage.

This soil is in capability subclass IVw.

PaB—Peru fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, deep, and moderately well drained. It is on the lower slopes of broad, drumlin-shaped ridges trending northwest and southeast. Slopes generally are concave and smooth and are about 100 to 500 feet long. Most areas are irregular in shape, and range from 5 to 20 acres.

Typically, the surface layer is dark brown fine sandy loam about 8 inches thick. The subsoil is about 17 inches thick. It is dark yellowish brown fine sandy loam that grades with depth to mottled, olive gravelly fine sandy loam. The substratum is very firm and brittle, mottled, olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Marlow, Berkshire, and Brayton soils. Marlow and Berkshire soils are well drained. Generally, they are in the higher areas. Brayton soils are somewhat poorly drained and poorly drained. They are in the lower areas and in depressions. Also included are a few areas where slope is less than 3 percent, a few areas that have stones on the surface, and a few areas of exposed bedrock. Also included are some areas of soils that are similar to this Peru soil but that do not have a very firm substratum or that have a gravelly surface layer. The included soils make up about 15 percent of the map unit.

Permeability in this Peru soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate. Surface runoff is medium, and erosion is a slight hazard. The seasonal high water table usually is perched above the substratum from November through May, and especially in spring. Bedrock generally is at a depth of more than 60 inches. The depth of the root zone and water movement are restricted by the substratum.

Most areas of this soil are used for hay and pasture (fig. 13). Some areas are used for row crops and as woodland.

This soil is suited to cultivated crops. The seasonal high water table causes the soil to warm slowly in spring, and thus delays planting. Surface and tile drains can be used where suitable outlets are available. In some areas clearing the surface of stones is often needed after plowing.

This soil is suited to pasture and hay. The restricted root zone limits such deep-rooted plants as alfalfa. Rotation grazing, controlling weeds, and deferred grazing when the soil is wet help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. The depth of the root zone is restricted. Mechanical planting is practical in the large areas.

The seasonal high water table and the slow or very slow permeability in the substratum are limitations to use of this soil as sites for community development. Modified septic sewage disposal systems are commonly used instead of standard trench systems. In some areas

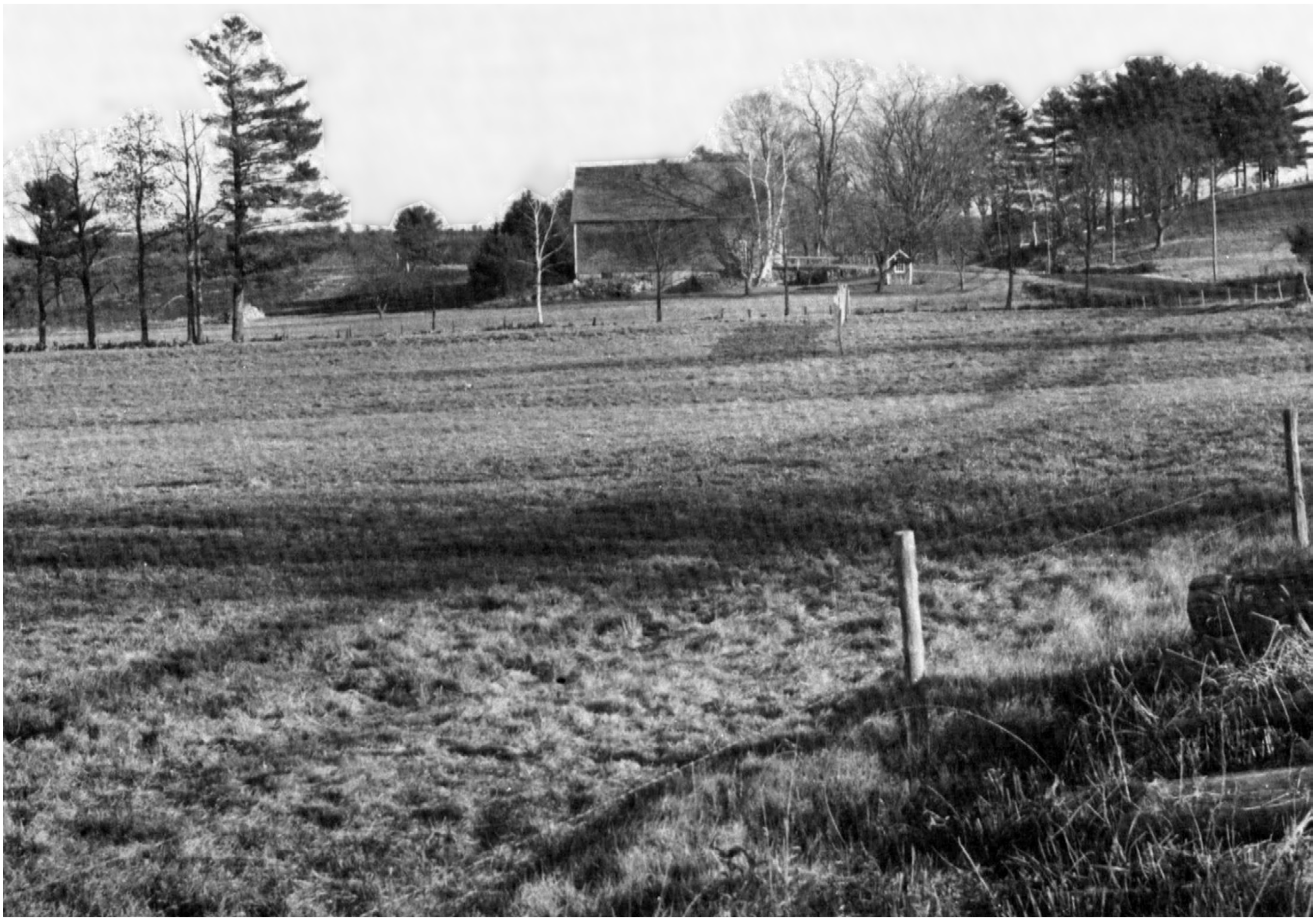


Figure 13.—Pasture on Peru fine sandy loam, 3 to 8 percent slopes. The restricted root zone of this soil limits such deep-rooted plants as alfalfa.

heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IIw.

PaC—Peru fine sandy loam, 8 to 15 percent slopes. This soil is strongly sloping, deep, and moderately well drained. It is on the side slopes of broad, drumlin-shaped ridges trending northwest and southeast. Slopes generally are concave and smooth and are about 100 to more than 500 feet long. Most areas are irregular in shape, and range from 5 to 20 acres.

Typically, the surface layer is dark brown fine sandy loam about 8 inches thick. The subsoil is about 17 inches thick. It is dark yellowish brown fine sandy loam that grades with depth to mottled, olive gravelly fine sandy loam. The substratum is mottled, very firm and brittle, olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Marlow, Berkshire, and Brayton soils. Marlow and Berkshire soils are well drained. Brayton soils are somewhat poorly drained or poorly drained. Marlow and Berkshire soils generally are in the higher areas, and Brayton soils are in the lower areas and in depressions. Also included are a few areas of soils that have slope of more than 15 percent, areas of soils where stones cover the surface, and areas of rock outcrops. Also included are some areas of soils that are similar to this Peru soil but that do not have a very firm substratum or a gravelly surface layer. The included soils make up about 15 percent of the map unit.

Permeability in this Peru soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate. Surface runoff is medium, and erosion is a moderate hazard. The seasonal high water table is perched above the substratum from November through May, especially in spring. Bedrock generally is at a depth of more than 60 inches. The depth of the root zone and water movement are restricted by the substratum.

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

This soil is poorly suited to most cultivated crops. It is suited to potatoes. Erosion is a hazard if the soil is used for cultivated crops. Slope and the seasonal high water table are also limitations to growing crops. Diversions, contour farming, and stripcropping help to control erosion in cultivated areas. The seasonal high water table causes the soil to warm slowly in spring, and thus delays planting. Surface and tile drains can be used where suitable outlets are available. In some areas removing stones from the surface is often needed after plowing.

This soil is suited to pasture and hay. The restricted root zone limits such deep-rooted plants as alfalfa. Rotation grazing, controlling weeds, and deferred grazing when the soil is wet help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. The depth of the root zone is restricted. Mechanical planting is practical in large areas. Laying out skid trails and roads on the contour helps to control erosion.

Slope, the seasonal high water table, and the slow or very slow permeability in the substratum are limitations to use of this soil as sites for community development. Modified septic sewage disposal systems are commonly used instead of standard trench systems. The soil is a fair source of daily cover for landfill. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass IIIe.

PbB—Peru very stony fine sandy loam, 3 to 8 percent slopes. This soil is gently sloping, deep, and moderately well drained. It is on the lower slopes of hills and on the crests and the lower slopes of broad, drumlin-shaped ridges. Slopes generally are concave and smooth, and are about 100 to 500 feet long. Most areas are irregular in shape, and range from about 5 to 100 acres. Stones cover as much as 15 percent of the surface.

Typically, the surface layer is dark reddish brown fine sandy loam about 2 inches thick. The subsurface layer is grayish brown fine sandy loam about 1 inch thick. The subsoil is about 22 inches thick. It is reddish brown and dark yellowish brown fine sandy loam that grades with depth to mottled, olive gravelly fine sandy loam. The substratum is very firm and brittle, olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Brayton, Marlow, and Berkshire soils. Brayton soils are somewhat poorly drained or poorly drained. They are in depressions and along drainageways. Marlow and Berkshire soils are well drained. They are in the higher positions. Also included are small areas of soils where stones cover more than 15 percent of the surface. Also included are soils that have slope of less than 3 percent. Also included are some areas of soils that are similar to this Peru soil but that do not have a very firm substratum. The included soils make up about 20 percent of the map unit.

Permeability in this Peru soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate. Surface runoff is medium, and erosion is a slight hazard. The seasonal high water table is perched above the substratum from November through May, especially in spring. Bedrock generally is at a depth of more than 60 inches. The depth of the root zone and water movement are restricted by the substratum.

Most areas of this soil are used as woodland. Some areas are used for unimproved pasture and for blueberries.

This soil is very poorly suited to farming. The limitation is stones on the surface. The other limitation is the seasonal high water table. The soil is suited to farming if the stones are removed from the surface.

Potential productivity for eastern white pine on this soil is high. The depth of the root zone is restricted. Mechanical planting is limited by stones on the surface.

The slow or moderately slow permeability in the substratum, the seasonal high water table, and stones on the surface are limitations to use of this soil as sites for community development. Modified septic sewage disposal systems are commonly used instead of standard trench systems. The soil is a fair source of daily cover for landfill. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass VIs.

PbC—Peru very stony fine sandy loam, 8 to 15 percent slopes. This soil is strongly sloping, deep, and moderately well drained. It is on the side slopes of hills and on broad, drumlin-shaped ridges. Slopes generally are concave and smooth, and are about 100 to 500 feet long. Most areas are irregular in shape, and range from about 5 to 100 acres. Stones cover as much as 15 percent of the surface.

Typically, the surface layer is dark reddish brown fine sandy loam about 2 inches thick. The subsurface layer is grayish brown fine sandy loam about 1 inch thick. The subsoil is 22 inches thick. It is reddish brown and dark yellowish brown fine sandy loam that grades with depth to mottled, olive gravelly fine sandy loam. The substratum is very firm and brittle, olive gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Brayton, Marlow, and Berkshire soils. Brayton soils are somewhat poorly drained or poorly drained. They are in depressions and along drainageways. Marlow and Berkshire soils are well drained. They are in the higher positions. Also included are small areas of soils where stones cover more than 15 percent of the surface. Also included are areas of rock outcrops and areas of soils that have slope of more than 15 percent. Also included are some areas of soils that are similar to this Peru soil but that do not have a very firm substratum. The included soils make up about 20 percent of the map unit.

Permeability in this Peru soil is moderate above the substratum and moderately slow or slow in the substratum. The available water capacity is moderate. Surface runoff is medium, and erosion is a moderate hazard. The seasonal high water table is perched above the substratum from November through May, especially in spring. Bedrock generally is at a depth of more than 60 inches. The depth of the root zone and water movement are restricted by the substratum.

Most areas of this soil are used as woodland. Some areas are used for unimproved pasture and for blueberries.

This soil is very poorly suited to farming. The main limitations are stones on the surface and slope. The other limitation is the seasonal high water table. In some areas the soil is suited to farming if the stones are removed from the surface.

Potential productivity for eastern white pine on this soil is high. The depth of the root zone is restricted. Mechanical planting is limited by stones on the surface. Laying out skid trails and roads on the contour helps to control erosion.

Slope, the slow or moderately slow permeability in the substratum, the seasonal high water table, and stones on the surface are limitations to use of this soil as sites for community development. The soil is a fair source of daily cover for landfill. Modified septic sewage disposal systems commonly are used instead of standard trench systems. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is in capability subclass VIs.

Pg—Pits, gravel and sand. This map unit consists of open excavations from which soil and the underlying material have been removed. Areas of the map unit generally are round or oval, and range from 4 to 100 acres. Generally, they are near Masardis, Adams, and Hermon soils, but some are near Marlow soils. Some areas have been excavated to bedrock.

This map unit is not assigned to a capability subclass.

Rc—Rock outcrop. This map unit consists of nearly level to steep areas that are at least 90 percent exposed bedrock. The bedrock generally is mica schist, but in some areas it is granite, gneiss, phyllite, rhyolite, slate, or some combination of these. Most areas are on the tops of hills and mountains. Generally, they are rounded or oblong. They range from 5 to 100 acres, but most are about 5 to 15 acres.

Included with this unit in mapping are small areas of Lyman and Tunbridge soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Also included are a few areas of soils where boulders are on the surface and areas of soils that are less than 10 inches deep to bedrock. The included soils make up about 10 percent of the map unit.

Onsite investigation is needed to determine the suitability of this map unit for a particular use.

This map unit is in capability subclass VIIIs.

RmC—Rock outcrop-Lyman complex, 0 to 15 percent slopes. This map unit is nearly level to strongly sloping. In a typical area it is 60 percent Rock outcrop, 20 percent Lyman soil, and 20 percent other soils. The Lyman soil is shallow and somewhat excessively drained. Areas of Rock outcrop and the Lyman soil are intermingled so closely that it was not practical to map them separately. Areas of this map unit are on the tops of hills and mountains. Most areas are oblong or irregular in shape, and range from 5 to 50 acres.

Rock outcrop generally is mica schist or phyllite bedrock that has insufficient soil cover to support plant growth. In some areas the bedrock is granite or gneiss.

Typically, the surface layer of the Lyman soil is pinkish gray fine sandy loam about 2 inches thick. The subsoil is about 14 inches thick. It is dusky red fine sandy loam that grades with depth to yellowish brown gravelly fine sandy loam. Bedrock is at a depth of about 16 inches.

Included with this unit in mapping, in the lower areas, are small areas of Marlow, Berkshire, Peru, and Tunbridge soils. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Tunbridge soils are moderately deep and well drained. Also included are some areas of soils that are less than 10 inches deep to bedrock. The included soils make up about 20 percent of the map unit.

Permeability in the Lyman soil is moderately rapid. The available water capacity is low. Surface runoff is medium, except in areas of Rock outcrop, where it is very rapid. Erosion is a moderate hazard. On the Lyman soil, the depth of the root zone and water movement are restricted by bedrock at a depth of 10 to 20 inches.

Most areas of the Lyman soil are used as woodland. Some unimproved areas are used for blueberries (fig. 14). The soil generally is not suited to cultivation. Woodland management on the Lyman soil is difficult because of windthrow, shallowness to bedrock, and rock outcrops. Potential productivity for eastern white pine on the soil is high. Seedling mortality is high because of droughtiness, and windthrow is a hazard because of shallowness to bedrock.

This map unit is in capability subclass VIIs.

RmE—Rock outcrop-Lyman complex, 15 to 80 percent slopes. This map unit is moderately steep to very steep. In a typical area it is 60 percent Rock

Figure 14.—Blueberries on Rock outcrop-Lyman complex, 0 to 15 percent slopes. Blueberries are grown in many unimproved areas of this map unit.

outcrop, 20 percent Lyman soil, and 20 percent other soils. The Lyman soil is shallow and somewhat excessively drained. Areas of Rock outcrop and the Lyman soil are intermingled so closely that it was not practical to map them separately. Areas of this map unit are on the tops and the side slopes of hills and mountains. Most areas are oblong or irregular in shape, and range from 5 to 40 acres.

Rock outcrop generally is mica schist or phyllite bedrock that has insufficient soil cover to support plant growth. In some areas the bedrock is granite or gneiss.

Typically, the surface layer of the Lyman soil is pinkish gray fine sandy loam about 2 inches thick. The subsoil is about 14 inches thick. It is dusky red fine sandy loam that grades with depth to yellowish brown gravelly fine sandy loam. Bedrock is at a depth of 16 inches.

Included with this unit in mapping, in the lower areas, are small areas of Marlow, Berkshire, Peru, and Tunbridge soils. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Tunbridge soils are moderately deep and well drained. Also included are some areas of soils that are less than 10 inches deep to bedrock. The included soils make up about 20 percent of the map unit.

Permeability in the Lyman soil is moderately rapid. The available water capacity is low. Surface runoff is rapid or very rapid, except in areas of Rock outcrop, where it is very rapid. Erosion is a severe hazard. On the Lyman soil, the depth of the root zone and water movement are restricted by bedrock at a depth of 10 to 20 inches.

Most areas of the Lyman soil are used as woodland. The soil generally is not suited to cultivation. Woodland management on the Lyman soil is difficult because of windthrow, shallowness to bedrock, rock outcrops, and slope. Potential productivity for eastern white pine on the soil is high. Erosion is a hazard. Seedling mortality is high because of droughtiness, and windthrow is a hazard because of shallowness to bedrock.

This map unit is in capability subclass VIIs.

Sc—Scantic silt loam. This soil is nearly level, deep, and poorly drained. It is in low-lying areas of marine or lacustrine plains near the coast or along drainageways between low ridges. Slopes generally are smooth, slightly concave, and about 100 to 500 feet long. Generally, they range from 0 to 3 percent. Most areas are irregular in shape, and range from about 5 to 100 acres.

Typically, the surface layer is about 7 inches thick. It is dark grayish brown silt loam that is mottled in the lower part. The subsoil is 35 inches thick. It is mottled, grayish brown silt loam that grades with depth to mottled, olive gray silty clay. The substratum is mottled, olive gray silty clay to a depth of 60 inches or more.

Included with this Scantic soil in mapping are small areas of Peru, Boothbay, Buxton, Swanville, and Biddeford soils and Borosaprists. Peru soils are moderately well drained. Boothbay and Buxton soils are moderately well drained or somewhat poorly drained. Swanville soils are poorly drained. Biddeford soils and Borosaprists are very poorly drained. Peru, Boothbay, and Buxton soils are in the higher areas. Biddeford soils and Borosaprists are in depressions. Swanville soils are in positions on the landscape similar to those of this Scantic soil. Also included in the higher areas in map units adjacent to the coast are small areas of Lyman and Tunbridge soils and areas of Rock outcrop. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. The included areas make up about 15 percent of the map unit.

Permeability in this Scantic soil is moderate or moderately slow in the surface layer and slow or very slow in the subsoil and the substratum. The available water capacity is high. Surface runoff is slow, and erosion is a slight hazard. Bedrock generally is at a depth of more than 5 feet. The depth of the root zone is restricted by the seasonal high water table and the firm, lower part of the subsoil and the firm substratum.

Most areas of this soil are used for hay and pasture (fig. 15) and as woodland. A few areas are used for cultivated crops.

This soil is poorly suited to farming. The main limitation is the seasonal high water table. The soil dries slowly in spring. It is difficult to drain because permeability is slow, runoff is slow or medium, and in most areas suitable drainage outlets are not available. Grazing when the soil is wet easily causes surface compaction. Rotation grazing helps to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. The seasonal high water table causes high seedling mortality and restricts the use of equipment. It also restricts the depth of the root zone; consequently, windthrow is a hazard.

The seasonal high water table and the slow or very slow permeability in the subsoil and the substratum are limitations to use of this soil as sites for most types of community development. There are few limitations, however, to use of Scantic silt loam as sites for sewage lagoons.

The soil is well suited to use as habitat for wetland wildlife.

This soil is in capability subclass IVw.

Sp—Searsport mucky peat. This soil is nearly level, deep, and very poorly drained. It is in depressional areas on outwash plains, deltas, and terraces. Most areas are irregular in shape, and range from about 5 to 50 acres. Slope generally ranges from 0 to 1 percent.

Typically, the surface layer is black mucky peat about 9 inches thick. The subsurface layer is very dark gray fine sandy loam and gray loamy fine sand about 3 inches thick. The substratum extends to a depth of 60 inches or

Figure 15.—Pasture and a smaller acreage of hayland on Scantic silt loam and low Buxton silt loam, 3 to 8 percent slopes.

more. It is mottled, dark gray loamy sand that grades with depth to olive gray very gravelly sand.

Included with this soil in mapping are small areas of Borosaprists. Borosaprists are very poorly drained and on landscapes similar to those of this Searsport soil. Also included are small areas of soils that are similar to this Searsport soil but that are shallow to bedrock or that have a mineral surface layer. The included soils make up about 15 percent of the map unit.

Permeability in this Searsport soil is rapid or very rapid. The available water capacity is moderate. Drainage and the depth of the root zone are restricted by the seasonal high water table, which is at or above the surface for most of the year. Surface runoff is very slow. Bedrock generally is at a depth of more than 5 feet.

This soil is very poorly suited to farming and to use as woodland. The main limitations are the seasonal high water table and the unstable surface layer. Most of the acreage of the soil is wooded. Woodland management practices are limited, except when the soil is frozen. Potential productivity for eastern white pine on this soil is high.

The seasonal high water table, the unstable surface layer, and the rapid permeability are the main limitations to use of this soil as sites for community development. If Searsport mucky peat is used as sites for septic tank absorption fields and sanitary landfills, the rapid permeability causes a hazard of ground water contamination.

This soil is well suited to use as habitat for wetland wildlife.

This soil is in capability subclass VIIw.

StB—Sheepscot fine sandy loam, 0 to 8 percent slopes. This soil is nearly level and gently sloping, deep, and moderately well drained. It formed in glaciofluvial deposits. It is in low areas on outwash plains, deltas, and terraces. Slopes generally are smooth and concave. Most areas are irregular in shape, and range from 3 to 50 acres.

Typically, the surface layer is very dark gray fine sandy loam about 1 inch thick. The subsurface layer is light gray fine sandy loam about 2 inches thick. The subsoil is about 22 inches thick. It is dark reddish gravelly fine sandy loam that grades with depth to mottled, light olive brown very gravelly sand. The substratum is olive extremely gravelly coarse sand to a depth of 60 inches or more.

Included with this Sheepscot soil in mapping are areas of Masardis, Adams, Naumburg, and Searsport soils. Masardis and Adams soils are somewhat excessively drained. They are in the higher positions on the landscape. Naumburg soils are somewhat poorly drained or poorly drained. Searsport soils are very poorly drained. Naumburg and Searsport soils are in the lower positions on the landscape. In some areas the surface layer is gravelly. The included soils make up about 20 percent of the map unit.

Permeability in this Sheepscot soil is moderately rapid in the surface layer and rapid or very rapid in the subsoil and the substratum. The available water capacity is moderate. Surface runoff is slow, and erosion is a slight hazard. Bedrock generally is at a depth of more than 60 inches.

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

This soil is suited to farming. The main limitations are the seasonal high water table during the early growing season and droughtiness during the peak growing season. If drainage is used where suitable outlets are available, the soil is suited to cultivated crops and hay and pasture. Green manure crops increase the organic matter content and improve soil tilth.

Potential productivity for eastern white pine on this soil is very high. During some months, especially in spring, the seasonal high water table limits use of equipment.

The seasonal high water table and the rapid permeability are limitations to use of this soil as sites for community development. If the soil is used as sites for septic tank absorption fields and sanitary landfills, the rapid permeability causes a hazard of ground water contamination. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent roads and streets caused by frost action. The soil is a probable source of sand and gravel.

This soil is in capability subclass IIw.

Su—Sulfihemists and Sulfaquents, frequently flooded. This map unit consists of level to depressional, deep, very poorly drained soils in tidal areas along streams and coastal beaches. These soils are subject to tidal flooding. Areas of these soils range from 4 to 100 acres, and have small, narrow drainage channels. Some areas are entirely Sulfihemists, some are entirely Sulfaquents, and some consist of both. The use and management of these soils are so similar that it was not necessary to map them separately. Slopes dominantly are less than 1 percent.

Sulfihemists make up about 60 percent of the acreage of this map unit. They differ from area to area. Generally, the surface layer of these soils consists of very dark grayish brown or black, decomposed, saltwater marsh grasses mixed with varying amounts of fine textured mineral material. Below that, there is a layer of dark gray or black, decomposed saltwater marsh grasses that is high in content of mineral and sulfidic materials. The organic layers range from 18 to 60 inches in thickness. The underlying material is very dark gray silt loam, but ranges to fine sandy loam and silty clay. In the upper part the content of organic material is high.

Sulfaquents make up about 30 percent of the acreage of this map unit. They differ from area to area. Generally, the surface layer consists of black or very dark grayish brown, well decomposed organic material derived mainly from saltwater marsh grasses. The underlying material extends to a depth of 60 inches or more. It is very dark grayish brown or very dark gray silt loam. In the upper part the content of organic and sulfidic materials is high.

Included with these soils in mapping are small areas of Biddeford, Medomak, and Swanville soils. These soils are not subject to tidal flooding. Biddeford and Medomak soils are very poorly drained. Swanville soils are poorly drained. The included soils make up about 10 percent of the map unit.

Permeability in Sulfihemists and Sulfaquents is moderate to rapid. The available water capacity is high. Surface runoff is very slow or slow. Internal drainage and the depth of the root zone are restricted by the seasonal high water table, which is near or above the surface most of the year. These soils are slightly acid to strongly acid at the surface and neutral below the surface.

In most areas these soils are used as habitat for wetland wildlife, especially nesting and feeding waterfowl. The high salt content and flooding are limitations to most uses other than as habitat for wetland wildlife. In most areas the vegetation consists of salt-tolerant grasses and weeds, such as salt meadowgrass, saltwater cordgrass, and blackgrass.

These soils are in capability subclass VIIIw.

Sw—Swanville silt loam. This soil is nearly level, deep, and poorly drained. It is in the low-lying areas on marine and lacustrine plains near the coast and in the northern part of the survey area. Slopes generally are smooth, slightly convex, and about 100 to 500 feet long. They range from 0 to 3 percent. Most areas are irregular in shape, and range from about 5 to 100 acres.

Typically, the surface layer is dark brown and mottled, dark grayish brown silt loam abut 9 inches thick. The subsoil is mottled, olive silt loam about 17 inches thick. The substratum is mottled, olive gray silt loam and olive silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Biddeford, Scantic, Boothbay, and Buxton soils. Biddeford soils are very poorly drained. They are in depressions. Scantic soils are poorly drained. Boothbay and Buxton soils are moderately well drained or somewhat poorly drained. Boothbay and Buxton soils are in the higher positions on the landscape. Also included are small areas of Lyman and Tunbridge soils. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Lyman and Tunbridge soils are on small upland knolls. The included soils make up about 15 percent of the map unit.

Permeability in this Swanville soil is moderate in the surface layer and moderately slow or slow in the subsoil and the substratum. The available water capacity is high. Surface runoff is slow or medium, and erosion is a slight hazard. Bedrock generally is at a depth of more than 60 inches. The depth of the root zone is restricted by the seasonal high water table, which is near the surface for most of the year.

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

This soil is poorly suited to farming. The main limitation is the seasonal high water table. The soil is difficult to drain because of the slow permeability and because in many areas suitable drainage outlets are not available. The soil dries slowly in spring. Grazing when the soil is wet easily causes surface compaction. Rotation grazing helps to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. The main limitation is the seasonal high water table. The seasonal high water table causes high seedling mortality, and it restricts the use of equipment. It also restricts the depth of the root zone; consequently, windthrow is a hazard.

The seasonal high water table and the moderately slow or slow permeability in the subsoil and the substratum are limitations to use of the soil for most types of community development. There are few limitations for sites for sewage lagoons. In some areas heaving of the soil by frost action is a hazard if the soil is used as sites for roads and streets. Providing a coarser grained subgrade or base material to frost depth helps to prevent the damage to roads and streets caused by frost action.

This soil is well suited to use as habitat for wetland wildlife.

This soil is in capability subclass IVw.

TrB—Tunbridge-Lyman fine sandy loams, 3 to 8 percent slopes. This map unit consists of gently sloping and undulating soils. In a typical area it is 55 percent Tunbridge soil, 25 percent Lyman soil, and 20 percent other soils. The Tunbridge soil is moderately deep and well drained. The Lyman soil is shallow and somewhat excessively drained. Tunbridge and Lyman soils are intermingled so closely that it was not practical to map them separately. Areas of these soils are on glaciated, upland ridges and on low, coastal ridges. Most areas are oblong or round in shape, and range from 4 to 60 acres. Slopes generally are smooth and convex, and are about 100 to 500 feet long.

Typically, the surface layer of the Tunbridge soil is dark brown fine sandy loam about 8 inches thick. The subsoil is about 18 inches thick. It is yellowish red fine sandy loam that grades with depth to dark yellowish brown gravelly fine sandy loam. The substratum is olive gravelly fine sandy loam to a depth of about 31 inches. Bedrock is at a depth of about 31 inches.

Typically, the surface layer of the Lyman soil is very dark brown fine sandy loam about 8 inches thick. The subsoil is dark yellowish brown and yellowish brown gravelly fine sandy loam to a depth of about 16 inches. Bedrock is at a depth of about 16 inches.

Included with these soils in mapping are small areas of Marlow, Berkshire, Peru, Brayton, and Brayton Variant soils. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Brayton and Brayton Variant soils are somewhat poorly drained or poorly drained. These included soils are in the lower positions on the landscape. Also included in the higher positions are areas of soils that are less than 10 inches deep to bedrock. Also included are a few small areas of Borosaprists and Buxton, Boothbay, Scantic, and Swanville soils. Borosaprists are very poorly drained. Buxton and Boothbay soils are moderately well drained or somewhat poorly drained. Scantic and Swanville soils are poorly drained. Buxton, Boothbay, Scantic, and Swanville soils are in map units adjacent to the coast and in some low-lying, inland valleys. The included soils make up about 20 percent of the map unit.

Permeability in the Tunbridge and Lyman soils is moderately rapid. The available water capacity is moderate in the Tunbridge soil and low in the Lyman soil. On both soils, surface runoff is slow or medium and erosion generally is a slight hazard. Bedrock in both soils restricts water movement and the depth of the root zone. Bedrock is at a depth of 20 to 40 inches in the Tunbridge soil and at a depth of 10 to 20 inches in the Lyman soil.

Many areas of these soils are used as woodland. Some areas are used for hay, pasture, cultivated crops, and lowbush blueberries or are in nonfarm uses. The main cultivated crop is silage corn, but a few areas are used for potatoes and as small gardens.

These soils are suited to most cultivated crops. The main limitations are depth to bedrock and droughtiness during the growing season. The Tunbridge soil is better suited to silage corn than is the Lyman soil. Winter cover crops, contour farming, and stripcropping help to control erosion.

These soils are suited to well suited to hay and pasture. The Tunbridge soil is better suited to hay and pasture than is the Lyman soil. On pasture, overgrazing can cause excessive erosion. Grazing when the soil is wet causes surface compaction. Rotation grazing and deferred grazing when the soil is wet help to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine is very high on the Tunbridge soil and high on the Lyman soil. On the Lyman soil, windthrow is a hazard because of shallowness to bedrock.

Depth to bedrock is the main limitation to use of these soils for community development.

These soils are in capability subclass IIe.

TrC—Tunbridge-Lyman fine sandy loams, 8 to 15 percent slopes. This map unit consists of strongly sloping and rolling soils. In a typical area it is 55 percent Tunbridge soil, 25 percent Lyman soil, and 20 percent other soils. The Tunbridge soil is moderately deep and well drained. The Lyman soil is shallow and somewhat excessively drained. The Tunbridge and Lyman soils are intermingled so closely on the landscape that it was not practical to map them separately. Areas of these soils are on glaciated, upland ridges and on low, coastal ridges. Most areas are oblong or round in shape, and range from 4 to 100 acres. Slopes generally are smooth and convex, and are about 100 to 500 feet long.

Typically, the surface layer of the Tunbridge soil is dark brown fine sandy loam about 8 inches thick. The subsoil is about 18 inches thick. It is yellowish red fine sandy loam that grades with depth to dark yellowish brown gravelly fine sandy loam. The substratum is olive gravelly fine sandy loam to a depth of about 31 inches. Bedrock is at a depth of about 31 inches.

Typically, the surface layer of the Lyman soil is very dark brown fine sandy loam about 8 inches thick. The subsoil is dark yellowish brown and yellowish brown gravelly fine sandy loam to a depth of about 16 inches. Bedrock is at a depth of about 16 inches.

Included with these soils in mapping are small areas of Marlow, Berkshire, Peru, Brayton, and Brayton Variant soils in the lower positions on the landscape. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Brayton and Brayton Variant soils are somewhat poorly drained or poorly drained. Also included, in the higher positions, are areas of soils that are less than 10 inches deep to bedrock. Also included are a few small areas of Borosaprists and Buxton, Boothbay, Scantic, and Swanville soils. Borosaprists are very poorly drained. They are between shallow areas. Buxton and Boothbay soils are moderately well drained or somewhat poorly drained. Scantic and Swanville soils are poorly drained. Buxton, Boothbay, Scantic, and Swanville soils are in map units adjacent to the coast and in some low-lying, inland valleys. The included soils make up about 20 percent of the map unit.

Permeability of these Tunbridge and Lyman soils is moderately rapid. The available water capacity is moderate in the Tunbridge soil and low in the Lyman soil. On both soils, surface runoff is medium and erosion generally is a moderate hazard. Bedrock in both soils restricts water movement and the depth of the root zone. Bedrock is at a depth of 20 to 40 inches in the Tunbridge soil and 10 to 20 inches in the Lyman soil.

Many areas of these soils are used as woodland. Some areas are used for hay, pasture, cultivated crops, and lowbush blueberries or are in nonfarm uses. The main cultivated crop is silage corn. A few areas are used for potatoes and as small gardens.

These soils are poorly suited to most cultivated crops. The main limitation is slope. The other limitations are depth to bedrock and droughtiness during the growing season. The Tunbridge soil is better suited to silage corn than is the Lyman soil. Winter cover crops, contour farming, and stripcropping help to control erosion.

These soils are suited to well suited to hay and pasture. The Tunbridge soil is better suited to hay and pasture than is the Lyman soil. On pasture, overgrazing causes excessive erosion. Grazing when the soil is wet causes surface compaction.

Potential productivity for eastern white pine is very high on the Tunbridge soil and high on the Lyman soil. On the Lyman soil, windthrow is a hazard because of depth to bedrock, and seedling mortality is high because of droughtiness. On both soils, laying out roads and skid trails on the contour helps to control erosion.

Slope and depth to bedrock are the main limitations to use of these soils as sites for community development.

These soils are in capability subclass IIIe.

TrD—Tunbridge-Lyman fine sandy loams, 15 to 25 percent slopes. This map unit consists of moderately steep and hilly soils. In a typical area it is 55 percent Tunbridge soil, 25 percent Lyman soil, and 20 percent other soils. The Tunbridge soil is moderately deep and well drained. The Lyman soil is shallow and somewhat excessively drained. The Tunbridge and Lyman soils are intermingled so closely that it was not practical to map them separately. Areas of these soils are on glaciated, upland ridges and on low, coastal ridges. Most areas are oblong or round in shape, and range from 4 to 80 acres. Slopes generally are smooth and convex, and are about 100 to 300 feet long.

Typically, the surface layer of the Tunbridge soil is dark brown fine sandy loam about 8 inches thick. The subsoil is about 18 inches thick. It is yellowish red fine sandy loam that grades with depth to dark yellowish brown gravelly fine sandy loam. The substratum is olive gravelly fine sandy loam to a depth of about 31 inches. Bedrock is at a depth of about 31 inches.

Typically, the surface layer of the Lyman soil is very dark brown fine sandy loam about 8 inches thick. The subsoil is dark yellowish brown and yellowish brown gravelly fine sandy loam to a depth of about 16 inches. Bedrock is at a depth of about 16 inches.

Included with these soils in mapping are small areas of Marlow, Berkshire, and Peru soils in the lower positions on the landscape. Marlow and Berkshire soils are well drained. Peru soils are moderately well drained. Also included, in the higher positions, are areas of soils that are less than 10 inches deep to bedrock. Also included are a few small areas of Buxton, Boothbay, Scantic, and Swanville soils. Buxton and Boothbay soils are moderately well drained or somewhat poorly drained. Scantic and Swanville soils are poorly drained. Buxton, Boothbay, Scantic, and Swanville soils are included in map units adjacent to the coast and in some low-lying, inland valleys. Also included are areas of soils that have slope of more than 25 percent. The included soils make up about 20 percent of the map unit.

Permeability in these Tunbridge and Lyman soils is moderately rapid. The available water capacity in the Tunbridge soil is moderate and low in the Lyman soil. Surface runoff is medium, and erosion is a severe hazard. Bedrock in both soils restricts water movement and the depth of the root zone. Bedrock is at a depth of 20 to 40 inches in the Tunbridge soil and at a depth of 10 to 20 inches in the Lyman soil.

Many areas of these soils are used as woodland. Some areas are used for hay, pasture, and lowbush blueberries.

These soils are poorly suited to cultivated crops. The main limitation is slope. Winter cover crops, contour farming, terracing, and stripcropping help to control erosion; however, cover crops, cultivated crops, and stripcrops are difficult to establish and maintain.

These soils are poorly suited to hay and pasture. The main limitation is slope. Erosion is a hazard. The Tunbridge soil is better suited to hay and pasture than is Lyman soil. Overgrazing causes excessive erosion, and grazing when the soil is wet causes surface compaction.

Potential productivity for eastern white pine is very high on the Tunbridge soil and high on the Lyman soil. Erosion is a hazard. On the Lyman soil, windthrow is a hazard because of depth to bedrock, and seedling mortality is high because of droughtiness. On both soils, laying out roads and skid trails on the contour helps to control erosion.

Slope is the main limitation to use of these soils as sites for community development.

These soils are in capability subclass IVe.

Ud—Udorthents-Urban land complex. This map unit consists of Udorthents, or fill material, and areas of Urban land. In a typical area it is 50 percent Udorthents, or fill material, 30 percent Urban land, and 20 percent other areas. The fill material has been placed on poorly drained to somewhat excessively drained soils. Areas of Urban land are largely covered by asphalt, buildings, concrete, and other impervious surfaces. Areas of this map unit are used as sites for buildings, parking lots, roads, railroads, airports, and other nonfarm uses. Areas range from about 3 to 70 acres. The tops of most areas are nearly level, and the sides very steep.

The fill material differs in origin, but is at least 20 inches thick. In some areas it consists of sandy, gravelly, loamy, or clayey materials or fragments of bedrock. In other areas it consists of waste materials mixed with or covered by soil material.

Included with this unit in mapping are areas of waste material from razed buildings; some of this waste material is mixed with soil material. Also included are small areas of soils that have not been significantly altered by filling or excavation. The included areas make up about 20 percent of the map unit.

The properties of the soils in this map unit differ greatly from place to place. Consequently, onsite investigation is needed to determine the suitability of the map unit for a particular use.

This map unit is not assigned to a capability class.

Prime Farmland

Prime farmland is one of several kinds of important farmlands defined by the U.S. Department of Agriculture. Identification of prime farmland is a major step in meeting the Nation's needs for food and fiber.

The U.S. Department of Agriculture defines prime farmland as the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to produce a sustained high yield of crops while using acceptable farming methods. Prime farmland produces the highest yields and requires minimal amounts of energy and economic resources, and farming it results in the least damage to the environment.

An area identified as prime farmland must be used for producing food or fiber or must be available for those uses. Thus, urban and built-up land and water areas are not classified as prime farmland.

The general criteria for prime farmland are as follows: a generally adequate and dependable supply of moisture from precipitation or irrigation, favorable temperature and growing-season length, acceptable levels of acidity or alkalinity, few or no rocks, and permeability to air and water. Prime farmland is not excessively erodible, is not saturated with water for long periods, and is not flooded during the growing season. The slope range is from 0 to 8 percent. For more detailed information on the criteria for prime farmland, consult the local staff of the Soil Conservation Service.

About 26,300 acres in Knox County, or nearly 11 percent of the county, and about 39,300 acres in Lincoln County, or nearly 13 percent of the county, are prime farmland. The areas are scattered throughout the the survey area, but are mainly in map units 1, 2, 3, 4, and 6 on the general soil map. Much of this prime farm land is used for crops, mainly hay, corn silage, and apples. A small acreage is planted with potatoes, vegetables, and other cultivated crops. Other areas are used mainly as woodland, but also for pasture.

The soil map units that make up prime farmland in the survey area are listed below. This list does not constitute a recommendation for a particular land use. The extent of each listed map unit is shown in table 4, and the location of each unit is shown on the detailed soil maps at the back of this publication. The soil properties and characteristics that affect use and management of the units are described in the section "Detailed soil map units."

Some soils are classified as prime farmland if certain limitations of the soil are overcome. The measures needed to overcome the limitations of such soils are given in parentheses after the name of the map unit.

AgA Allagash fine sandy loam, 0 to 3 percent slopes
AgB Allagash fine sandy loam, 3 to 8 percent slopes
BoB Boothbay silt loam, 3 to 8 percent slopes
BuB Buxton silt loam, 3 to 8 percent slopes
EgB Eldridge fine sandy loam, 3 to 8 percent slopes
Le Lovewell very fine sandy loam (where not frequently flooded)
MaB Madawaska fine sandy loam, 3 to 8 percent slopes
MrB Marlow fine sandy loam, 3 to 8 percent slopes
MtB Marlow-Berkshire fine sandy loams, 3 to 8 percent slopes
PaB Peru fine sandy loam, 3 to 8 percent slopes

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

Gerald R. Krause, conservation agronomist, Soil Conservation Serivce assisted in writing this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

In 1978, according to the Census of Agriculture, 11,129 acres in Knox County was used for crops and pasture. Of that total, 2,667 acres was used for pasture; 6,671 acres was used for harvested crops, mainly hay; and 1,791 acres was used for other crops. In the same year, 11,216 acres in Lincoln County was used for crops and pasture. Of that total, 2,329 acres was used for pasture, 7,827 acres was used for harvested crops, mainly hay, and 1,060 acres was used for other crops (*10*).

Drainage is needed on about two-thirds of the acreage used as cropland in the survey area. Natural drainage is inadequate because of the seasonal high water table.

The seasonal high water table in most soils is the result of their position on the landscape. The soils are mainly at the lower elevations, and the amount of water in the soils is increased by the surface runoff from higher areas. Some gently sloping soils have a seasonal high water table because runoff is slow and infiltration is greater. Soils where permeability in the subsoil and substratum is slow or moderate or where substratum is compact can also have a seasonal high water table. Marlow soils, for example, are well drained but have a seasonal high water table for a short time in spring because permeability in the substratum is restricted.

Soils that have a seasonal high water table, such as Biddeford, Medomak, and Searsport soils, tend to dry and warm slowly in spring and thus delay planting. Soils that have a high water table for the entire year are very poorly suited to crop production. These are Borosaprists, Sulfaquents, and Sulfihemists. All of these soils are very poorly drained.

Erosion is a hazard on about one-third of the cropland in the survey area. This cropland is mainly on soils that have slope of more than 3 percent, such as Allagash, Berkshire, Marlow, and Tunbridge soils. In addition to the erosion hazard, the seasonal high water table is a limitation on Boothbay, Buxton, Eldridge, Madawaska, and Peru soils.

Loss of the surface soil is especially damaging on soils that have a clayey subsoil or substratum, such as Boothbay, Buxton, and Eldridge soils. It is damaging on soils where bedrock is near the surface, such as Tunbridge and Lyman soils. It is also damaging to soils that have a restrictive layer in or below the subsoil. Marlow and Peru soils, for example, have a compact substratum.

Contour farming, terracing, using conservation tillage, stripcropping, and constructing diversions help to control erosion. Using a cropping system that keeps a plant cover on the soil for extended periods also helps to control erosion. On sloping soils, using the soils for pasture and hay or including legumes in the cropping system help to control erosion, to add nitrogen to the soils, and to improve soil tilth for the following crop.

Fall plowing generally is not a good practice on the soils in the survey area because erosion is a hazard in winter and spring. About one-half of the tilled cropland is on sloping soils that are subject to excessive erosion unless protected by a winter cover crop, such as winter rye.

Fertility is naturally low in the upland soils. Most of these soils are also naturally extremely acid to strongly acid. Soils on flood plains, such as Lovewell and Charles soils, range from very strongly acid to slightly acid. Such soils generally have a greater amount of plant nutrients than do most of the upland soils.

Most of the soils in the survey area used as cropland have been limed and fertilized many times. This has altered the natural fertility and acidity of the soils. On most soils that have never been limed, substantial applications of lime are needed to offset the acidity. Thus, these soils can be used for alfalfa and other crops. Also, in most of these soils the levels of available phosphorus and potassium are naturally low.

The organic matter in soil is an important source of nitrogen for crops. It also helps to maintain soil tilth, to increase the rate of water intake, to control erosion, and to prevent surface crusting. On most of the soils used for crops, the surface layer is loam, silt loam, or fine sandy loam and originally the organic matter content was adequate. After years of continuous cropping on many of these soils, however, the organic matter content in the surface layer is low and the soil structure generally is weak. Intense rainfall causes the formation of a surface crust, which reduces infiltration and increases runoff. Regularly adding crop residue and manure helps to improve soil tilth, to reduce crust formation, and to maintain the organic matter content of the surface layer.

Field crops suited to many of the soils in the survey area are the commonly grown row crops, such as silage corn, high-moisture corn, potatoes, and squash. Timothy and clover are the common crops used for hay silage and green feed. Alfalfa, orchardgrass, bromegrass, millet, and oats are grown for hay, hay silage, and pasture.

Specialty crops grown in the survey area include vegetables, small fruits, and tree fruits, mainly apples. A small acreage is used for strawberries, native lowbush blueberries, and vegetable gardens.

Yields Per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

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. Yield data for crops grown on a limited acreage such as high-moisture corn, is not available. However, it is estimated that 5 bushels of high-moisture corn can be expected for each ton of corn silage.

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 ensures 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 for those crops.

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 criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include 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 for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. The 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, 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 "Detailed Soil Map Units" and in the yields table.

Woodland Management and Productivity

James Spielman, forester, Soil Conservation Service, helped to prepare this section.

Commercial forestland, according to a 1972 survey, takes in about 70 percent, or 165,000 acres, of the land area in Knox County and about 75 percent, or 217,400 acres, of the land area in Lincoln County (*4*). Of the total commercial forestland in the two counties, about 30 percent is the spruce-fir forest type. In addition, 25 percent is the white pine-red pine-hemlock type and 20 percent is the elm-ash-red maple type. In addition, 11 percent is the maple-beech-birch type, 9 percent is the aspen-birch type, and 5 percent is the oak and oak-pine type. Sawtimber-sized stands make up approximately 20 percent of the total commercial woodland.

The main wood products are building materials, pulp and paper, lobster traps, pallets, furniture, and fuelwood.

Many woodland owners give a higher priority to such values as recreation, wildlife habitat, and aesthetics or to personal reasons for owning land than to wood production.

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 in the tables. The table gives the ordination 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 an indicator tree species. The number indicates the volume, in cubic meters per hectare per year, that the indicator species can produce. The larger the number, the greater the potential productivity. The number 1 indicates low productivity; 2 and 3, moderate; 4 and 5, moderately high; 6 through 8, high; 9 through 11, very high; and 12 or more, extremely high. The second part of the symbol, a letter, indicates the major kind of soil limitation for use and management. The letter *R* indicates steep slopes; *X*, stones or rocks on the surface; *W*, excessive water in or on the soil; *D*, restricted rooting depth caused by bedrock, hardpan, or other restrictive layer; *S*, sandy texture. The letter *A* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: R,X,W,D,S.

In table 7, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Erosion hazard is the probability that erosion can occur as a result of site preparation or following cutting operations and where the soil is exposed, for example, roads, skid trails, fire lanes, and log handling areas. Forests that are abused by fire or overgrazing are also subject to erosion. The ratings for the erosion hazard are based on the percent of the slope and on the erosion factor K shown in table 7. A rating of *slight* indicates that no particular measures to prevent erosion are needed under ordinary conditions. A rating of *moderate* indicates that erosion control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

The proper construction and maintenance of roads, trails, landings, and fire lanes will help overcome the erosion hazard.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface, rock outcrops, soil wetness, and texture of the surface layer. A rating of *Slight* indicates that equipment use normally is not restricted either in kind of equipment that can be used or time of year because of soil factors. If soil wetness is a factor, equipment use can be restricted for a period not to exceed 2 months. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If soil wetness is a factor, equipment use is restricted for 2 to 6 months. A rating of *severe* indicates that equipment use is severely restricted either in kind of equipment or season of use. If soil wetness is a factor, equipment use is restricted for more than 6 months.

Choosing the most suitable equipment and timing harvesting and other management operations to avoid seasonal limitations help overcome the equipment limitation.

Seedling mortality refers to the probability of death of naturally occuring or planted tree seedlings as influenced by kinds of soil or topographic conditions. The factors considered in rating the soils for seedling mortality are texture of the surface layer, depth and duration of the water table, rock fragments in the surface layer, rooting depth, and aspect of the slope. A rating of *slight* indicates that under usual conditions the expected mortality is less than 25 percent. A rating of *moderate* indicates that the expected mortality is 25 to 50 percent. Extra precautions are advisable. A rating of *severe* indicates that the expected mortality is more than 50 percent. Extra precautions are important. Replanting may be necessary.

The use of special planting stock and special site preparation, such as bedding, furrowing, or surface drainage, can help reduce seedling mortality.

Windthrow hazard is the likelihood of trees being uprooted (tipped over) by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions are a seasonal high water table and bedrock or a fragipan or other limiting layer. A rating of *slight* indicates that normally no trees are blown down by the wind. Strong winds may break trees but do not uproot them. A rating of *moderate* indicates that moderate or strong winds occasionally blow down a few trees during periods of soil wetness. A rating of *severe* indicates that moderate or strong winds may blow down many trees during periods of soil wetness.

The use of specialized equipment that does not damage surficial root systems during partial cutting operations can help reduce windthrow. Care in thinning or no thinning also can help reduce windthrow.

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. Common 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.

The *productivity class*, a number, represents an expected volume produced by the most important trees. This number, expressed as cubic meters per hectare per year, indicates the amount of fiber produced on a fully stocked, even-aged, unmanaged stand. One cubic meter per hectare equals 14.3 cubic feet per acre.

The first tree species listed under common trees for a soil is the indicator species for that soil. The indicator species is the species that is common in the area and is generally the most productive on the soil. The productivity class of the indicator species is the number used for the ordination symbol.

Trees to plant are those that are suited to the soil and are planted for commercial wood production.

Recreation

The major public recreation areas in Knox and Lincoln Counties are Camden Hills and Damariscotta Lake State Parks and Birch Point Beach. Some other recreation areas, which are state-owned or publicly owned, are Fort Edgecomb, Waldo Tyler Marsh, and Fort William Henry. The Camden Snow Bowl, also publicly owned, is a major ski area. Several towns own recreation areas on lake shores or on the coast. All these areas have picnic areas, and some areas offer swimming, boating, camping, and hiking.

Private recreation areas in the survey area are plentiful. They include camping areas, golf courses, snowmobile trails, youth camps, and horseback riding trails. Inland lakes and streams also provide opportunities for recreation.

The soils of the survey area are rated in table 8 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 8, 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 8 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 firm, dense layer should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Robert J. Wengrzynek, biologist, Soil Conservation Service, helped to prepare this section.

The kind and abundance of wildlife depend largely on the quality, amount, and distribution of habitat elements which provide food, shelter, and water. If any elements are missing, inadequate, or inaccessible, wildlife may become scarce or absent. Habitat elements are closely related to land use, to the resulting kinds and patterns of vegetation, and to the distribution of wetlands, streams, and ponds. These, in turn, generally are related to the kinds and productivity of the soils, which have influenced land use patterns.

Although vegetation and land use patterns are important influences on the kind, distribution, and abundance of wildlife, soils are at least equally important. Vegetation, such as browse, fruits, and forage, produced on fertile soils is richer in protein and trace elements than that grown on poorer soils. Nutrition affects survival, reproduction, and other physiological processes of wildlife in the same way as it affects domestic livestock.

Soil nutrients are known to affect the size and health of deer. Together with moisture they can make browse more palatable and nutritious.

The reproductive success of some birds is related to the calcium in soil. The weight and size of bones in animals and the quality of fur on furbearers is related to diet, soil minerals, and soil fertility.

The soil type and nutrient level of soils and agricultural land use patterns are related. These factors combined are the main reasons why wildlife is usually abundant in areas of productive agriculture.

The pattern of land use in Knox and Lincoln Counties is diverse. The climate is moderate. And, the mixture of forest types provide good to excellent habitat for wildlife.

More than 32,000 acres of wetlands, along with cropland, fields of blueberries, hayland, and pasture, provide a wide variety of habitat elements for wildlife.

There are more deer per square mile of habitat in midcoastal areas than in any other areas in Maine. The wetlands are among the best in the state for waterfowl production. Moose and bear occasionally are found in the northern part of the survey area. Recently, there have been attempts to reestablish wild turkeys in midcoastal areas. Climate, diversity in land use, forest type, and soil productivity are factors that can influence the survival of turkeys.

Soils affect the type, amount, and quality of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. Wildlife habitat can be created or improved by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants, or by planting vegetation that is suitable for habitat and adapted to the climate.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be useful in selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat, and in determining the degree of management needed. Knowledge of habitat and soil relationships can be used in planning farms, rural residences, parks, wildlife refuges, nature study areas, and land management developments for wildlife.

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, sorghum, 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 ryegrass, red top, flat pea, vetch, bluegrass, switchgrass, thomthy, trefoil, fescue, timothy, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are meadow rye, thistle, mustard, goldenrod, asters, hawkweed, and milkweed.

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, available water capacity, and wetness. Examples of these plants are oak, aspen, cherry, maple, beech, birch, alder, willow, apple, hawthorn, dogwood, blackberry, sumac, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, dogwood, blueberry, raspberry, elderberry, and crabapple.

Coniferous plants furnish browse and seeds. 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, yew, cedar, and hemlock.

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, burreed, wildrice, cat tails, cordgrass, rushes, and sedges.

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, swamps, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobolink, sparrow, hawk, meadowlark, field sparrow, meadow vole, woodchuck, 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, woodpeckers, squirrels, coyote, red fox, raccoon, moose, bear, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, rails, shore birds, muskrat, mink, otter, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 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, slope, 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 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 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 features 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 or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. 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, and 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, more 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 as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by 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, and bedrock.

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 or 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, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones, boulders, or organic matter. 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 and permeability of the aquifer. 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 caving. The productivity of the soil after drainage is adversely affected by extreme acidity in the root zone. Availability of drainage outlets is not considered in the ratings.

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 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 affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

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 holes are dug and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 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 Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, 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, CL-ML.

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.

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 ovendry 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 generally 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 earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. A dash indicates that the soil is not likely to be cultivated.

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.

Some soils in table 16 are assigned to two hydrologic soil groups. Dual grouping is used for one of two reasons: (1) Some soils have a seasonal high water table but can be drained. In this instance the first letter applies to the drained condition of the soil and the second letter to the undrained condition. (2) In some soils that are less than 20 inches deep to bedrock, the first letter applies to areas where the bedrock is cracked and pervious and the second letter to areas where the bedrock is impervious or where exposed bedrock makes up more than 25 percent of the surface of the soil.

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 high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable period of occurrence are estimated. Frequency generally is expressed as *none, rare, occasional, common,* or *frequent. None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (there is a near 0 to 5 percent chance of flooding in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (there is a 5 to 50 percent chance of flooding in any year). *Frequent* means that flooding occurs often under normal weather conditions (there is more than a 50 percent chance of flooding in any year). *Common* is used when classification as occasional or frequent does not affect interpretations. Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month). The time of year that floods are most likely to occur is expressed in months. Nov-May, for example, means that flooding usually can occur during the period November through May. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding 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, which are characteristic of soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely, grayish colors or mottles in the soil. Indicated in table 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 highest. 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. 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.

The two numbers in the "High water table-Depth" column indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that the water table exists for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured clayey soils that have a high water table in winter are the 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.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*9*). 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. Table 17 shows the classification of the soils in the survey area. 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, water, 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 of accumulated 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, 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. The texture of the surface layer or of the substratum can differ within a series. An example is the Adams series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the *Soil Survey Manual* (*8*). Many of the technical terms used in the descriptions are defined in *Soil Taxonomy* (*9*). 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 relationship among the soil series and other taxa to position on the landscape, parent material, and drainage is shown in table 18.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Adams Series

The Adams series consists of deep, somewhat excessively drained soils. These soils formed in glaciofluvial sands derived from crystalline rock. They are on terraces, kames, deltas, outwash plains, and old beaches. Slope ranges from 3 to 25 percent.

Adams soils are adjacent to Allagash, Eldridge, Madawaska, Masardis, Naumburg, Searsport, and Sheepscot soils. Allagash soils are well drained. Eldridge, Madawaska, and Sheepscot soils are moderately well drained. Masardis soils are somewhat excessively drained. Naumburg soils are poorly drained or somewhat poorly drained. Searsport soils are very poorly drained. Adams soils have fewer coarse fragments than Masardis soils. Adams soils have a solum that is coarser textured than that in Allagash soils.

Typical pedon of Adams loamy fine sand, 3 to 8 percent slopes, in a wooded area in the town of Newcastle, 1 mile south of the village of Sheepscot on dead-end road, 50 feet west of road:

O1—2 inches to 1 inch; undecomposed leaf litter.

O2—1 inch to 0; black (5YR 2/1) decomposed forest litter; weak very fine and fine granular structure; very friable; many very fine to medium roots; very strongly acid; abrupt smooth boundary.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) loamy fine sand, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many very fine and fine and common medium roots; very strongly acid; abrupt smooth boundary.

B21ir—6 to 9 inches; dark brown (7.5YR 4/4) loamy fine sand; weak fine granular structure; very friable; common very fine and fine and few medium roots; very strongly acid; clear wavy boundary.

B22—9 to 15 inches; yellowish brown (10YR 5/6) loamy sand; weak fine granular structure; very friable; common very fine and fine and few medium roots; strongly acid; clear wavy boundary.

B3—15 to 22 inches; light olive brown (2.5Y 5/4) sand; single grain; loose; few very fine to medium roots; strongly acid; gradual wavy boundary.

C—22 to 60 inches; light yellowish brown (2.5Y 6/4) sand; single grain; loose; moderately acid.

The solum ranges from 20 to 30 inches in thickness. These soils typically do not have gravel. In some pedons gravel makes up as much as 5 percent of the volume to a depth of 20 inches and as much as 10 percent of the volume below that depth. Except where the soils have been limed, reaction is very strongly acid or strongly acid in the solum and ranges from very strongly acid to moderately acid in the substratum.

The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. In undisturbed areas a very dark grayish brown or black O2 horizon overlies an A2 horizon and a B21h horizon. The A2 horizon has hue of 5YR to 10YR, value of 5 to 7, and chroma of 1 or 2.

Some pedons have a Bh horizon that has hue of 2.5YR or 5YR, value of 2 or 3, and chroma of 2 to 4. The Bir horizon and the lower part of the B2 horizon have hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 or 6. The B3 horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4. The B horizon in the upper part is loamy fine sand or loamy sand and in the lower part is loamy sand, fine sand, or sand.

The C horizon has hue of 2.5Y, value of 5 or 6, and chroma of 2 to 4. It is sand or coarse sand.

Allagash Series

The Allagash series consists of deep, well drained soils. These soils formed in material derived mainly from slate, granite, and quartzite. They are on stream terraces and outwash plains. Slope ranges from 0 to 15 percent.

Allagash soils are adjacent to Adams, Eldridge, Madawaska, Masardis, Naumburg, and Searsport soils. They have less sand in the solum than Adams soils. They have a substratum that is coarser textured than that in Eldridge soils. Madawaska soils are moderately well drained. Naumburg soils are poorly drained or somewhat poorly drained. Searsport soils are very poorly drained. Allagash soils have fewer coarse fragments in the solum than Masardis soils.

Typical pedon of Allagash fine sandy loam, 0 to 3 percent slopes, in a cultivated field in the town of Dresden, 0.8 mile north of bridge over Eastern River on Maine Route 128 and 0.1 mile east of road:

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) fine sandy loam, light yellowish brown (2.5Y 6/4) dry; weak fine and medium granular structure; very friable; common very fine and fine roots; strongly acid; abrupt smooth boundary.

B21—8 to 12 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; very friable; common very fine and fine roots; strongly acid; clear wavy boundary.

B22—12 to 22 inches; light olive brown (2.5Y 5/4) fine sandy loam; weak fine granular structure; very friable; common very fine roots; strongly acid; clear wavy boundary.

B23—22 to 28 inches; olive brown (2.5Y 4/4) fine sandy loam; weak fine granular structure; very friable; strongly acid; clear wavy boundary.

IIC—28 to 60 inches; olive gray (5Y 5/2) fine sand; single grain; loose; moderately acid.

The solum ranges from 15 to 35 inches in thickness. Coarse fragments, mainly pebbles, range from 0 to 15 percent above a depth of 40 inches. Reaction ranges from very strongly acid to slightly acid throughout, except where the soils have been limed.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. Some pedons have an A2 horizon that has hue of 10YR, value of 5 or 6, and chroma of 1 or 2.

Some pedons have a Bh horizon that has hue of 2.5YR or 5YR and value and chroma of 2 to 4. Some pedons have a Bir horizon that has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 or 8. The lower part of the B2 horizon has hue of 10YR or 2.5Y, value of

4 or 5, and chroma of 4 to 6. The B horizon is fine sandy loam and, in the upper 10 inches of the solum, very fine sandy loam. Its structure is weak or moderate, very fine or fine granular.

The IIC horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2 to 4. It is loamy fine sand, loamy sand, fine sand, or sand. In some pedons the gravelly or very gravelly analog is below a depth of 40 inches.

Berkshire Series

The Berkshire series consists of deep, well drained soils. These soils formed in glacial till derived mainly from mica schist and some phyllite, gneiss, or granite. They are on upland ridges and on the side slopes of bedrock-controlled ridges. Slope ranges from 3 to 25 percent.

Berkshire soils are adjacent to Brayton, Hermon, Lyman, Marlow, Masardis, Peru, and Tunbridge soils. Brayton soils are somewhat poorly drained or poorly drained. Peru soils are moderately well drained. Berkshire soils have less sand in the substratum than Hermon and Masardis soils. Lyman soils are shallow, and Tunbridge soils are moderately deep. Unlike Berkshire soils, Marlow soils have a compact substratum.

Typical pedon of Berkshire fine sandy loam, in an area of Marlow-Berkshire very stony fine sandy loam, 8 to 15 percent slopes, in a wooded area in the town of Washington, about 500 feet west of Sprague Road, 0.25 mile south of the bridge over Little Medomak Brook:

O1—2 inches to 1 inch; loose litter of leaves and twigs.

O2—1 inch to 0; very dusky red (10R 2/2) decomposed forest litter; weak very fine and fine granular structure; very friable; many very fine to medium and common coarse roots; extremely acid; abrupt smooth boundary.

A2—0 to 1 inch; gray (5YR 5/1) fine sandy loam, pinkish gray (7.5YR 7/2) dry; weak fine granular structure; very friable; many very fine and fine, and common medium and coarse roots; 5 percent coarse fragments; extremely acid; abrupt broken boundary.

B21h—1 to 3 inches; dark reddish brown (5YR 3/4) fine sandy loam; weak fine granular structure; friable; many very fine and fine, common medium and few coarse roots; 10 percent coarse fragments; very strongly acid; abrupt smooth boundary.

B22ir—3 to 9 inches; dark brown (7.5YR 4/4) fine sandy loam; weak fine granular structure; friable; common very fine to medium, and few coarse roots; 10 percent coarse fragments; very strongly acid; clear wavy boundary.

B23—9 to 24 inches; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; weak fine granular structure; friable; common very fine and few fine roots; 15 percent coarse fragments; strongly acid; clear wavy boundary.

C—24 to 60 inches; olive brown (2.5Y 4/4) gravelly fine sandy loam; massive; firm in place, friable when removed; few fine roots; 30 percent coarse fragments; strongly acid.

The solum ranges from 16 to 36 inches in thickness. Rock fragments throughout range, by volume, from 5 to 35 percent. Reaction ranges from extremely acid to moderately acid throughout, except where the soils have been limed.

Some pedons have an A1 horizon that has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. The A2 horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 1 or 2. Some pedons have an Ap horizon that has hue of 5YR to 10YR and value and chroma of 2 to 4.

The Bh horizon has hue of 2.5YR to 7.5YR, value of 3 to 5, and chroma of 2 to 4. The Bir horizon has hue of 5YR to 10YR, value of 3 or 4, and chroma of 3 to 5. The B2 horizon in the lower part has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. The B horizon in the fine earth fraction is fine sandy loam, sandy loam, or loam.

The C horizon has hue of 2.5Y or 5Y, value of 3 to 5, and chroma of 2 to 4. Its texture in the fine earth fraction is fine sandy loam, sandy loam, or loam. Its consistence is friable or firm.

Biddeford Series

The Biddeford series consists of deep, very poorly drained soils. These soils formed in marine or lacustrine sediments. They are in nearly level depressions on low-lying areas. Slope generally is 0 to 1 percent.

Biddeford soils are adjacent to Borosaprists, Sulfaquents, Sulfihemists, and Boothbay, Brayton Variant, Buxton, Lyman, Medomak, Scantic, and Swanville soils. They have a thinner layer of organic material on the surface than Borosaprists. Boothbay and Buxton soils are moderately well drained or somewhat poorly drained. Brayton Variant soils are somewhat poorly drained or poorly drained. Lyman soils are somewhat excessively drained. Scantic and Swanville soils are poorly drained. Biddeford soils are finer textured than Medomak soils. Unlike Biddeford soils, Sulfaquents and Sulfihemists are flooded by tides.

Typical pedon of Biddeford mucky peat, in an abandoned field in the town of Wiscasset, 1.7 miles north of U.S. Route 1 on Maine Route 27, 1.5 miles northwest of Maine Route 27 on dirt road, 200 feet north of road and 100 feet west of Montsweag Brook:

O1—15 to 12 inches; litter of leaves, twigs, and grasses.

O2—12 inches to 0; black (10YR 2/1) mucky peat; weak very fine and fine granular structure; friable; many very fine to medium and common coarse roots; very strongly acid; clear wavy boundary.

A2g—0 to 4 inches; dark gray (5Y 4/1) silty clay loam, gray (5Y 5/1) dry; common fine and medium prominent strong brown (7.5YR 5/6) mottles; moderate very coarse prismatic structure parting to moderate fine granular; firm; common very fine to medium roots; slightly acid; clear wavy boundary.

B21g—4 to 8 inches; dark gray (5Y 4/1) silty clay loam; many fine faint gray (5Y 5/1) and medium prominent strong brown (7.5YR 5/6) mottles; moderate coarse and very coarse prismatic structure parting to weak medium angular blocky; firm, sticky and plastic; common very fine and fine roots; few fine pores; thin continuous gray (5Y 5/1) coats on faces of prisms; thin continuous olive gray (5Y 5/2) coats on 40 percent of faces of peds and in all pores; slightly acid; clear wavy boundary.

B22g—8 to 20 inches; olive gray (5Y 4/2) silty clay loam; many fine faint gray (5Y 5/1) and few fine prominent yellowish brown (10YR 5/6) mottles; moderate coarse and very coarse prismatic structure; firm, sticky and plastic; few fine pores; thin continuous gray (5Y 5/1) coats on faces of prisms and in all pores; slightly acid; clear wavy boundary.

B3g—20 to 26 inches; olive gray (5Y 5/2) silty clay; common medium faint dark gray (5Y 4/1) and few fine prominent yellowish brown (10YR 5/6) mottles; moderate coarse and very coarse prismatic structure; firm, sticky and plastic; few very fine pores; thin continuous gray (5Y 5/1) coats on faces of prisms and in all pores; slightly acid; clear wavy boundary.

Cg—26 to 60 inches; dark greenish gray (5G 4/1) silty clay; common fine and medium prominent olive gray (5Y 5/2) and common fine prominent strong brown (7.5YR 5/6) mottles; massive; firm, sticky and plastic; few very fine pores; neutral.

The solum ranges from 20 to 40 inches in thickness. Coarse fragments make up less than 1 percent of the volume throughout. Reaction ranges from very strongly acid to slightly acid in the O and A horizons, is moderately acid or slightly acid in the B horizon, and ranges from slightly acid to mildly alkaline in the C horizon.

The O2 horizon is neutral or has hue of 5YR to 10YR, value of 2 or 3, and chroma of 0 to 2.

The A2g horizon has hue of 5Y or 5GY, value of 3 to 5, and chroma of 1 or 2.

The Bg horizon has hue of 5Y or 5GY, value of 4 to 6, and chroma of 1 or 2. Its texture is silty clay or silty clay loam. Its structure is prismatic or blocky, or the horizon is massive.

The Cg horizon is neutral or has hue of 5Y, 5BG, 5GY, 5B, or 5G; value is 4 or 5, and chroma is 0 or 1. Its texture is dominantly silty clay, but some pedons have layers of silty clay loam. Structure is platy parting to blocky, or the horizon is massive.

Boothbay Series

The Boothbay series consists of deep, moderately well drained or somewhat poorly drained soils. These soils formed in water-deposited sediments. They are on gently sloping and undulating to hilly, convex lacustrine and marine plains. Slope ranges from 3 to 25 percent.

Boothbay soils are adjacent to Biddeford, Buxton, Eldridge, Lyman, Marlow, Peru, Scantic, Swanville, and Tunbridge soils. Biddeford soils are very poorly drained. Scantic and Swanville soils are poorly drained. Boothbay soils have less clay in the substratum than Buxton soils. They have more silt in the solum than Eldridge soils. Lyman soils are shallow, and Tunbridge soils are moderately deep. Marlow and Peru soils formed in glacial till on adjacent uplands. Unlike Boothbay soils, they have coarse fragments.

Typical pedon of Boothbay silt loam, 3 to 8 percent slopes, in an idle hayfield in the town of Washington, 50 feet east of Sprague Road, 0.25 mile south of the bridge over Little Medomak Brook:

Ap—0 to 6 inches; dark yellowish brown (10YR 3/4) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine and fine roots; very strongly acid; abrupt smooth boundary.

B21—6 to 10 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine and medium granular structure; friable; common very fine and fine roots; light olive brown (2.5Y 5/4) linings in earthworm channels; strongly acid; gradual wavy boundary.

B22—10 to 15 inches; light olive brown (2.5Y 5/4) silt loam; weak fine and medium subangular blocky structure; friable; common very fine and fine roots; few very fine and fine pores; very strongly acid; clear wavy boundary.

B23—15 to 18 inches; olive (5Y 5/3) silt loam; common fine and medium faint light olive gray (5Y 6/2), common medium prominent yellowish brown (10YR 5/4), and few fine prominent dark brown (7.5YR 4/4) mottles; weak fine and medium subangular blocky structure; friable; few very fine and fine roots; common very fine and fine pores; pale olive (5Y 6/3) faces of peds; strongly acid; gradual wavy boundary.

B3—18 to 28 inches; olive (5Y 4/3) silt loam; common fine and medium faint light olive gray (5Y 6/2), common fine prominent dark brown (7.5YR 4/4), and common medium prominent yellowish brown (10YR 5/4) mottles; weak medium and thick platy structure parting to weak fine subangular blocky; firm; few fine roots; light brownish gray (2.5Y 6/2) faces of peds with few dusky red (2.5YR 3/2) oxide spots; slightly acid; gradual wavy boundary.

C—28 to 60 inches; olive gray (5Y 4/2) silty clay loam; common fine faint light olive gray (5Y 6/2) and few fine prominent yellowish brown (10YR 5/6) mottles;

moderate very coarse prismatic structure parting to weak thick platy; firm; light olive gray (5Y 6/2) faces of prisms; dusky red (2.5YR 3/2) oxide coatings on plates within prisms; neutral.

The solum ranges from 18 to 36 inches in thickness. Except where the soils have been limed, reaction is very strongly acid to slightly acid in the solum and ranges from moderately acid to neutral in the substratum.

The A horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 to 4.

The B horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 3 to 6. Its texture is silt loam or silty clay loam. In some pedons thin layers of very fine sandy loam or silty clay are in the lower part of the B horizon.

The C horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 2 to 4. Its texture is silt loam or silty clay loam but in some pedons there are thin layers of silty clay, very fine sandy loam, or loamy very fine sand.

Borosaprists

Borosaprists consist of very poorly drained, ponded, organic soils. These soils formed in highly decomposed plant material derived mainly from mosses, grasses, and herbaceous and woody plants. These soils are in depressions on upland areas, in basins of old glacial lakes, or in marshes adjacent to existing lakes and streams. Slope dominantly is less than 1 percent.

Borosaprists are adjacent to Biddeford, Brayton, Brayton Variant, Charles, Lovewell, Lyman, Masardis, Medomak, Scantic, Searsport, and Swanville soils. All of these are mineral soils that have a thinner organic surface. In coastal areas Borosaprists are also adjacent to Sulfihemists and Sulfaquents, both of which have sulfidic materials.

These soils differ greatly from place to place; thus, a typical pedon is not given. The surface tier generally consists of sapric material, commonly dark reddish brown. The subsurface and bottom tiers consist of dark reddish brown to black sapric material.

The organic material ranges from 16 to more than 51 inches in thickness, depending on depth to bedrock or mineral material. Reaction ranges from extremely acid to neutral. Coarse woody fragments range, by volume, from 0 to 10 percent.

The surface tier has hue of 5YR to 5Y, value of 2 or 3, and chroma of 0 to 2. It is dominantly sapric material, but some pedons have thin fibric or hemic layers.

The subsurface tier has hue of 5YR to 5Y, value of 2 or 3, and chroma of 1 or 2. It is mainly sapric material, but commonly has thin layers of fibric and hemic material.

Some pedons have a bottom tier that has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 to 3. It is mainly sapric material, but commonly has thin layers of hemic material. In some places it has lenses of fine sandy loam, sand, or silt.

The underlying material is very fine sandy loam, fine sandy loam, sandy loam, loamy sand, sand, silt loam, silty clay loam, or silty clay, or it is bedrock.

Brayton Series

The Brayton series consists of deep, somewhat poorly drained or poorly drained soils. These soils formed in compact glacial till derived mainly from mica schist and some gneiss and granite. They are along drainageways and in nearly level or gently sloping valleys between upland ridges. Slope ranges from 0 to 8 percent.

Brayton soils are adjacent to Berkshire, Hermon, Lyman, Marlow, Peru, and Tunbridge soils and Borosaprists. Berkshire and Marlow soils are well drained. Hermon soils are somewhat excessively drained. Peru soils are moderately well drained. Borosaprists are very poorly drained and ponded. Lyman soils are shallow. Tunbridge soils are moderately deep.

Typical pedon of Brayton fine sandy loam, in an area of Brayton very stony fine sandy loam, 0 to 8 percent slopes, in a wooded area in the town of Jefferson, 200 feet east of Maine Route 215, 0.8 mile south of junction with Maine Route 32, on Brooks Turner Hill:

O1—1 inch to 0; litter of leaves and twigs.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine and medium granular structure; friable; many very fine to medium and common coarse roots; 5 percent coarse fragments; strongly acid; clear smooth boundary.

B21g—8 to 12 inches; dark grayish brown (10YR 4/2) fine sandy loam; few fine faint light gray (10YR 6/1), few medium prominent olive (5Y 5/6), and common medium prominent strong brown (7.5YR 5/6) mottles; weak very fine and fine subangular blocky structure; friable; many very fine to medium, and common coarse roots; few fine pores; 5 percent coarse fragments; strongly acid; clear wavy boundary.

B22g—12 to 14 inches; dark grayish brown (2.5Y 4/2) fine sandy loam; few fine distinct gray (5Y 5/1), common medium distinct light olive brown (2.5Y 5/6), and many coarse prominent yellowish brown (10YR 5/6) mottles; moderate fine and medium subangular blocky structure; friable; many very fine to medium roots; few fine pores; 10 percent coarse fragments; strongly acid; clear smooth boundary.

B3g—14 to 16 inches; olive gray (5Y 4/2) gravelly fine sandy loam; few fine faint gray (5Y 5/1), common medium prominent light olive brown (2.5Y 5/6), and many coarse prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine and medium roots; few fine pores; 20 percent coarse fragments; moderately acid; clear smooth boundary.

C1—16 to 30 inches; olive (5Y 4/3) gravelly sandy loam; few fine distinct light gray (5Y 6/1), many medium prominent brown (7.5YR 5/4), and common medium prominent yellowish brown (10YR 5/6) mottles; moderate very coarse prismatic structure parting to moderate thick platy; very firm, brittle; few fine and medium roots; few fine pores; gray (5Y 5/1) faces of prisms; 15 percent coarse fragments; slightly acid; clear wavy boundary.

C2x—30 to 60 inches; olive gray (5Y 5/2) gravelly sandy loam; few fine faint light gray (5Y 6/1), many medium prominent brown (7.5YR 5/4), and common medium prominent yellowish brown (10YR 5/6) mottles; moderate very coarse prismatic structure parting to moderate thick platy; firm, brittle; few fine pores; gray (5Y 5/1) faces of prisms; 15 percent coarse fragments; slightly acid.

Depth to the compact substratum and the thickness of the solum range from 15 to 24 inches. Rock fragments range, by volume, from 5 to 25 percent in the solum and from 10 to 35 percent in the compact substratum. They are predominantly pebbles, but some are cobbles and stones. Reaction ranges from very strongly acid to moderately acid in the solum and is moderately acid or slightly acid in the compact substratum, except where the soils have been limed.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2. Some pedons have an A1 horizon that has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 or 2. Some pedons have an A2 horizon.

The B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 to 4. Its texture is sandy loam, fine sandy loam, or loam in the fine earth fraction. Its structure is weak or moderate, very fine to medium subangular blocky, or is weak thin or medium platy. Its consistence is very friable to firm.

The Cx horizon has hue of 2.5Y or 5Y, value of 3 to 5, and chroma of 2 or 3. Its texture is sandy loam or fine sandy loam in the fine earth fraction. Its structure is moderate to strong very coarse prismatic parting to weak or moderate medium or thick platy, or the horizon is massive. Its consistence is firm or very firm and brittle.

Brayton Variant

The Brayton Variant consists of moderately deep, somewhat poorly drained or poorly drained soils. These soils formed in glacial till derived mainly from mica schist, phyllite, or gneiss and some granite. They are along drainageways and in nearly level to gently sloping depressions on bedrock-controlled ridges. Slope ranges from 0 to 8 percent.

Brayton Variant soils are adjacent to Biddeford, Lyman, Naumburg, Peru, Searsport, and Tunbridge soils, Borosaprists, and areas of Rock outcrop. Lyman soils are somewhat excessively drained. Peru soils are moderately well drained. Tunbridge soils are well drained. Biddeford, Naumburg, and Searsport soils are deep. Borosaprists are very poorly drained and ponded.

Typical pedon of Brayton Variant, in an area of Lyman-Brayton Variant-Rock outcrop complex, 0 to 8 percent slopes, in a wooded area in the town of Bristol, 0.5 mile east of brook between Biscay Pond and Little Pond, along dirt road, 50 feet north of road:

O1—3 to 2 inches; loose litter of leaves, needles, and twigs.

O2—2 inches to 0; black (N 2/0) decomposed forest litter; weak fine granular structure; very friable; many very fine to coarse roots; extremely acid; abrupt smooth boundary.

A1—0 to 2 inches; dark reddish brown (5YR 2/2) loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common very fine to coarse roots; 5 percent coarse fragments; strongly acid; abrupt smooth boundary.

A2—2 to 3 inches; grayish brown (10YR 5/2) fine sandy loam; moderate medium granular structure; friable; common very fine to coarse roots; 5 percent coarse fragments; strongly acid; abrupt broken boundary.

B21—3 to 9 inches; dark brown (10YR 4/3) fine sandy loam; few fine faint light brownish gray (10YR 6/2) and common medium distinct yellowish brown (10YR 5/6) mottles; weak fine and medium subangular blocky structure; friable; common very fine to medium roots; common fine and medium pores; 5 percent coarse fragments; strongly acid; abrupt wavy boundary.

B22g—9 to 16 inches; grayish brown (2.5Y 5/2) fine sandy loam; few fine distinct light olive gray (5Y 6/2) and common medium prominent reddish brown (5YR 4/4) mottles; weak medium subangular blocky structure; friable; common very fine and fine, and few medium roots; common fine and medium pores; 10 percent coarse fragments; moderately acid; clear wavy boundary.

B3g—16 to 20 inches; olive gray (5Y 4/2) gravelly fine sandy loam; few fine faint light olive gray (5Y 6/2) and common medium prominent reddish brown (5YR 4/4) mottles; weak medium subangular blocky structure; friable; common fine and few medium pores; 15 percent coarse fragments; moderately acid; clear wavy boundary.

Cx—20 to 32 inches; olive gray (5Y 5/2) gravelly sandy loam; few fine faint light olive gray (5Y 6/2) and common medium prominent reddish brown (5YR 4/4) mottles; weak very coarse prismatic structure parting to weak fine and medium angular blocky; firm; 20 percent coarse fragments; slightly acid; abrupt smooth boundary.

R—32 inches; dark gray schistose bedrock.

The solum ranges from 15 to 30 inches in thickness. Depth to bedrock ranges from 20 to 40 inches. Rock fragments, mainly pebbles and also some cobbles, make up 5 to 35 percent of the solum and the C horizon. Except where the soils have been limed, reaction is very strongly acid to moderately acid in the A horizon and in the upper part of the B horizon and strongly acid to slightly acid in the lower part of the B horizon and the C horizon.

The A1 horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. The A2 horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 1 or 2. Some pedons have an Ap horizon that has hue of 10YR, value of 3 or 4, and chroma of 2.

The B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 3 in the upper part and hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 4 in the lower part. It is fine sandy loam, sandy loam, or loam in the fine earth fraction. Its structure is weak fine or medium granular or subangular blocky. In some pedons structure in the lower part of the B horizon is weak thin or medium platy, or the horizon is massive. Consistence is friable or firm.

The Cx horizon has hue of 2.5Y or 5Y, value of 3 to 6, and chroma of 2 to 4. It is fine sandy loam, sandy loam, or loam in the fine earth fraction. Its structure is weak very coarse prismatic parting to weak or moderate, fine or medium angular blocky, or the horizon is massive within the prisms. In some pedons the Cx horizon is entirely massive.

The underlying bedrock generally is gneiss, schist, or granite.

Buxton Series

The Buxton series consists of deep, moderately well drained or somewhat poorly drained soils. These soils formed in water-laid sediments. They are on gently sloping or undulating to hilly, convex, lacustrine and marine plains. Slope ranges from 3 to 25 percent.

Buxton soils are adjacent to Biddeford, Boothbay, Eldridge, Scantic, and Swanville soils. Biddeford soils are very poorly drained. Scantic and Swanville soils are poorly drained. Buxton soils have more clay in the substratum than Boothbay soils. They have a solum that is finer textured than that of Eldridge soils. Lyman, Marlow, Peru, and Tunbridge soils formed in glacial till on adjacent uplands.

Typical pedon of Buxton silt loam, 3 to 8 percent slopes, in a wooded area in the town of Newcastle, 100 feet west of Sheepscot Road, 0.5 mile north of Maine Central Railroad crossing:

O1—1 inch to 0; loose litter of leaves and pine needles.

Ap—0 to 8 inches; dark brown (10YR 3/3) silt loam, light yellowish brown (10YR 6/4) dry; moderate fine granular structure; friable; many very fine to medium, and common coarse roots; very strongly acid; abrupt smooth boundary.

B2—8 to 12 inches; yellowish brown (10YR 5/4) silt loam; moderate fine granular structure; friable; common very fine to medium roots; few fine pores; strongly acid; clear wavy boundary.

A'2—12 to 15 inches; olive gray (5Y 5/2) silty clay loam; few fine distinct light brownish gray (2.5Y 6/2) and few medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; few very fine to medium roots; few fine and medium pores; moderately acid; abrupt wavy boundary.

B'2—15 to 24 inches; olive (5Y 5/3) silty clay loam; common medium faint light olive gray (5Y 6/2) and common medium prominent dark brown (7.5YR 4/4) mottles; moderate coarse prismatic structure parting to moderate medium and thick platy; firm; few very fine and fine roots; few very fine and fine pores; thick continuous olive gray (5Y 5/2) coats on faces of prisms; dusky red (2.5YR 3/2) oxide coatings on 15 percent of faces of peds within prisms; moderately acid; clear wavy boundary.

B'3—24 to 36 inches; olive (5Y 4/3) silty clay loam; common fine faint light olive gray (5Y 6/2) and common fine and medium prominent yellowish brown (10YR 5/4) mottles; moderate coarse prismatic structure parting to moderate medium and thick platy; firm; few very fine and fine roots; few very fine and fine pores; thick continuous olive gray (5Y 5/2) coats on faces of prisms; dark reddish brown (5YR 3/3) oxide coatings on 20 percent of faces of peds within prisms; slightly acid; clear wavy boundary.

C—36 to 60 inches; olive gray (5Y 4/2) silty clay; common fine faint pale olive (5Y 6/3) and few fine prominent light olive brown (2.5Y 5/6) mottles; weak coarse prismatic structure parting to weak thick and very thick platy; firm; few very fine and fine pores; thick continuous olive gray (5Y 5/2) coats on faces of prisms; dark reddish brown (5YR 3/3) oxide coatings on 40 percent of faces of plates within prisms; slightly acid.

The solum ranges from 24 to 40 inches in thickness. Except where the soils have been limed, reaction ranges from very strongly acid to slightly acid in the upper part of the solum and from strongly acid to neutral in the lower part of the solum and in the C horizon.

The Ap horizon has hue of 10YR or 2.5Y and value and chroma of 3 or 4.

The B horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 2 to 6. Its texture is silt loam or silty clay loam. Its structure is granular or blocky.

The A'2 horizon is neutral or has hue of 2.5Y or 5Y; value is 5 to 7, and chroma is 0 to 2. Its texture is silt loam or silty clay loam. Its structure is blocky or platy.

The B' horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. Its texture is silty clay loam, silty clay, or clay. Its structure is prismatic parting to platy or blocky.

The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. Its texture is silty clay loam, silty clay, or clay.

Charles Series

The Charles series consists of deep, poorly drained soils. These soils formed in recent alluvium on flood plains of streams and rivers. Slope ranges from 0 to 2 percent.

Charles soils are adjacent to Lovewell and Medomak soils and Borosaprists. Lovewell soils are moderately well drained, Medomak soils are very poorly drained, and Borosaprists are very poorly drained and ponded.

Typical pedon of Charles silt loam, in a hayfield in the town of Dresden, 50 feet south of the Kennebec County-Lincoln County line and 200 feet west of Everson Road:

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; common fine faint grayish brown (10YR 5/2) and many medium distinct dark brown (7.5YR 4/4) mottles in the lower 2 inches; moderate fine and medium granular structure; friable; many very fine and fine and common medium roots; common very fine and fine pores; strongly acid; abrupt smooth boundary.

C1g—6 to 13 inches; dark grayish brown (2.5Y 4/2) silt loam; common fine faint grayish brown (2.5Y 5/2) and common fine prominent dark brown (7.5YR 4/4) mottles; weak fine and medium granular structure; friable; many very fine and fine and common medium roots; common very fine and fine pores; strongly acid; clear wavy boundary.

C2g—13 to 18 inches; olive gray (5Y 4/2) silt loam; common fine faint olive gray (5Y 5/2) and common fine and medium distinct light olive brown (2.5Y 5/4) mottles; massive; friable; common very fine and fine and few medium roots; few very fine and fine pores; moderately acid; clear wavy boundary.

C3g—18 to 35 inches; olive gray (5Y 5/2) silt loam; common fine faint light olive gray (5Y 6/2) and common fine and medium distinct light olive brown (2.5Y 5/4) mottles; massive; friable; moderately acid; clear wavy boundary.

C4g—35 to 40 inches; gray (5Y 5/1) silt loam; common fine faint gray (5Y 6/1), common fine and medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) mottles; massive; friable; moderately acid; clear wavy boundary.

C5g—40 to 60 inches; dark gray (5Y 4/1) silt loam; common fine faint gray (5Y 6/1), many fine and medium prominent yellowish brown (10YR 5/4), and common fine and medium prominent dark brown (7.5YR 4/4) mottles; massive; friable; slightly acid.

Reaction is very strongly acid to slightly acid throughout, except where the soils have been limed.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 to 3.

The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 1 or 2. Its texture is silt loam or very fine sandy loam. In some pedons strata of very fine sand to fine gravel are below a depth of 40 inches.

Eldridge Series

The Eldridge series consists of deep, moderately well drained soils. These soils formed in a thin mantle of outwash material and the underlying, loamy, marine or lacustrine sediments. Slope ranges from 3 to 8 percent.

Eldridge soils are adjacent to Adams, Allagash, Boothbay, Buxton, Lyman, Madawaska, Scantic, Swanville, and Tunbridge soils. Adams and Lyman soils are somewhat excessively drained. Allagash and Tunbridge soils are well drained. They have a solum that is coarser textured than that in Boothbay, Buxton, Scantic, and Swanville soils. They have less sand in the substratum than Madawaska soils.

Typical pedon of Eldridge fine sandy loam, 3 to 8 percent slopes, in an abandoned field in the town of Union, 0.3 mile northwest of Pettingill Stream on North Union Road and 50 feet north of road:

Ap—0 to 8 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine and fine roots; strongly acid; abrupt smooth boundary.

B21—8 to 16 inches; dark yellowish brown (10YR 4/4) loamy fine sand; weak fine granular structure; very friable; common very fine and fine roots; moderately acid; clear wavy boundary.

B22—16 to 21 inches; olive brown (2.5Y 4/4) loamy fine sand; common medium prominent reddish yellow (7.5YR 6/8) and few fine faint grayish brown (2.5Y 5/2) mottles; massive; very friable; few very fine and fine roots; moderately acid; clear wavy boundary.

B23—21 to 24 inches; light olive brown (2.5Y 5/6) loamy fine sand; common medium faint yellowish brown (10YR 5/6) and few fine distinct light brownish gray (2.5Y 6/2) mottles; massive; very friable; few very fine and fine roots; moderately acid; clear wavy boundary.

A'2—24 to 27 inches; olive gray (5Y 5/2) loamy fine sand; common medium prominent yellowish brown (10YR 5/4) and few fine faint light olive gray (5Y 6/2) mottles; massive; very friable; few fine roots; slightly acid; abrupt wavy boundary.

IIC1—27 to 46 inches; olive (5Y 5/3) silt loam; common fine distinct light olive brown (2.5Y 5/4) mottles; moderate medium and thick platy structure; firm; few fine gray (5Y 6/1) silt films on faces of peds; moderately acid; clear wavy boundary.

IIC2—46 to 60 inches; olive (5Y 4/3) silty clay loam; common medium faint light olive gray (5Y 6/2) and common medium prominent light olive brown (2.5Y 5/6) mottles; massive; firm; few very dusky red (2.5YR 2/2) oxide coatings; moderately acid.

Depth to the underlying fine textured material ranges from 18 to 32 inches. Coarse fragments make up 0 to 3 percent of the A, B, and A' horizons, and typically, no coarse fragments are in the IIC horizon. Except where the soils have been limed, reaction ranges from strongly acid to slightly acid above the lithological discontinuity and from moderately acid to neutral below.

The Ap or A1 horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4.

The B horizon has hue of 10YR to 2.5Y, value of 3 to 5, and chroma of 3 to 6. In some pedons the upper part of the horizon has hue of 7.5YR. The horizon is loamy fine sand, loamy sand, or fine sand. Structure is weak very fine or fine granular, or the horizon is massive or single grain. Consistence is loose or very friable.

The A'2 horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 or 3. Its texture is loamy fine sand, loamy sand, or fine sand, but some pedons have an A'2 horizon of fine sandy loam or sandy loam less than 5 inches thick. Structure is weak thin or medium platy parting to subangular blocky, or the horizon is massive. Consistence is very friable or friable.

The IIC horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 or 3. Its texture is mainly silt loam or silty clay loam. Some pedons have thin strata of very fine sandy loam to fine sand below a depth of 40 inches. Structure is moderate medium to very thick platy or is prismatic parting to angular blocky, or the horizon is massive.

These soils are taxadjuncts in the survey area because the mean annual soil temperature is lower than defined in the range for the series, but this characteristic does not greatly alter use and management.

Hermon Series

The Hermon series consists of deep, somewhat excessively drained soils. These soils formed in glacial till derived from gneiss, granite, and schist. They are on hillsides and ridgetops. Slope ranges from 0 to 25 percent.

Hermon soils are adjacent to Berkshire, Brayton, Lyman, Marlow, Masardis, Peru, and Tunbridge soils. They have a substratum that is coarser textured than that in the Berkshire, Brayton, Marlow, and Peru soils. Berkshire and Marlow soils are well drained. Brayton soils are somewhat poorly drained or poorly drained. Peru soils are moderately well drained. Lyman soils are shallow, and Tunbridge soils are moderately deep. Unlike Hermon soils, Masardis soils are stratified.

Typical pedon of Hermon fine sandy loam, in an area of Hermon extremely bouldery fine sandy loam, 8 to 15 percent slopes, in a wooded area in the town of Jefferson, 0.75 mile east of Maine Route 32 on Weeks Hill Road, 100 feet north of road:

O2—2 inches to 0; black (N 2/0) decomposed forest litter; weak very fine and fine granular structure; very friable; many very fine and fine and common medium and coarse roots; very strongly acid; abrupt wavy boundary.

A2—0 to 1 inch; gray (5YR 5/1) fine sandy loam, pinkish gray (7.5YR 6/2) dry; weak fine granular structure; very friable; common very fine to coarse roots; 5 percent coarse fragments; very strongly acid; abrupt broken boundary.

B21h—1 to 3 inches; dark reddish brown (5YR 3/2) fine sandy loam; weak fine granular structure; very friable; few very fine to coarse roots; 5 percent coarse fragments; very strongly acid; abrupt wavy boundary.

B22ir—3 to 5 inches; dark reddish brown (5YR 3/4) gravelly fine sandy loam; weak fine granular structure; very friable; common very fine and fine, and few medium and coarse roots; 15 percent coarse fragments; very strongly acid; clear wavy boundary.

B23ir—5 to 9 inches; dark brown (7.5YR 4/4) gravelly sandy loam; weak fine granular structure; very friable; common very fine and fine, and few medium and coarse roots; 20 percent coarse fragments; very strongly acid; clear wavy boundary.

B24—9 to 16 inches; strong brown (7.5YR 5/6) gravelly sandy loam; weak fine granular structure; very friable; common very fine and few fine roots; 25 percent coarse fragments; strongly acid; clear wavy boundary.

B3—16 to 22 inches; yellowish brown (10YR 5/4) very gravelly sandy loam; weak fine granular structure; very friable; few very fine and fine roots; 40 percent coarse fragments; strongly acid; clear wavy boundary.

C1—22 to 28 inches; light olive brown (2.5Y 5/4) very gravelly loamy sand; single grain; loose; few very fine and fine roots; 50 percent coarse fragments; strongly acid; clear wavy boundary.

C2—28 to 60 inches; grayish brown (2.5Y 5/2) very gravelly loamy sand; single grain; loose; 60 percent coarse fragments; strongly acid.

The solum ranges from 18 to 35 inches in thickness. Rock fragments in the particle-size control section range, by volume, from 15 to 60 percent, but the weighted average ranges from 35 to 50 percent. Rock fragments in the upper 10 inches range, by volume, from 5 to 35 percent; these consist of pebbles, cobbles, and stones and scattered boulders. Except where the soils have been limed, reaction ranges from extremely acid to strongly acid in the solum and strongly acid or moderately acid in the substratum.

The A2 horizon has hue of 5YR to 10YR, value of 5 or 6, and chroma of 1 or 2. Some pedons have an Ap horizon that has hue of 10YR, value of 3 or 4, and chroma of 2 or 3.

The Bh horizon has hue of 2.5YR to 7.5YR and value and chroma of 2 or 3. The Bir horizon has hue of 5YR to 10YR, value of 3 to 6, and chroma of 3 to 6. The lower part of the B2 horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 to 8. The B3 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6. The B horizon is fine sandy loam, sandy loam, coarse sandy loam, loamy sand, or loamy coarse sand in the fine earth fraction. Its structure is granular, or the horizon is single grained or, where cemented, massive. Consistence is loose to friable except where cemented.

The C horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 2 to 4. It is loamy sand or loamy coarse sand in the fine earth fraction. Its structure is platy, or the horizon is massive or single grain. Its consistence is loose to firm.

Lovewell Series

The Lovewell series consists of deep, moderately well drained soils. These soils formed in recent alluvium on the flood plains of streams and rivers. Slope ranges from 0 to 2 percent.

Lovewell soils are adjacent to Charles and Medomak soils and Borosaprists. Charles soils are poorly drained, Medomak soils are very poorly drained, and Borosaprists are very poorly drained and ponded.

Typical pedon of Lovewell very fine sandy loam, in a field in the town of Dresden, 200 feet south of the Kennebec County-Lincoln County line and 200 feet east of the Kennebec River:

Ap—0 to 12 inches; dark grayish brown (10YR 4/2) very fine sandy loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; very friable; many very fine and fine and few medium roots; neutral; abrupt smooth boundary.

B21—12 to 20 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; common very fine and fine roots; common fine prominent reddish brown (2.5YR 5/4) root stains; moderately acid; gradual wavy boundary.

B22—20 to 29 inches; dark brown (10YR 4/3) silt loam; common fine faint grayish brown (10YR 5/2), few fine distinct brown (7.5YR 5/4) and yellowish brown (10YR 5/6) mottles; moderate medium granular structure; friable; common very fine and few fine roots; moderately acid; gradual wavy boundary.

C1—29 to 35 inches; dark yellowish brown (10YR 4/4) silt loam; few fine prominent light brownish gray (2.5Y 6/2) and common fine distinct strong brown (7.5YR 5/6) mottles; massive; friable; few fine roots; moderately acid; clear wavy boundary.

C2—35 to 45 inches; olive brown (2.5Y 4/4) silt loam; many fine prominent strong brown (7.5YR 5/6) mottles; massive; friable; moderately acid; abrupt smooth boundary.

C3—45 to 60 inches; olive gray (5Y 4/2) and light olive gray (5Y 6/2) gravelly coarse sand; single grain; loose; 20 percent gravel; slightly acid.

The solum ranges from 20 to 30 inches in thickness. Gravel ranges, by volume, from 0 to 5 percent above a depth of 40 inches and from 0 to 20 percent below that depth. Reaction is strongly acid to slightly acid throughout, except where the soils have been limed.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4.

The B horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 6. It is silt loam or very fine sandy loam. Its structure is weak or moderate, fine or medium granular. Its consistence is very friable or friable.

The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 to 4. It is silt loam or very fine sandy loam. In some pedons below a depth of 40 inches there are strata ranging from loamy fine sand to coarse sand in the fine earth fraction. In some pedons there are no strata within a depth of 60 inches. The horizon is massive or single grain. Its consistence is loose or friable.

Lyman Series

The Lyman series consists of shallow, somewhat excessively drained soils. These soils formed in a thin mantle of glacial till derived mainly from mica schist and some phyllite, granite, or gneiss. They are on the tops and side slopes of upland ridges and mountains and on low coastal ridges. Slope ranges from 0 to 45 percent.

Lyman soils are adjacent mainly to Berkshire, Brayton, Brayton Variant, Eldridge, Hermon, Marlow, Peru, and Tunbridge soils, areas of Rock outcrop, and Borosaprists. Berkshire, Brayton, Eldridge, Hermon, Marlow, and Peru soils are deep. Brayton Variant and Tunbridge soils are moderately deep. Borosaprists differ in depth from place to place.

Typical pedon of Lyman fine sandy loam, in an area of Lyman-Rock outcrop-Tunbridge complex, 8 to 15 percent slopes, in a wooded area in the town of Washington, 0.5 mile east from Maine Route 105 on Gore Road, 800 feet south of road across Jones Brook:

O1—3 to 2 inches; loose litter of leaves and twigs.

O2—2 inches to 0; black (5YR 2/1) decomposed forest litter; weak very fine and fine granular structure; friable; many very fine and fine, common medium and few coarse roots; extremely acid; abrupt wavy boundary.

A2—0 to 2 inches; pinkish gray (5YR 6/2) fine sandy loam, light brownish gray (2.5Y 6/2) dry; weak fine granular structure; friable; many very fine and fine, and common medium and coarse roots; 5 percent coarse fragments; extremely acid; abrupt broken boundary.

B21h—2 to 3 inches; dusky red (2.5YR 3/2) fine sandy loam; weak fine and medium granular structure; very friable; common very fine to coarse roots; 5 percent coarse fragments; very strongly acid; abrupt wavy boundary.

B22ir—3 to 7 inches; dark reddish brown (2.5YR 3/4) fine sandy loam; weak fine granular structure; very friable; common very fine to coarse roots; 10 percent coarse fragments; extremely acid; clear wavy boundary.

B23—7 to 16 inches; dark yellowish brown (10YR 4/4) grading with depth to yellowish brown (10YR 5/6) gravelly fine sandy loam; weak fine granular structure; friable; common very fine to few coarse roots; 25 percent coarse fragments; very strongly acid; abrupt wavy boundary

R—16 inches; dark gray schistose bedrock.

The solum thickness and depth to bedrock range from 10 to 20 inches. Rock fragments, mainly pebbles and cobbles, range, by volume, from 5 to 30 percent throughout. Reaction ranges from extremely acid to moderately acid throughout, except where the soils have been limed.

Some pedons have an A1 horizon that is neutral or has hue of 5YR to 10YR, value of 2 or 3, and chroma of 0 to 2. The A2 horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 1 or 2. Some pedons have an Ap horizon that has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 2 or 3.

The Bh horizon has hue of 2.5YR to 7.5YR and value and chroma of 2 or 3. The Bir horizon has hue of 2.5YR to 10YR, value of 3 or 4, and chroma of 3 to 6. The lower part of the B2 horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 4 or 6. The B horizon is fine sandy loam, very fine sandy loam, loam, or silt loam in the fine earth fraction. Its structure is weak granular in the upper part of the B horizon and weak granular or blocky in the lower part. Its consistence is very friable or friable.

Bedrock is gneiss, schist, phyllite, or granite.

Madawaska Series

The Madawaska series consists of deep, moderately well drained soils. These soils formed in material derived mainly from slate, granite, and quartzite. They are on stream terraces and outwash plains. Slope ranges from 3 to 8 percent.

Madawaska soils are adjacent to Adams, Allagash, Eldridge, Masardis, Naumburg, and Searsport soils. Adams and Masardis soils are somewhat excessively drained. Allagash soils are well drained. Naumburg soils are poorly drained or somewhat poorly drained. Searsport soils are very poorly drained. Madawaska soils have a substratum that is coarser textured than that in Eldridge soils.

Typical pedon of Madawaska fine sandy loam, 3 to 8 percent slopes, in a cultivated field in the town of Dresden, 0.9 mile north of bridge over Eastern River on Maine Route 128 and 0.25 mile east of road:

Ap—0 to 10 inches; dark brown (10YR 3/3) fine sandy loam, light yellowish brown (10YR 6/4) dry; weak fine and medium granular structure; friable; common very fine and fine roots; strongly acid; abrupt smooth boundary.

B21ir—10 to 16 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; few very fine and fine roots; very strongly acid; clear wavy boundary.

B22—16 to 20 inches; yellowish brown (10YR 5/4) fine sandy loam; few fine distinct light brownish gray (10YR 6/2) and common fine distinct strong brown (7.5YR 5/6) mottles; weak fine granular structure; friable; many fine pores; very strongly acid; clear wavy boundary.

B23—20 to 28 inches; light olive brown (2.5Y 5/4) fine sandy loam; common fine prominent light brownish gray (10YR 6/2) and few fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; friable; common fine pores; very strongly acid; clear wavy boundary.

IIC1—28 to 42 inches; olive (5Y 5/3) fine sand; common medium distinct light brownish gray (2.5Y 6/2) and few medium prominent yellowish brown (10YR 5/6) mottles; single grain; loose; strongly acid; clear wavy boundary.

IIC2—42 to 60 inches; olive gray (5Y 5/2) sand; common fine faint light gray (5Y 6/1) mottles; single grain; loose; strongly acid.

The thickness of the solum ranges from 18 to 32 inches. Gravel makes up 0 to 10 percent of the volume throughout. Reaction ranges from very strongly acid to moderately acid throughout, except where the soils have been limed.

The Ap horizon has a hue of 10YR, value of 3 or 4, and chroma of 2 or 3. Some pedons have an A2 horizon that has hue of 7.5YR to 2.5Y, value of 5 to 7, and chroma of 1 or 2.

Some pedons have a Bh horizon that has hue of 5YR or 7.5YR and value and chroma of 2 or 3. The Bir horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6. The lower B2 horizon in the lower part has hue of 10YR or 2.5Y and value and chroma of 4 to 6. The B horizon is very fine sandy loam or fine sandy loam in the upper part and fine sandy loam in the lower part. Its structure is weak or moderate, very fine to medium granular in the upper part and weak granular in the lower part. Its consistence is very friable or friable.

The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 1 to 3. Its texture is fine sand, loamy sand, or loamy fine sand above a depth of 30 inches. Below that depth it is fine sand or sand that, in some pedons, has strata of coarse sand less than 5 inches thick.

Marlow Series

The Marlow series consists of deep, well drained soils. These soils formed in compact glacial till derived mainly from mica schist and some granite, phyllite, or gneiss. They are on upland, drumlin-shaped ridges and on the side slopes of bedrock-controlled ridges. Slope ranges from 3 to 25 percent.

Marlow soils are adjacent to Berkshire, Boothbay, Brayton, Buxton, Hermon, Masardis, Lyman, Peru, and Tunbridge soils. Unlike Berkshire, Hermon, and Masardis soils, Marlow soils have a compact substratum. Boothbay and Buxton soils are moderately well drained or somewhat poorly drained. Brayton soils are somewhat poorly drained or poorly drained. Peru soils are moderately well drained. Lyman soils are shallow, and Tunbridge soils are moderately deep.

Typical pedon of Marlow fine sandy loam, in an area of Marlow very stony fine sandy loam, 8 to 15 percent slopes, in a wooded area in the town of Washington, 1 mile northwest of Hibberts Corner on a jeep trail, 50 feet west of trail, in woods just north of power transmission line:

O2—2 inches to 0; very dark gray (5YR 3/1) decomposed forest litter; weak very fine and fine granular structure; very friable; many very fine and fine, and few medium roots; very strongly acid; abrupt smooth boundary.

A1—0 to 2 inches; dark brown (7.5YR 3/2) fine sandy loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine and fine, and few medium roots; 5 percent coarse fragments; very strongly acid; abrupt wavy boundary.

A2—2 to 3 inches; gray (5YR 6/1) fine sandy loam; weak fine granular structure; very friable; many very fine and fine, and few medium roots; 5 percent coarse fragments; very strongly acid; abrupt broken boundary.

B21ir—3 to 6 inches; dark brown (7.5YR 4/4) fine sandy loam; weak fine granular structure; very friable; common very fine and fine, and few medium roots; 5 percent coarse fragments; very strongly acid; clear wavy boundary.

B22—6 to 10 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine and medium granular structure; very friable; common very fine and fine, and few medium roots; 10 percent coarse fragments; very strongly acid; clear wavy boundary.

B23—10 to 16 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine and medium granular structure; friable; few fine roots; 10 percent coarse fragments; very strongly acid; clear wavy boundary.

B3—16 to 28 inches; olive brown (2.5Y 4/4) gravelly sandy loam; weak fine and medium granular structure; friable; few fine roots; 25 percent coarse fragments; strongly acid; clear smooth boundary.

Cx—28 to 60 inches; olive (5Y 4/3) gravelly fine sandy loam; moderate medium and thick platy structure; very firm, brittle; 20 percent coarse fragments; strongly acid.

The solum thickness and depth to compact substratum range from 14 to 36 inches. Rock fragments range, by volume, from 5 to 30 percent in the solum and the compact substratum. Rock fragments consist dominantly of gravel and cobbles and a few stones. Reaction ranges from very strongly acid to moderately acid throughout, except where the soils have been limed.

The A1 or Ap, horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4. The A2 horizon has hue of 5YR to 10YR, value of 5 or 6, and chroma of 1 or 2.

Some pedons have a Bh horizon that has hue of 5YR or 7.5YR, value of 3, and chroma of 2 or 3. The Bir horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6. The B2 horizon in the lower part has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 3 to 6. The B2 horizon is dominantly fine sandy loam, loam, or sandy loam in the fine earth fraction. Its structure is weak or moderate, fine or medium, or granular or subangular blocky. The B3 horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 3 to 6. Its texture is fine sandy loam, loam, or sandy loam in the fine-earth fraction. Its structure is weak or moderate, fine or medium, or granular or subangular blocky or, in the lower part, weak, thin, or medium, platy. In some pedons there is an A'2 horizon.

The Cx horizon has hue of 2.5Y or 5Y, value of 3 to 5, and chroma of 2 to 4. Its texture is fine sandy loam, loam, or sandy loam in the fine earth fraction. Its structure is weak or moderate, medium or thick, and platy, or the horizon is massive. Its consistence is firm, or very firm, and brittle.

Masardis Series

The Masardis series consists of deep, somewhat excessively drained soils. These soils formed in glaciofluvial deposits. They are on terraces, deltas, kames, and eskers. Slope ranges from 3 to 25 percent.

Masardis soils are adjacent to Adams, Allagash, Madawaska, Naumburg, Searsport, and Sheepscot soils and Borosaprists. Masardis soils have more coarse fragments in the solum than Adams, Allagash, and Madawaska soils. They have an organic surface that is thinner than that of Borosaprists, which are very poorly drained. Naumburg soils are poorly drained or somewhat poorly drained. Searsport soils are very poorly drained. Sheepscot soils are moderately well drained.

Typical pedon of Masardis gravelly fine sandy loam, 3 to 8 percent slopes (fig. 16), on the western side of a gravel pit, in the town of Washington, 0.75 mile west of Razorville on Maine Route 105, 1,500 feet north of road, in pit just east of Muddy Pond:

Figure 16.—Profile of Masardis gravelly fine sandy loam, 3 to 8 percent slopes. The rounded coarse fragments are an indication that the soil formed in glaciofluvial deposits.

O1—3 to 2 inches; loose litter of leaves and twigs from softwood trees.

O2—2 inches to 0; black (5YR 2/1) decomposed forest litter; weak fine granular structure; very friable; many very fine, fine and medium roots; very strongly acid; abrupt smooth boundary.

A2—0 to 2 inches; light brownish gray (10YR 6/2) fine sandy loam, light gray (10YR 7/1) dry; weak fine granular structure; very friable; many very fine and fine, common medium and coarse roots; 10 percent coarse fragments; very strongly acid; abrupt broken boundary.

B21h—2 to 4 inches; dark reddish brown (5YR 3/3) gravelly fine sandy loam; weak fine granular structure; very friable; many very fine and fine, few medium, and common coarse roots; 20 percent coarse fragments; very strongly acid; clear wavy boundary.

B22ir—4 to 8 inches; reddish brown (5YR 4/4) gravelly fine sandy loam; weak fine granular structure; very friable; common very fine and fine, and few medium and coarse roots; 25 percent coarse fragments; very strongly acid; clear wavy boundary.

B23—8 to 15 inches; dark yellowish brown (10YR 4/4) very gravelly sandy loam; weak fine granular structure; very friable; common very fine to coarse roots; 35 percent coarse fragments; very strongly acid; clear wavy boundary.

B3—15 to 22 inches; yellowish brown (10YR 5/4) very gravelly loamy sand; single grain; loose; few very fine and fine roots; 50 percent coarse fragments; strongly acid; clear wavy boundary.

C1—22 to 40 inches; dark grayish brown (2.5Y 4/2) very gravelly sand; single grain; loose; 60 percent coarse fragments; strongly acid; gradual wavy boundary.

C2—40 to 60 inches; grayish brown (2.5Y 5/2) extremely gravelly sand; single grain; loose; 75 percent coarse fragments; moderately acid.

The solum ranges from 18 to 38 inches in thickness. Content of rock fragments, mainly pebbles and cobblestones, range from 35 to 60 percent in the particle-size control section, but in individual horizons range from 10 to 60 percent in the upper part of the solum and from 40 to 75 percent in the lower part of the solum and the substratum. Except where the soils have been limed, reaction ranges from very strongly acid to moderately acid in the solum and is strongly acid or moderately acid in the substratum. In some pedons there is discontinuous cementation in the B and C horizons.

The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. Some pedons have an A1 horizon that has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. Some pedons have an Ap horizon that has hue of 5YR to 10YR, value of 3 or 4, and chroma of 2 to 4.

The Bh horizon has hue of 5YR and value and chroma of 2 or 3. The Bir horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 to 6. The lower part of the B2 horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6. The B3 horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 6. The B horizon is, in the fine earth fraction, silt loam, loam, very fine sandy loam, fine sandy loam, or sandy loam within 10 inches of the surface and sandy loam through loamy coarse sand below a depth of 10 inches. Its structure in the upper part of the B horizon is, in the fine earth fraction, weak or moderate, very fine to medium granular, and in the lower part is weak or moderate very fine or fine granular, or the horizon is single grain. Its consistence is very friable or friable in the upper part and loose or very friable in the lower part.

The C horizon has hue of 2.5Y or 5Y, value of 3 to 5, and chroma of 2 to 4. It is loamy coarse sand, sand, and coarse sand in the fine earth fraction, but in some pedons it has strata of sand, gravel, and cobbles.

Medomak Series

The Medomak series consists of deep, very poorly drained soils. These soils formed in recent alluvium. They are on flood plains of rivers and streams and adjacent to lakes. Slope ranges from 0 to 2 percent.

Medomak soils are adjacent to Biddeford, Charles, and Lovewell soils and Borosaprists. Medomak soils have less clay than Biddeford soils. Charles soils are poorly drained. Lovewell soils are moderately well drained. Medomak soils have an organic surface layer that is thinner than that of Borosaprists.

Typical pedon of Medomak silt loam, in a marsh in the town of Washington, 100 feet east of Little Medomak Brook, 4,500 feet south of Medomak River Bridge on Bump Hill Road:

O1—2 inches to 0; litter of grasses.

A1—0 to 12 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many very fine and fine roots; strongly acid; clear smooth boundary.

C1g—12 to 27 inches; dark gray (10YR 4/1) silt loam; common medium distinct dark grayish brown (2.5Y 4/2) and few fine prominent yellowish brown (10YR 5/6) mottles; massive; friable; slightly sticky, slightly plastic; common very fine and fine roots; strongly acid; clear wavy boundary.

C2g—27 to 45 inches; dark gray (5Y 4/1) silt loam; common medium prominent dark brown (7.5YR 4/4) and few fine prominent yellowish brown (10YR 5/4) mottles; massive; friable; slightly sticky, slightly plastic; few very fine roots; moderately acid; clear wavy boundary.

C3g—45 to 60 inches; very dark gray (5Y 3/1) silt loam; massive; friable; slightly sticky, slightly plastic; moderately acid.

Coarse fragments, mainly pebbles, make up less than 5 percent of volume above a depth of 40 inches and 0 to 30 percent of the volume below that depth. Except where the soils have been limed, reaction is strongly acid or moderately acid to a depth of about 30 inches and ranges from moderately acid to neutral below that depth.

The A1 and Ap horizons are neutral or have hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 0 to 2.

The C horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 1 or 2. The upper part of the C horizon is mottled. The C horizon is silt loam or very fine sandy loam and, in some pedons below a depth of 40 inches, sand or gravelly sand.

Naumburg Series

The Naumburg series consists of deep, poorly drained or somewhat poorly drained soils. These soils formed in glaciofluvial sands derived from crystalline rock. They are in low-lying areas on outwash plains, deltas, and terraces. Slope ranges from 0 to 3 percent.

Naumburg soils are adjacent to Adams, Allagash, Brayton Variant, Madawaska, Masardis, Searsport, and Sheepscot soils. Adams and Masardis soils are somewhat excessively drained. Allagash soils are well drained. Madawaska and Sheepscot soils are moderately well drained. Brayton Variant soils are moderately deep. Searsport soils are very poorly drained.

Typical pedon of Naumburg loamy sand, in a wooded area, 0.6 mile west of Maine Route 32 on road across from Bremen Elementary School, 100 feet south of road:

O1—4 to 3 inches; mosses, leaf litter, and roots.

O2—3 to 0 inches; black (5YR 2/1) decomposed forest litter; weak fine and medium granular structure; friable; many very fine and fine, and common medium and coarse roots; extremely acid; abrupt wavy boundary.

A2—0 to 8 inches; gray (5YR 5/1) loamy sand, light brownish gray (10YR 6/2) dry; massive; friable; common very fine and fine, and few medium roots; extremely acid; abrupt smooth boundary.

B21h—8 to 12 inches; dark reddish brown (5YR 2/2) loamy sand; few medium prominent brown (7.5YR 5/2) and few medium faint black (5YR 2/1) mottles; massive; friable, 20 percent firm; few very fine and fine roots; very strongly acid; clear wavy boundary.

B22ir—12 to 20 inches; dark brown (7.5YR 3/2) loamy sand; few medium distinct dark reddish brown (5YR 3/4) and few fine distinct strong brown (7.5YR 5/6) mottles; massive; friable, 10 percent firm; less than 1 percent coarse fragments; very strongly acid; clear wavy boundary.

B23—20 to 31 inches; dark brown (10YR 3/3) sand; few medium distinct dark brown (7.5YR 3/2) mottles; massive; friable; less than 1 percent coarse fragments; very strongly acid; clear wavy boundary.

C1—31 to 42 inches; very dark grayish brown (10YR 3/2) sand; single grain; loose; 2 percent coarse fragments; very strongly acid; gradual smooth boundary.

C2—42 to 60 inches; dark grayish brown (2.5Y 4/2) sand and strata of fine sand; single grain; loose; very strongly acid.

The solum ranges from 20 to 40 inches in thickness. In some pedons gravel makes up less than 5 percent of the volume. Reaction ranges from extremely acid to strongly acid in the A and B horizons and from very strongly acid to slightly acid in the C horizon.

The A2 horizon has hue of 5YR to 10YR, value of 5 to 7, and chroma of 1 or 2. Some pedons have an Ap horizon that has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4. Some pedons have a discontinuous A1 horizon.

The Bh horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. The Bir horizon has hue of 5YR to 10YR, value of 3 to 6, and chroma of 2 to 6. The B2 horizon in the lower part has a hue of 10YR or 2.5Y and value and chroma of 3 to 6. The B horizon is loamy sand or sand. As much as 40 percent of the horizon is cemented.

The C horizon has hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 2 to 4. It is sand or loamy sand.

Peru Series

The Peru series consists of deep, moderately well drained soils. These soils formed in compact glacial till derived mainly from mica schist and some granite, phyllite, or gneiss. They are on upland, drumlin-shaped ridges and on the side slopes of bedrock-controlled ridges. Slope ranges from 3 to 15 percent.

Peru soils are adjacent to Berkshire, Brayton, Brayton Variant, Hermon, Lyman, Marlow, Masardis, and Tunbridge soils. Berkshire, Marlow, and Tunbridge soils are well drained. Brayton and Brayton Variant soils are somewhat poorly drained or poorly drained. Hermon, Lyman, and Masardis soils are somewhat excessively drained. Brayton Variant and Tunbridge soils are moderately deep, and Lyman soils are shallow.

Typical pedon of Peru fine sandy loam, in an area of Peru very stony fine sandy loam, 3 to 8 percent slopes, in a wooded area in the town of Union, 1.9 miles north of Maine Route 17 on North Union Road, 300 feet west of road:

O1—2 inches to 1 inch; litter of leaves and twigs.

O2—1 inch to 0; black (5YR 2/1) decomposed forest litter; weak fine and medium granular structure; very friable; many very fine to medium and common coarse roots; extremely acid; abrupt smooth boundary.

A1—0 to 2 inches; dark reddish brown (5YR 2/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine and medium granular structure; friable; many very fine to medium, and common coarse roots; 5 percent coarse fragments; very strongly acid; abrupt broken boundary.

A2—2 to 3 inches; grayish brown (10YR 5/2) fine sandy loam; weak fine granular structure; friable; many very fine to medium, and common coarse roots; 5 percent coarse fragments; very strongly acid; abrupt broken boundary.

B21ir—3 to 7 inches; reddish brown (5YR 4/4) fine sandy loam; weak fine granular structure; friable; many very fine to medium, and common coarse roots; 5 percent coarse fragments; very strongly acid; clear wavy boundary.

B22—7 to 16 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; common very fine to medium, and few coarse roots; 5 percent coarse fragments; very strongly acid; clear wavy boundary.

B23—16 to 20 inches; olive brown (2.5Y 4/4) fine sandy loam; common medium distinct grayish brown (10YR 5/2) mottles and common medium prominent yellowish brown (10YR 5/8) mottles; moderate medium granular structure; friable; common very fine and fine, and few medium roots; 10 percent coarse fragments; very strongly acid; clear wavy boundary.

B3—20 to 25 inches; olive (5Y 4/4) gravelly fine sandy loam; common medium prominent grayish brown (10YR 5/2) mottles, distinct light olive brown (2.5Y 5/6) mottles, and prominent yellowish brown (10YR 5/8) mottles; weak medium platy structure; friable; few very fine and fine roots; 15 percent coarse fragments; strongly acid; clear wavy boundary.

Cx—25 to 60 inches; olive (5Y 5/3) gravelly fine sandy loam; few fine distinct light brownish gray (2.5Y 6/2) mottles and many medium distinct light olive brown (2.5Y 5/4) and prominent yellowish brown (10YR 5/6) mottles; moderate medium and thick platy structure; very firm, brittle; few fine and medium pores; 15 percent coarse fragments; moderately acid.

The thickness of the solum and the depth to the substratum range from 12 to 36 inches. Rock fragments in the solum and the substratum consist mainly of gravel and cobbles and make up 5 to 30 percent of the volume. Reaction ranges from extremely acid to moderately acid throughout, except where the soils have been limed.

The A1 horizon has hue of 5YR to 10YR, value of 2 to 4, and chroma of 2 or 3. Some pedons have an Ap horizon that has hue of 10YR, value of 2 to 4, and chroma of 2 or 3. Some pedons do not have an A2 horizon.

The Bir horizon has hue of 5YR to 10YR, value of 3 or 4, and chroma of 3 to 6. Some pedons have a thin, discontinuous dark reddish brown (5YR 2/2) B horizon. The B2 horizon in the lower part has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 or 4. The B3 horizon has hue of 2.5Y or 5Y, value of 4, and chroma of 3 or 4. The B horizon in the fine earth fraction is fine sandy loam or loam. Structure in the B2 horizon is weak or moderate fine or medium granular and in the B3 horizon ranges to weak medium platy.

The Cx horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 2 to 4. It is fine sandy loam, sandy loam, or loam in the fine earth fraction. Its structure is dominantly weak or moderate, thin to thick, and platy, but ranges to strong thick platy, or, the horizon is massive. Consistence is firm, or very firm, and brittle.

Scantic Series

The Scantic series consists of deep, poorly drained soils. These soils formed in water-deposited sediments. They are on low-lying marine and lacustrine plains. Slope ranges from 0 to 3 percent.

Scantic soils are adjacent to Biddeford, Boothbay, Buxton, Eldridge, Lyman, Peru, Swanville, and Tunbridge soils and Borosaprists. Biddeford soils are very poorly drained. Borosaprists are very poorly drained and ponded. Boothbay and Buxton soils are moderately well drained or somewhat poorly drained. Eldridge and Peru soils are moderately well drained. Lyman soils are shallow and somewhat excessively drained. Tunbridge soils are moderately deep and well drained. Swanville soils are deep and poorly drained, but Scantic soils have more clay than Swanville soils.

Typical pedon of Scantic silt loam, in a wooded area in the town of Wiscasset, 0.5 mile southeast of U.S. Route 1 on Maine Route 144, 500 feet northeast of road:

O2—1 inch to 0; litter of needles and leaves.

Ap1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; light gray (10YR 7/2) dry; weak fine granular structure; friable; many very fine to medium roots; very strongly acid; clear wavy boundary.

Ap2—4 to 7 inches; dark grayish brown (2.5Y 4/2) silt loam, light gray (2.5Y 7/2) dry; few fine distinct gray (N 6/0) mottles; weak fine granular structure; friable; many very fine to medium roots; very strongly acid; clear wavy boundary.

B21g—7 to 9 inches; grayish brown (2.5Y 5/2) silt loam; few fine distinct light olive gray (5Y 6/2) and common fine prominent yellowish brown (10YR 5/6) mottles; weak thin platy structure parting to weak very fine subangular blocky; friable; many very fine to medium roots; light brownish gray (2.5Y 6/2) faces of peds; strongly acid; clear wavy boundary.

B22g—9 to 12 inches; olive gray (5Y 5/2) silt loam; common fine faint light olive gray (5Y 6/2) and common medium prominent dark yellowish brown (10YR 4/4) mottles; weak thin and medium platy structure parting to weak very fine subangular blocky; friable; common very fine and fine, and few medium roots; common fine pores with gray (5Y 5/1) coatings; gray (5Y 5/1) faces of peds; strongly acid; clear wavy boundary.

B23g—12 to 17 inches; olive gray (5Y 4/2) silty clay loam; common medium faint gray (5Y 6/1), many medium prominent dark yellowish brown (10YR 4/4) and common medium prominent light olive brown (2.5Y 5/6) mottles; weak very coarse prismatic structure parting to weak thin and medium platy; firm; few very fine and fine roots; common fine pores with gray (5Y 5/1) coatings; gray (5Y 5/1) faces of prisms; very dusky red (2.5YR 2/2) oxide coatings on 10 percent of faces of peds within prisms; strongly acid; clear wavy boundary.

B3g—17 to 42 inches; olive gray (5Y 4/2) silty clay; common medium faint gray (5Y 6/1), many medium prominent dark yellowish brown (10YR 4/4) and few fine prominent light olive brown (2.5Y 5/6) mottles; weak very coarse prismatic structure parting to weak thick and very thick platy; firm; few very fine and fine roots; few fine pores with gray (5Y 6/1) coatings; gray (5Y 5/1) faces of prisms; very dusky red (2.5YR 2/2) oxide coatings on 10 percent of faces of peds within prisms; slightly acid; clear wavy boundary.

Cg—42 to 60 inches; olive gray (5Y 4/2) silty clay; few fine faint gray (5Y 6/1) and common medium prominent dark yellowish brown (10YR 4/4) mottles; weak very coarse prismatic structure parting to weak thick and very thick platy; firm; gray (5Y 5/1) faces of prisms; very dusky red (2.5YR 2/2) oxide coatings on 15 percent of faces of plates within prisms; neutral.

The solum ranges from 25 to 50 inches in thickness. Reaction ranges from very strongly acid to slightly acid in the A horizon and from strongly acid to neutral in the upper part of the B horizon, except where the soils have been limed. In the lower part of the B horizon and in the C horizon it is moderately acid to neutral.

The Ap horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 1 or 2. Some pedons have an A1 horizon that has hue of 10YR, value of 3, and chroma of 1 or 2. Some pedons have an A2g horizon that has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 1 or 2.

The B horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 1 or 2. It is silt loam or silty clay loam in the upper part and silty clay loam or silty clay in the lower part. Its structure is subangular blocky, platy, or prismatic. Its consistence is friable or firm.

The C horizon is neutral or has hue of 2.5Y or 5Y; value is 4 to 6, and chroma is 0 to 2. Its texture is silty clay loam or silty clay. Its structure is dominantly platy or prismatic, but in some pedons is massive. Its consistence is firm or very firm.

Searsport Series

The Searsport series consists of deep, very poorly drained soils. These soils formed in depressional areas on outwash plains, deltas, and terraces. Slope ranges from 0 to 3 percent.

Searsport soils are adjacent to Adams, Allagash, Brayton Variant, Madawaska, Masardis, Naumburg, and Sheepscot soils and Borosaprists. Adams and Masardis soils are somewhat excessively drained. Allagash soils are well drained. Brayton Variant soils are somewhat poorly drained or poorly drained. Madawaska and Sheepscot soils are moderately well drained. Naumburg soils are poorly drained or somewhat poorly drained.

Searsport soils have a thinner organic surface layer than Borosaprists.

Typical pedon of Searsport mucky peat, in a wooded area in the town of Appleton, 3.3 miles north of Burkettville on Collingstown Road, 0.5 mile west on gravel pit road, 2,000 feet southwest of road:

O1—12 to 9 inches; slightly decomposed litter of leaves, twigs, and grasses.

O2—9 inches to 0; black (N2/0) mucky peat; about 60 percent fiber, about 40 percent after rubbing; moderate fine granular structure; friable, slightly sticky and slightly plastic; common very fine to medium roots; very strongly acid; abrupt smooth boundary.

A1—0 to 2 inches; very dark gray (10YR 3/1) fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable, slightly sticky and slightly plastic; few very fine and common fine and medium roots; strongly acid; abrupt smooth boundary.

A2g—2 to 3 inches; gray (10YR 5/1) loamy fine sand; weak fine and medium granular structure; friable, nonsticky and nonplastic; moderately acid; abrupt broken boundary.

C1g—3 to 18 inches; dark gray (10YR 4/1) loamy sand; many medium and coarse faint gray (10YR 5/1) and distinct dark yellowish brown (10YR 4/4) mottles; single grain; loose, nonsticky and nonplastic; moderately acid; clear wavy boundary.

C2g—18 to 42 inches; olive gray (5Y 4/2) sand; common coarse prominent dark yellowish brown (10YR 4/4) mottles in the upper part; single grain; loose, nonsticky and nonplastic; 10 percent fine gravel; moderately acid; clear wavy boundary.

C3g—42 to 60 inches; olive gray (5Y 4/2) very gravelly sand; single grain; loose, nonsticky and nonplastic; 40 percent gravel; moderately acid.

The O horizon ranges from 8 to 16 inches in thickness. Coarse fragments range, by volume, from 0 to 15 percent in the particle-size control section and from 0 to 45 percent below. Reaction ranges from very strongly acid to moderately acid throughout.

The O2 horizon is neutral or has hue of 5YR to 5Y, value is 2 or 3, and chroma is 0 to 2.

The A1 horizon has hue of 5YR to 10YR, value of 2 to 4, and chroma of 1 or 2. It is sand, loamy sand, loamy fine sand, sandy loam, or fine sandy loam. Its structure is weak or moderate, fine or medium granular, or the horizon is single grain. Consistence is friable or loose.

The A2g horizon is neutral or has hue of 10YR to 5Y; value is 4 to 7, and chroma is 0 or 1. It is loamy fine sand to sand. Some pedons do not have an A2 horizon.

The C horizon is neutral or has hue of 10YR to 5Y; value is 4 to 6, and chroma is 0 to 2. Its texture is loamy sand, fine sand, sand, or coarse sand in the fine earth fraction.

Sheepscot Series

The Sheepscot series consists of deep, moderately well drained soils. These soils formed in glaciofluvial deposits. They are mainly on outwash plains, terraces, and deltas. Slope ranges from 0 to 8 percent.

Sheepscot soils are adjacent to Adams, Masardis, Naumburg, and Searsport soils. Adams and Masardis soils are somewhat excessively drained. Naumburg soils are poorly drained or somewhat poorly drained. Searsport soils are very poorly drained.

Typical pedon of Sheepscot fine sandy loam, 0 to 8 percent slopes, in a wooded area in the town of Washington, 0.8 mile northwest of Maine Route 105 along dirt road, 0.6 mile west of Razorville Corner, and 98 feet east of dirt road, in woods:

O1—3 to 2 inches; loose litter of leaves, needles, and twigs.

O2—2 inches to 0; black (5YR 2/1) decomposed forest litter; weak fine granular structure; friable; many very fine to coarse roots; very strongly acid; abrupt wavy boundary.

A1—0 to 1 inch; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; weak fine granular structure; friable; many very fine to coarse roots; 5 percent gravel; very strongly acid; abrupt broken boundary.

A2—1 to 3 inches; light gray (5YR 6/1) fine sandy loam; weak fine and medium granular structure; friable; many very fine to coarse roots; 5 percent gravel; very strongly acid; abrupt wavy boundary.

B21h—3 to 8 inches; dark reddish brown (5YR 3/3) gravelly fine sandy loam; weak fine granular structure; friable; common very fine to medium and few coarse roots; 20 percent gravel; strongly acid; clear wavy boundary.

B22ir—8 to 12 inches; brown (7.5YR 5/4) gravelly sandy loam; weak fine granular structure; friable; common very fine to medium and few coarse roots; 25 percent gravel; strongly acid; clear wavy boundary.

B23—12 to 17 inches; dark yellowish brown (10YR 4/4) very gravelly loamy sand; single grain; loose; common very fine and fine roots; 35 percent gravel; moderately acid; clear wavy boundary.

B3—17 to 25 inches; light olive brown (2.5Y 5/4) very gravelly sand; common fine prominent light brownish gray (10YR 6/2) and dark brown (7.5YR 4/4) mottles; single grain; loose; 35 percent gravel and 15 percent cobbles; moderately acid; abrupt wavy boundary.

C—25 to 60 inches; olive (5Y 5/3) extremely gravelly coarse sand; single grain; loose; 45 percent gravel and 20 percent cobbles; moderately acid.

The solum ranges from 18 to 30 inches in thickness. On the average, rock fragments, mainly gravel and cobbles, make up from 35 to 60 percent of the control section. In individual horizons, they range, by volume, from 5 to 50 percent in the A horizon and the upper part of the B horizon and from 35 to 75 percent in the lower part of the B horizon and the C horizon. Except where the soils have been limed, reaction ranges from extremely acid to moderately acid in the A and B horizons and from very strongly acid to moderately acid in the C horizon.

The O2 horizon has hue of 2.5YR or 5YR, value of 2, and chroma of 1 or 2.

The A1 horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. The A2 horizon has hue of 5YR to 10YR, value of 5 or 6, and chroma of 1 or 2. Some pedons have an Ap horizon that has hue of 10YR and value and chroma of 3 or 4.

The Bh horizon has hue of 5YR, value of 3, and chroma of 2 or 3. The Bir horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 to 6. The lower part of the B horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 4 to 6. The B horizon, in the fine earth fraction, ranges from fine sandy loam to coarse sandy loam within a depth of 10 inches, from sandy loam to coarse sand at a depth of 10 to 17 inches, and from loamy sand to coarse sand below a depth of 17 inches.

Structure of the B horizon in the upper part is weak or moderate, fine or medium granular and in the lower part is weak or moderate, fine or medium granular, or the horizon is single grain. Consistence in the B horizon ranges from friable in the upper part to loose in the lower part.

The C horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 2 to 4. Its texture ranges from loamy sand to coarse sand in the fine earth fraction. Some pedons have strata of sand, gravel, and cobbles.

Sulfaquents

Sulfaquents consist of deep, very poorly drained and ponded soils. These soils formed in marine silts and clays and in large amounts of decomposed plant material derived mainly from saltwater marsh grasses. They are in areas subject to flooding twice daily by tides. Slope is dominantly less than 1 percent.

Sulfaquents are adjacent to Biddeford soils, Beaches, Borosaprists, and Sulfihemists. They are in lower positions on the landscape than Biddeford soils, which normally are not subject to flooding. Unlike Sulfaquents, Beaches have sand and gravel materials. Unlike Borosaprists, Sulfaquents have sulfidic materials. Unlike Sulfaquents, Sulfihemists have deeper organic material.

These soils differ from area to area; thus, a typical pedon is not given. Generally, the surface layer consists of black or very dark grayish brown, well decomposed organic material derived mainly from saltwater marsh grasses. The underlying material extends to a depth of 60 inches or more. Generally, it is very dark grayish brown or very dark gray mineral material; in the upper part it is high in content of organic and sulfidic materials.

Reaction is slightly acid or neutral throughout. The soil material has a weak or moderate odor of hydrogen sulfide. The organic surface tier ranges from 0 to 15 inches in thickness.

The upper part of the bottom tier generally has hue of 10YR to 5Y, value of 2 to 4, and chroma of 1 or 2. It is very fine sandy loam to silty clay loam and, by volume, as much as 25 percent organic material.

The lower part of the bottom tier has hue of 2.5Y or 5Y, value of 2 to 4, and chroma of 1 or 2. It is silt loam or silty clay loam and, by volume, less than 20 percent organic material.

Sulfihemists

Sulfihemists consist of deep, very poorly drained and ponded organic soils. These soils formed in decomposed plant material derived mainly from saltwater marsh grasses and in marine sediments. They are in areas subject to flooding twice daily by tides. Slope is dominantly less than 1 percent.

Sulfihemists are adjacent to Biddeford soils, Beaches, Borosaprists, and Sulfaquents. They are in lower positions on the landscape than Biddeford soils, which normally are not subject to flooding. Unlike Sulfaquents, Beaches have sand and gravel materials. Unlike Borosaprists, Sulfihemists have sulfidic materials. Sulfihemists have a thicker organic layer than Sulfaquents.

These soils differ from area to area; thus, a typical pedon is not given. Generally, the surface tier consists of very dark brown or black, decomposed hemic or sapric material derived mainly from saltwater marsh grasses mixed with differing amounts of fine textured mineral material. The subsurface tier is dark gray or black, decomposed saltwater marsh grasses that are high in mineral and sulfidic materials. The bottom tier extends to a depth of 60 inches or more. Generally, it is very dark gray silt loam that, in the upper part, is high in content of organic material.

Reaction ranges from strongly acid to neutral throughout. The soil material has a weak or moderate odor of hydrogen sulfide.

The surface and subsurface tiers range from 18 to 60 inches in thickness. The bottom tier has hue of 10YR to 5Y, value of 2 to 4, and chroma of 1 or 2. It is fine sandy loam, very fine sandy loam, silt loam, silt, silty clay loam, clay loam, or silty clay. The content of organic matter in the bottom tier ranges from 5 to 25 percent.

Swanville Series

The Swanville series consists of deep, poorly drained soils. These soils formed in water-deposited sediments.

They are on low-lying, marine and lacustrine plains. Slope ranges from 0 to 3 percent.

Swanville soils are adjacent to Biddeford, Boothbay, Buxton, Eldridge, and Scantic soils and Borosaprists. Biddeford soils are very poorly drained, and Borosaprists are very poorly drained and ponded. Boothbay and Buxton soils are moderately well drained or somewhat poorly drained. Eldridge soils are moderately well drained. They have less clay in the substratum than Scantic soils.

Typical pedon of Swanville silt loam, in an idle field in the town of Warren, 0.2 mile south of U.S. Route 1 on Maine Route 97, 0.9 mile west along a dirt road, and 200 feet north of road:

Ap1—0 to 5 inches; dark brown (10YR 3/3) silt loam, light yellowish brown (10YR 6/4) dry; weak fine and medium granular structure; friable; common very fine and fine, and few medium and coarse roots; strongly acid; abrupt smooth boundary.

Ap2—5 to 9 inches; dark grayish brown (2.5Y 4/2) silt loam; common fine distinct gray (10YR 6/1) and few fine prominent yellowish brown (10YR 5/6) mottles; weak fine and medium granular structure; friable; common very fine and fine, and few medium and coarse roots; slightly acid; clear wavy boundary.

B2g—9 to 16 inches; olive (5Y 5/3) silt loam; common fine prominent gray (10YR 6/1), common medium prominent yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; weak and moderate, fine and medium subangular blocky structure; friable; few very fine to medium roots; many very fine and fine pores with gray (5Y 5/1) coatings; grayish brown (2.5Y 5/2) faces of peds; slightly acid; clear wavy boundary.

B3g—16 to 26 inches; olive (5Y 5/3) silt loam; common fine faint olive gray (5Y 5/2), common medium prominent dark yellowish brown (10YR 4/4), and few medium distinct light olive brown (2.5Y 5/4) mottles; moderate coarse prismatic structure parting to moderate medium and thick platy; friable; few fine roots; common very fine and fine pores with gray (5Y 5/1) coatings; grayish brown (2.5Y 5/2) faces of prisms; slightly acid; clear wavy boundary.

C1g—26 to 36 inches; olive gray (5Y 4/2) silt loam; common fine faint light gray (5Y 6/1), common medium prominent dark brown (7.5YR 4/4), and few medium prominent light olive brown (2.5Y 5/6) mottles; strong very coarse prismatic structure parting to moderate thick and very thick platy; firm; few very fine roots along worm channels; few fine pores with gray (5Y 5/1) coatings; olive gray (5Y 5/2) faces of prisms; dark reddish brown (5YR 3/2) oxide coatings on 20 percent of the faces of plates within prisms; discontinuous very fine sandy loam flows occur along 10 percent of the faces of prisms; slightly acid; gradual wavy boundary.

C2g—36 to 60 inches; olive (5Y 4/3) silty clay loam; common fine faint light olive gray (5Y 6/2), common medium prominent dark brown (7.5YR 4/4), and common medium prominent yellowish brown (10YR 5/6) mottles; strong very coarse prismatic structure parting to moderate thick and very thick platy; firm; few fine pores with gray (5Y 5/1) coatings; olive gray (5Y 5/2) faces of prisms; dark reddish brown (5YR 3/2) oxide coatings on 50 percent of the faces of plates within prisms; neutral.

The solum ranges from 20 to 40 inches in thickness. Except where the soils have been limed, reaction ranges from strongly acid to slightly acid in the solum and from moderately acid to neutral in the substratum.

The Ap horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 1 to 3. Some pedons have an A2g horizon that has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 1 or 2.

The B horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 1 to 4. Its texture is very fine sandy loam, silt loam, and silty clay loam. Its structure is weak to strong, medium or thick platy, very fine to medium subangular blocky or angular blocky, or weak fine or medium granular. In some pedons, its structure is mainly prismatic. Its consistence is friable or firm.

The C horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 1 to 4. It is silt loam or silty clay loam, and in some pedons has thin layers that range from silt to fine sand. Its structure is weak to strong, medium to very thick platy, moderate very fine angular blocky, or moderate or strong, coarse or very coarse prismatic. In some pedons the horizon is massive. Its consistence is friable or firm.

Tunbridge Series

The Tunbridge series consists of moderately deep, well drained soils. These soils formed in glacial till derived mainly from mica schist, gneiss, or phyllite. They are on the tops and side slopes of upland ridges and mountains and on low coastal ridges. Slope ranges from 3 to 45 percent.

Tunbridge soils are adjacent mainly to Berkshire, Brayton, Brayton Variant, Eldridge, Hermon, Lyman, Marlow, Masardis, and Peru soil and areas of Rock outcrop. Berkshire, Brayton, Eldridge, Hermon, Marlow, Masardis, and Peru soils are deep. Brayton Variant soils are somewhat poorly drained or poorly drained. Lyman soils are shallow.

Typical pedon of Tunbridge fine sandy loam, in an area of Lyman-Rock outcrop-Tunbridge complex, 8 to 15 percent slopes, in a wooded area in the town of Edgecomb, 0.6 mile south of Merry Island Road on River Road, 125 feet west of road:

O1—2 inches to 1 inch; litter of needles, twigs, and leaves.

O2—1 inch to 0; very dark gray (5YR 3/1) decomposed forest litter; weak very fine and fine granular structure; very friable; many very fine, common fine and medium, and few coarse roots; very strongly acid; abrupt smooth boundary.

A1—0 to 2 inches; very dark brown (10YR 2/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; common very fine to medium, and few coarse roots; 5 percent coarse fragments; very strongly acid; abrupt smooth boundary.

B21h—2 to 6 inches; dark reddish brown (5YR 3/4) fine sandy loam; weak very fine granular structure; very friable; common very fine to medium, and few coarse roots; 10 percent coarse fragments; strongly acid; abrupt wavy boundary.

B22ir—6 to 10 inches; yellowish red (5YR 4/6) fine sandy loam; weak very fine granular structure; very friable; common very fine to coarse roots; 10 percent coarse fragments; strongly acid; abrupt wavy boundary.

B23—10 to 26 inches; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; weak very fine and fine granular structure; very friable; common very fine to coarse roots; 15 percent coarse fragments; strongly acid; abrupt wavy boundary.

C—26 to 31 inches; olive (5Y 5/3) gravelly fine sandy loam; weak medium platy structure; firm in place, friable when removed; common very fine and fine, and few medium roots; 20 percent coarse fragments; strongly acid; abrupt wavy boundary.

R—31 inches; schistose bedrock.

The solum ranges from 20 to 30 inches in thickness. Depth to bedrock ranges from 20 to 40 inches. Rock fragments range, by volume, from 5 to 20 percent in the solum and from 10 to 20 percent in the C horizon. They are mainly pebbles and cobbles and also a few stones. Except where the soils have been limed, reaction is extremely acid to moderately acid in the solum and strongly acid to slightly acid in the substratum.

The Ap, or A1, horizon has hue of 7.5YR or 10YR and value and chroma of 2 to 4. In some pedons there is a discontinuous A2 horizon. It has hue of 5YR to 10YR, value of 4 to 6, and chroma of 1 or 2.

The Bh horizon has hue of 5YR or 7.5YR and value and chroma of 3 or 4. The Bir horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 to 6. The B2 horizon in the lower part has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 3 to 6. The B horizon in the fine earth fraction is fine sandy loam or loam. Its structure is weak or moderate, very fine or fine granular or subangular blocky. Its consistence is very friable or friable.

The C horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 2 to 4. It is fine sandy loam or loam in the fine earth fraction. Its structure is weak, medium or thick platy, or the horizon is massive. Its consistence is friable or firm. In some pedons there is no C horizon.

Bedrock is dominantly mica schist, gneiss, or phyllite.

Udorthents

Udorthents consist of moderately deep and deep, excessively drained to well drained filled areas overlying bedrock or soil. The fill material differs greatly from place to place, but generally is compacted gravel, sand, loamy sand, sandy loam, or mixed combinations of these materials. Coarse fragments in these materials generally range from 5 to 35 percent. The underlying soil generally is moderately well drained to poorly drained, but ranges to excessively drained. Slopes dominantly range from 0 to 3 percent, but the sides of fill areas are very steep.

Udorthents are adjacent to various other soils, but mainly to those that are moderately well drained to poorly drained.

These soils differ from area to area; thus, a typical pedon is not given. They are more than 20 inches thick, and generally are 30 to 40 inches thick. Texture ranges from sand to silty clay. Depth to bedrock is 20 inches or more. Reaction is very strongly acid to neutral.

The surface layer is gravelly fill or consists of topsoil brought in from elsewhere. Thickness, color, texture, and gravel content differ greatly.

The underlying layers dominantly have hue of 7.5YR to 5Y, value of 5 to 8, and chroma of 0 to 4. These layers are commonly discontinuous. Generally, they are gravelly sand, gravelly loamy sand, loamy sand, or sandy loam. They range from 14 to 60 inches or more in thickness.

Morphology of the Soils

By Robert V. Rourke, soil scientist, University of Maine.

The soils in Knox and Lincoln Counties have distinct horizons because five major processes take place, often simultaneously, within the soil. These processes are the addition of organic matter, the transformation and transfer of organic matter and iron and aluminum oxides, the weathering of primary minerals or rocks into silicate clays, the formation of soil structure, and the reduction and oxidation of iron and transfer of iron.

The soils in wooded areas have an O, for "organic," horizon on the surface. The horizon is an accumulation of organic matter, such as twigs and leaves, or of humus little admixed with mineral material. The amount of organic matter added to the A horizon, or surface layer, varies with the amount of vegetation on the soil and the aspect, the temperature, the moisture, and the drainage of the soil. Generally, the organic matter content in the A horizon in excessively drained soils is relatively low; that in the A horizon of somewhat poorly drained soils is relatively high.

Organic matter accumulates and is incorporated into the soil to form the A horizon. In many soils cultivation has caused the change of an A horizon to an Ap horizon. In cultivation, organic material is incorporated into the Ap horizon.

The weathering process is also important in the formation of horizons in the soils of Knox and Lincoln Counties. This is the movement of organic matter and iron and aluminum oxides from the A horizon to the B horizon. The leaching of soluble cations and the decomposition of organic matter in the A horizon produces acid that dissolves sesquioxides (iron and aluminum oxides), reduces iron, and forms soluble metallic-organic complexes (*7*). These complexes are leached from the A horizon to the B horizon, where they are precipitated by mechanical, chemical, and biological processes (*3*).

In some areas, a light grayish, leached A2 horizon has formed over accumulated humus and sesquioxides in the B horizon. Humus and sesquioxides, for example, have accumulated in the B horizon in Adams, Hermon, Madawaska, Masardis, and Peru soils.

The B horizon in some soils, such as Boothbay soils, was formed mainly by alteration of the original material rather than by illuviation. The alteration could have been caused by the weathering of parent material, by the oxidation of iron, which produces rusty colors, or by the development of soil structure in place of the original rock or sediment structure.

Gray colors in the B horizon, or subsoil, in poorly drained soils or in soils that have a seasonal high water table, indicate the chemical reduction of iron. Under anaerobic conditions, iron was reduced to a more soluble form, the ferrous form. Thus, the solubilized iron was leached, moved to a different horizon, or concentrated and partly reoxidized. The gray mottles in soil result from the reduction and reoxidation of iron. Grayish colors are common in the subsoil of such soils as Brayton and Swanville soils. Brayton soils are somewhat poorly drained to poorly drained. Swanville soils are poorly drained.

The compact substratum in Marlow and Peru soils is tightly packed, and bulk density is high and pore space low. This substratum is thought to have been formed partly by great pressure from glacial ice (*5*). The eluvial and illuvial layers in the soil overlie this dense layer, and are commonly separated from it by a second eluvial layer.

The compact substratum is at a depth of about 20 to 24 inches and extends to a depth of 72 inches or more. Commonly, its structure is very coarse to coarse prismatic. This substratum is brittle when moist. It is nearly impervious to roots, and permeability is slow.

Formation of the Soils

This section describes the major processes of soil formation in the survey area.

Factors of Soil Formation

Soil is formed by the interaction of five major soil-forming factors: climate, parent material, plant and animal life, topography, and time. Each of these factors from place to place influences the soil-forming processes differently. In some places one factor dominates in the formation of a soil and determines most of its properties. The differing influence of each of the five factors causes the local variations in the soils in the survey area.

Climate

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

The weather in the coastal zone of Knox and Lincoln Counties influenced by the weather from the Maritime Provinces in Canada. Hence, the coastal zone has a maritime polar climate. The zone west and north of the coastal zone has a continental polar climate. These two zones are separated by an imaginary, southwest-northeast line running from Dresden to Appleton.

Rainfall influences soil formation through erosion losses and solution losses. Solution losses are caused by leaching and chemical reaction, in which water is a necessary component. Many constituents are leached from the soil. These include, in varying amounts, the soluble salts and the basic ions of calcium, magnesium, potassium, and sodium, which were released by the weathering of minerals. During a year, water percolating through the soil can leach as much as several tons of water-soluble minerals per square mile. As a result, the soils in the survey area are mainly slightly acid to extremely acid.

Physical weathering in the form of alternate freezing and thawing takes place from fall to spring. This helps to granulate soil material and break rock fragments. Alternate freezing and thawing improve soil structure in soils compacted by the use of heavy equipment.

The survey area is at a latitude just south of midpoint between the North Pole and the Equator. The soils, therefore, are more highly weathered and are deeper than those in polar regions. They are not, however, so highly weathered or deep as most soils in tropical latitudes, where climate commonly masks the influence of different parent material.

Parent Material

The parent material of the soils in the survey area and the inherent landscape features have resulted largely from the Wisconsinan Glaciation. The five major kinds of parent material of soils in the survey area are glacial till, glaciofluvial deposits, marine and lacustrine sediments, organic material, and recent alluvium.

Soils that formed in friable glacial till, such as Hermon soils, show evidence of the gouging, scraping, and transportation action of the glacier that deposited this material across the landscape. Marlow, Peru, and Brayton soils formed in dense, compact glacial till derived mainly from mica schist, gneiss, and granite. Marlow and Peru soils are on drumlin-shaped ridges. Brayton soils are in depressions on these ridges. Berkshire soils formed in glacial till that is less dense.

Glaciofluvial deposits are stratified sandy, loamy, or gravelly material in the form of deltas, outwash plains, terraces, kames, and eskers. This material was picked up by the glacier and then sorted and deposited by glacial meltwater. Adams, Allagash, Madawaska, Masardis, Naumburg, Searsport, and Sheepscot soils formed in glaciofluvial deposits.

Marine and lacustrine sediments are materials deposited in quiet bodies of water. Eldridge soils formed in sandy sediment underlain by loamy sediment. Boothbay, Buxton, Scantic, Swanville, and Biddeford soils formed in sediments of silt and clay.

Alluvium is recent material deposited along streams and rivers. Charles, Lovewell, and Medomak soils formed in alluvium.

Organic material accumulated in depressions that were ponded at one time and subsequently became filled in with plant remains. Borosaprists formed in highly decomposed plant material derived from mosses, grasses, and herbaceous and woody plants. Sulfaquents and Sulfihemists formed in plant material derived from saltwater marsh grasses and in marine silts and clays in tidal areas.

Plant and Animal Life

The presence of living plants and animals and the decaying remains of plants and animals in a mineral soil is one of the features that distinguish the soil from its parent material. Plants generally supply the organic matter that gives color to the surface layer. In poorly drained and very poorly drained areas, organic matter generally collects on the surface in thick, organic layers.

Decaying plants and animals also supply nutrients to the soil. Trees and other plants take up nutrients and store them in leaves, stems, and roots. When the trees and plants die, they are acted on by bacteria or fungi, and thus the nutrients are returned to the soil. Fungi produce some of the organic acids in such soils as Adams, Berkshire, Hermon, and Marlow soils, especially where the soils have not been plowed.

Earthworms, insects, rodents, and other animals that live in the soil help to mix the soil layers. In particular, earthworms help to aerate and to granulate the soil. They also help to decompose organic matter.

Human activities also change the soil. The layers of soil are mixed through plowing. In some areas compact, impermeable layers have formed within the soil because of plowing or use of machinery. On some soils, accelerated erosion in cultivated areas has resulted in the loss of the original surface layer. Soils that have been limed and fertilized for long periods have become less acid. Where drainage systems have been installed, the soil has often become more aerated and warmer and the organic matter content in the surface layer has decreased.

Topography

The influence of topography on the soils can be seen by comparing soils where the parent material and the climate are the same, but where topography and drainage are different.

Brayton, Marlow, and Peru soils, for example, formed in compact glacial till (fig. 17). Brayton soils are somewhat poorly drained to poorly drained. They are in depressions and on the lower slopes of ridges. Slopes mainly are concave. Marlow soils are well drained. They are on the upper parts of ridges. Slopes mainly are convex. Peru soils are moderately well drained. They are on the middle parts of ridges. Slopes mainly are slightly concave.

Time

The degree of development, or the maturity, of a soil commonly reflects the length of time that the parent material has been in place. In this survey area, the formation of most upland soils in their present state began about 13,500 years ago, with the retreat of the last glacier. The formation of lowland soils began when they emerged from the sea, about 12,000 years ago.

Most soils on flood plains are continually being reworked, and are considered immature. Their layers are not well drained, there are only slight differences in their colors, and structure is weak. Charles soils are an example of soils on flood plains.

Some soils show evidence of change and maturity, such as the formation of a distinct dark reddish layer. This layer indicates the accumulation of organic matter and of iron and aluminum oxides over a long period. Hermon soils have such a layer.

Geology

D. Bruce Champeon, geologist, Soil Conservation Service, assisted in preparing this section.

The landscape of Knox and Lincoln Counties was shaped by events that occurred during the Pleistocene epoch, which began about 2 million years ago. Glaciations, or coverings of huge ice sheets, advanced over and retreated from the area, probably as many as four times. Evidence remains of only the last major glaciation, the Wisconsinan Glaciation.

The Laurentide ice sheet of late Wisconsinan age had spread southeast and reached its maximum extent on the continental shelf by about 18,000 years ago. As it moved, the glacier ground up rocks beneath it and deposited this newly eroded material under the ice as a compact blanket of glacial till, a dense mixture of ground rocks ranging from clay-sized particles to boulders. Marlow and Peru soils developed in this dense till.

The sheer weight of a massive sheet of ice thousands of feet thick depressed the land surface significantly, but exactly how much is not known. The great quantities of moisture, frozen or otherwise, in the glacier resulted in a general, world-wide lowering of the sea level by about 300 to 350 feet. As the climate warmed, the rate of melting eventually exceeded the rate of advance. Thus, the glacial margin retreated.

About 13,500 years ago, the ice margin had receeded to approximately the same position as the present coast. As the recession continued inland, a series of small ridges formed. These ridges, known as recessional moraines, formed from material deposited when the ice margin stabilized temporarily during the overall retreat. Many of these moraines formed underwater, and later were wave-washed as they emerged from the waters. Hermon soils, for example, formed on these moraines. The lowlands and the valleys were flooded when the sea level rose. These areas were covered by large amounts of lacustrine and marine sediments consisting mainly of silt and clay. The familiar "blue clays" of the coastal zone and the major river valleys formed in these sediments. Buxton soils, for example, formed in these sediments.

During glacial retreat, large amounts of meltwater carried and eventually deposited sands and gravels as terraces, kames, deltas, and eskers, all of which were in

Figure 17.—A landscape of Brayton, Peru, Marlow, Tunbridge, and Lyman soils and areas of Rock outcrop. Brayton and Peru soils are at the lower elevations, Marlow and Tunbridge soils are at the higher elevations, and Lyman soils and areas of Rock outcrop are on hilltops.

contact with the remaining ice. Also, sand was deposited in places in front of the ice margin as outwash plains. These kinds of deposits commonly are the source of high yields of ground water in wells. Masardis soils formed in ice-contact deposits. Adams soils formed in sandy material on outwash plains.

When the quantity of meltwater decreased, some soil material in the ice was not carried away by water, but was deposited as a cover of firm, but not dense, till on some upland ridges and slopes. Berkshire soils developed in this till.

As the ice melted and its weight was removed, the land began to rebound and emerge from the sea. This emergence lasted from about 13,000 years ago to about 10,000 years ago when sea level was about 180 feet below the present level. Since that time, a slow submergence has brought the sea up to its present level. During the period of emergence many lakes, ponds, and marshes were formed. Some still exist, but many have been filled with lacustrine sediment or organic material. Boothbay soils formed in lacustrine sediment, and Borosaprists formed in organic material.

The process of erosion, sedimentation, and landscape alteration is ongoing. Soils continue to form in material deposited after the glaciations. Alluvial soils, such as Charles soils, formed in deposits along river and stream bottoms. Sulfihemists and Sulfaquents formed in the remains of saltwater marsh grasses, as well as in marine sediments, in tidal marshes. Beaches formed in loose, water-worked sands, gravel, and cobbly material.

Economic geology. Quarrying marble (metamorphosed limestone) for use in the local manufacturing of Portland cement is of major importance in the area of Union, Thomaston, and Rockland, in Knox County.

Quarrying granite, diorite, and gabbro for building and decorative stone, monuments, and paving stone is now practically nil. The quarrying was once extensive. At one time, more than 20 quarries were on Vinalhaven Island and in the vicinity of St. George, in Knox County.

Mining glacial ice-contact deposits and glacial outwash deposits for sand and gravel for use in construction is still of economic importance. Production of crushed stone is also important.

A nickel-copper ore body has been explored in Union, in Knox County, but has not been commercially developed. Many pegmatites are in the survey area. These are very coarse-grained, igneous rocks that contain a great variety of minerals. They provide opportunities for mineral collecting. Peat deposits are a potential source of fuel and of soil conditioners.

Survey Procedures

Prior to actual field mapping, general field investigations were made to determine the patterns of landforms. Spot checks were made of various soils in the field. Where available, surficial geology maps and bedrock geology maps were used to form a correlation between landforms and the individual soil sites.

Field mapping was done primarily by making traverses on foot. Traverses were made at intervals of about 1/2 mile, depending on the complexity of topography and of soil patterns. Some areas of high variability are along the coast and in river valleys.

Soil examinations along the traverses were made 300 to 800 yards apart, depending on the landscape and the soil patterns. The soil material was examined with the aid of a hand auger or shovel to a depth of about 5 feet or to bedrock if bedrock was at a depth of less than 5 feet. The pedons described as typical were observed and studied in pits. Some of these pedons were sampled for laboratory analysis.

All soils information was recorded on aerial photographs. Initially, the photographs were at a scale of 1:15,840 (4 inches equals 1 mile), but later, photographs at a scale of 1:20,000 were used. These last were at the scale of final publication. Surface drainage was also recorded on aerial photographs. Cultural features are from U.S. Geological Survey 7½ and 15 minute topographic maps.

References

(1) American Association of State Highway and Transportation Officials. 1982. Standard specifications for highway materials and methods of sampling and testing. Ed. 13, 2 vols., illus.

(2) American Society for Testing and Materials. 1974. Method for classification of soils for engineering purposes. ASTM Stand. D 2487-69. *In* 1974 Annual Book of ASTM Standards, Part 19, 464 pp., illus.

(3) Buol, Stanley W., Francis D. Hole, and Ralph J. Mc Cracken. 1973. Soil genesis and classification. Ed. 1, 360 pp., illus.

(4) Ferguson, Roland H. and Neal P. Kingsley. 1972. The timber resources of Maine. U.S. Forest Serv. Resour. Bull, NE-26, 129 pp., illus.

(5) Flint, Richard F. 1957. Glacial and Pleistocene geology. John Wiley and Sons, Inc., 551 pp., Illus.

(6) Maine Cooperative Extension Service, Maine Soil and Water Conservation Commission and United States Department of Agriculture Soil Conservation Service. 1975. Soil suitability guide for land use planning in Maine. Coop. Ext. Serv. Univ. of Maine, at Orono Misc. Publ. 667 (Revised)

(7) Stoble, P. C. and J. R. Wright. 1959. Modern Concepts of the genesis of podzols. Soil Sci. Soc. Am. Proc. 23: 161-164

(8) United States Department of Agriculture. 1951. Soil survey manual. U.S. Dep. Agric. Handb. 18, 503 pp., illus. (Chapters 4 and 5 issued May 1981)

(9) United States Department of Agriculture. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. Soil Conserv. Serv., U.S. Dep. Agric. Handb. 436, 754 pp., illus.

(10) United States Department of Commerce. 1979. 1978 Census of agriculture, Maine state and county data. Bur. of the Census, 257 pp., illus.

Glossary

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

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	0 to 2.4
Low	2.4 to 3.2
Moderate	3.2 to 5.2
High	more than 5.2

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Carrying capacity. The maximum stocking rate possible without inducing damage to vegetation or related resources. The rate may vary from year to year because of fluctuating forage production.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

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.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a channer.

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.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Commercial forestland. Forestland that is producing or is capable of producing in excess of 20 cubic feet per acre per year of industrial wood in natural stands.

Compact substratum. The dense zone underlying the solum.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Congeliturbate. Soil material disturbed by frost action.

Conservation tillage. A form of noninversion tillage that retains protective amounts of residue mulch on the surface throughout the year. Conservation tillage includes no-tillage, strip tillage, stubble mulching, and other types of noninversion tillage.

Conservation tillage. A tillage and planting system in which crop residue covers at least 30 percent of the soil surface after planting. Where soil erosion by wind is the main concern, the system leaves the equivalent of at least 1,000 pounds per acre of flat small-grain residue on the surface during the critical erosion period.

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.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

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.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by 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 is not a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist, 6 to 15 inches (15 to 38 centimeters) long.

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.

Forb. Any herbaceous plant not a grass or a sedge.

Fragile (in tables). A soil that is easily damaged by use or disturbance.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift (geology). Pulverized and other rock material transported by glacial ice and then deposited. Also the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial melt water.

Glacial till (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial melt water. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.6 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 (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

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 uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

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, any plowed or disturbed surface layer.

A horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an O, A, or A horizon. The B horizon is in part a layer of transition from the overlying horizon 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) granular, prismatic, or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

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 overlying 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, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Kame (geology). An irregular, short ridge or hill of stratified glacial drift.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Large stones (in tables). Rock fragments 3 inches (7.6 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.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. 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.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Moraine (geology). An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

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.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material).

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permafrost. Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperture below freezing has existed continuously for a long time.

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 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting ground ice. They form on the soil after plant cover is removed.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor filter (in tables). Because of rapid permeability the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately 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

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. Bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Much has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

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 multipled by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters 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, E, 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.

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. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from about 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifiying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Till plain. An extensive flat to undulating area underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Toxicity (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, are in soils in extremely small amounts. They are essential to plant growth.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Varve. A sedimentary layer of a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by melt water streams, in glacial lake or other body of still water in front of a glacier.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1951-74 at Rockland, Maine]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	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*	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	14.2	23.5	52	-13	9	4.21	2.50	5.73	8	14.5
February---	34.0	14.8	24.4	50	-12	0	4.64	3.18	5.96	8	19.6
March------	40.8	24.0	32.4	59	0	11	4.41	2.44	6.02	8	13.3
April------	52.1	33.4	42.7	72	18	103	4.30	2.73	5.71	8	2.4
May--------	62.2	41.9	52.1	84	28	375	3.73	2.15	5.01	8	.1
June-------	71.7	50.9	61.3	91	37	639	2.99	1.68	4.05	7	.0
July-------	77.0	56.4	66.7	92	45	828	3.60	1.52	5.27	6	.0
August-----	76.1	53.2	65.7	91	41	797	3.02	1.82	4.08	6	.0
September--	68.7	48.8	58.7	89	30	561	3.94	2.50	5.23	6	.0
October----	58.9	39.6	49.3	79	21	293	3.89	2.47	5.18	6	.1
November---	47.5	31.1	39.3	65	12	55	5.66	3.97	7.22	9	1.8
December---	36.2	19.3	27.8	56	-6	23	5.28	3.41	6.97	9	14.0
Year:	54.8	35.8	45.3	94	-15	3,694	49.67	42.24	56.79	89	65.8

* 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

[Recorded in the period 1951-74 at Rockland, Maine]

Probability	Temperature		
	24^{o} F or lower	28^{o} F or lower	32^{o} F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 23	May 6	May 22
2 years in 10 later than--	April 18	May 1	May 17
5 years in 10 later than--	April 10	April 22	May 8
First freezing temperature in fall:			
1 year in 10 earlier than--	October 15	October 2	Septermber 20
2 years in 10 earlier than--	October 20	October 7	September 24
5 years in 10 earlier than--	October 30	October 15	October 2

TABLE 3.--GROWING SEASON

[Recorded in the period 1951-74 at Rockland, Maine]

Probability	Length of growing season if daily minimum temperature is--		
	Higher than 24^{o} F	Higher than 28^{o} F	Higher than 32^{o} F
	Days	Days	Days
9 years in 10	180	156	127
8 years in 10	188	163	134
5 years in 10	202	176	147
2 years in 10	216	189	161
1 year in 10	224	196	168

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Knox County	Lincoln County	Total--	
				Area	Extent
		Acres	Acres	Acres	Pct
AdB	Adams loamy fine sand, 3 to 8 percent slopes	641	594	1,235	0.2
AdC	Adams loamy fine sand, 8 to 15 percent slopes	749	461	1,210	0.2
AdD	Adams loamy fine sand, 15 to 25 percent slopes	175	104	279	0.1
AgA	Allagash fine sandy loam, 0 to 3 percent slopes	0	175	175	*
AgB	Allagash fine sandy loam, 3 to 8 percent slopes	30	48	78	*
AgC	Allagash fine sandy loam, 8 to 15 percent slopes	90	50	140	*
Be	Beaches	230	35	265	0.1
Bg	Biddeford mucky peat	1,262	2,368	3,630	0.7
BoB	Boothbay silt loam, 3 to 8 percent slopes	12,930	11,590	24,520	4.7
BoC	Boothbay silt loam, 8 to 15 percent slopes	7,814	5,531	13,345	2.5
BoD2	Boothbay silt loam, 15 to 25 percent slopes, eroded	574	710	1,284	0.2
Bp	Borosaprists, ponded	8,871	12,219	21,090	4.0
BsB	Brayton fine sandy loam, 0 to 8 percent slopes	999	590	1,589	0.3
BtB	Brayton very stony fine sandy loam, 0 to 8 percent slopes	8,103	4,392	12,495	2.4
BuB	Buxton silt loam, 3 to 8 percent slopes	0	15,465	15,465	3.0
BuC	Buxton silt loam, 8 to 15 percent slopes	0	8,025	8,025	1.5
BuD2	Buxton silt loam, 15 to 25 percent slopes, eroded	0	1,355	1,355	0.3
Ch	Charles silt loam	1,907	798	2,705	0.5
Dp	Dumps-Pits complex	919	31	950	0.2
EgB	Eldridge fine sandy loam, 3 to 8 percent slopes	656	1,239	1,895	0.4
HeB	Hermon fine sandy loam, 0 to 8 percent slopes	204	899	1,103	0.2
HeC	Hermon fine sandy loam, 8 to 15 percent slopes	211	943	1,154	0.2
HtB	Hermon very stony fine sandy loam, 0 to 8 percent slopes	132	791	923	0.2
HtC	Hermon very stony fine sandy loam, 8 to 15 percent slopes	710	2,210	2,920	0.6
HtD	Hermon very stony fine sandy loam, 15 to 25 percent slopes	119	313	432	0.1
HxB	Hermon extremely bouldery fine sandy loam, 3 to 8 percent slopes	15	230	245	*
HxC	Hermon extremely bouldery fine sandy loam, 8 to 15 percent slopes	152	791	943	0.2
Le	Lovewell very fine sandy loam	292	282	574	0.1
LmB	Lyman-Brayton Variant-Rock outcrop complex, 0 to 8 percent slopes	8,108	7,607	15,715	3.0
LrB	Lyman-Rock outcrop-Tunbridge complex, 3 to 8 percent slopes	10,807	18,493	29,300	5.6
LrC	Lyman-Rock outcrop-Tunbridge complex, 8 to 15 percent slopes	36,236	58,944	95,180	18.1
LrE	Lyman-Rock outcrop-Tunbridge complex, 15 to 45 percent slopes	9,870	12,070	21,940	4.2
MaB	Madawaska fine sandy loam, 3 to 8 percent slopes	1,061	859	1,920	0.4
MrB	Marlow fine sandy loam, 3 to 8 percent slopes	1,115	2,270	3,385	0.6
MrC	Marlow fine sandy loam, 8 to 15 percent slopes	1,165	3,370	4,535	0.9
MrD	Marlow fine sandy loam, 15 to 25 percent slopes	545	325	870	0.2
MsB	Marlow very stony fine sandy loam, 3 to 8 percent slopes	935	2,425	3,360	0.6
MsC	Marlow very stony fine sandy loam, 8 to 15 percent slopes	4,960	5,505	10,465	2.0
MsD	Marlow very stony fine sandy loam, 15 to 25 percent slopes	3,465	1,225	4,690	0.9
MtB	Marlow-Berkshire fine sandy loams, 3 to 8 percent slopes	80	46	126	*
MtC	Marlow-Berkshire fine sandy loams, 8 to 15 percent slopes	365	133	498	0.1
MwB	Marlow-Berkshire very stony fine sandy loams, 3 to 8 percent slopes	167	115	282	0.1
MwC	Marlow-Berkshire very stony fine sandy loams, 8 to 15 percent slopes	841	516	1,357	0.3
MwD	Marlow-Berkshire very stony fine sandy loams, 15 to 25 percent slopes	176	102	278	0.1
MxB	Masardis gravelly fine sandy loam, 3 to 8 percent slopes	1,325	835	2,160	0.4
MxC	Masardis gravelly fine sandy loam, 8 to 15 percent slopes	706	875	1,581	0.3
MxD	Masardis gravelly fine sandy loam, 15 to 25 percent slopes	201	184	385	0.1
My	Medomak silt loam	960	565	1,525	0.3
Na	Naumburg loamy sand	1,880	1,835	3,715	0.7
PaB	Peru fine sandy loam, 3 to 8 percent slopes	10,125	7,330	17,455	3.3
PaC	Peru fine sandy loam, 8 to 15 percent slopes	2,965	1,375	4,340	0.8
PbB	Peru very stony fine sandy loam, 3 to 8 percent slopes	16,355	21,070	37,425	7.1
PbC	Peru very stony fine sandy loam, 8 to 15 percent slopes	9,096	5,034	14,130	2.7
Pg	Pits, gravel and sand	905	805	1,710	0.3
Rc	Rock outcrop	625	181	806	0.2

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Knox County	Lincoln County	Total-- Area	Extent
		Acres	Acres	Acres	Pct
RmC	Rock outcrop-Lyman complex, 0 to 15 percent slopes	5,340	2,325	7,665	1.5
RmE	Rock outcrop-Lyman complex, 15 to 80 percent slopes	2,425	520	2,945	0.6
Sc	Scantic silt loam	0	20,325	20,325	3.9
Sp	Searsport mucky peat	1,043	552	1,595	0.3
StB	Sheepscot fine sandy loam, 0 to 8 percent slopes	1,966	1,429	3,395	0.6
Su	Sulfihemists and Sulfaquents, frequently flooded	695	995	1,690	0.3
Sw	Swanville silt loam	24,471	16,499	40,970	7.7
TrB	Tunbridge-Lyman fine sandy loams, 3 to 8 percent slopes	9,834	11,071	20,905	4.0
TrC	Tunbridge-Lyman fine sandy loams, 8 to 15 percent slopes	9,629	10,041	19,670	3.8
TrD	Tunbridge-Lyman fine sandy loams, 15 to 25 percent slopes	1,617	718	2,335	0.4
Ud	Udorthents-Urban land complex	1,093	507	1,600	0.3
W	Water	743	1,165	1,908	0.4
	Total	231,680	292,480	524,160	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
	Tons	Cwt	Tons	Tons	Tons	AUM*	Bu
AdB----- Adams	12	---	3.0	2.5	2.0	4.5	---
AdC----- Adams	12	---	3.0	2.5	2.0	4.5	---
AdD----- Adams	---	---	---	---	---	---	---
AgA----- Allagash	22	360	---	4.5	3.5	8.5	750
AgB----- Allagash	22	360	---	4.5	3.5	8.5	750
AgC----- Allagash	20	300	---	4.0	3.5	7.5	750
Be**. Beaches							
Bg----- Biddeford	---	---	---	---	---	---	---
BoB----- Boothbay	22	270	4.0	4.0	4.5	7.7	600
BoC----- Boothbay	20	270	3.5	3.5	4.0	6.5	600
BoD2----- Boothbay	16	---	3.0	3.0	3.5	6.0	---
Bp----- Borosaprists	---	---	---	---	---	---	---
BsB----- Brayton	16	---	3.0	3.0	3.5	5.5	---
BtB----- Brayton	---	---	---	---	---	---	---
BuB----- Buxton	22	---	3.5	3.5	4.5	6.5	600
BuC----- Buxton	20	---	3.5	3.5	4.5	6.5	600
BuD2----- Buxton	---	---	---	---	---	---	---
Ch----- Charles	---	---	---	2.5	3.0	4.8	---
Dp**. Dumps-Pits							
EgB----- Eldridge	16	---	4.0	3.5	3.0	6.6	650

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Irish potatoes	Alfalfa hay	Grass-legume hay	Grass hay	Pasture	Apples
	Tons	Cwt	Tons	Tons	Tons	AUM*	Bu
HeB----------------------- Hermon	16	270	4.0	3.0	3.0	5.7	600
HeC----------------------- Hermon	14	240	4.0	3.0	3.0	5.7	600
HtB, HtC, HtD, HxB, HxC. Hermon							
Le------------------------ Lovewell	25	310	---	4.5	4.5	8.5	---
LmB**--------------------- Lyman-Brayton Variant-Rock outcrop	---	---	---	---	---	---	---
LrB----------------------- Lyman-Rock outcrop-Tunbridge	---	---	---	---	---	---	---
LrC----------------------- Lyman-Rock outcrop-Tunbridge	---	---	---	---	---	---	---
LrE----------------------- Lyman-Rock outcrop-Tunbridge	---	---	---	---	---	---	---
MaB----------------------- Madawaska	22	270	4.5	3.5	4.0	6.7	650
MrB----------------------- Marlow	22	330	4.5	4.0	4.0	7.8	750
MrC----------------------- Marlow	20	300	4.5	4.0	4.0	7.8	750
MrD----------------------- Marlow	18	---	4.0	3.5	3.5	6.8	650
MsB, MsC, MsD. Marlow							
MtB----------------------- Marlow-Berkshire	22	333	4.5	4.0	4.0	7.8	800
MtC----------------------- Marlow-Berkshire	21	303	4.3	3.8	4.0	7.2	800
MwB. Marlow-Berkshire							
MwC. Marlow-Berkshire							
MwD. Marlow-Berkshire							
MxB----------------------- Masardis	14	250	3.5	3.0	2.5	5.7	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Irish potatoes	Alfalfa hay	Grass-legume hay	Grass hay	Pasture	Apples
	Tons	Cwt	Tons	Tons	Tons	AUM*	Bu
MxC----------------------- Masardis	12	230	3.0	2.5	2.5	4.8	---
MxD----------------------- Masardis	---	---	2.5	2.0	2.0	3.8	---
My------------------------ Medomak	---	---	---	---	---	---	---
Na------------------------ Naumburg	14	---	---	---	---	5.5	---
PaB----------------------- Peru	20	270	4.0	4.0	4.0	8.0	650
PaC----------------------- Peru	18	240	4.0	4.0	4.0	8.0	650
PbB, PbC. Peru							
Pg**. Pits							
Rc**. Rock outcrop							
RmC**, RmE**. Rock outcrop-Lyman							
Sc------------------------ Scantic	16	---	---	3.0	3.5	6.0	---
Sp. Searsport							
StB----------------------- Sheepscot	19	250	4.4	3.4	4.0	6.5	---
Su. Sulfihemists and Sulfaquents							
Sw------------------------ Swanville	17	---	---	3.2	3.7	6.2	---
TrB----------------------- Tunbridge-Lyman	18	250	3.8	3.5	3.0	6.3	550
TrC----------------------- Tunbridge-Lyman	16	230	3.8	3.5	2.9	6.1	550
TrD----------------------- Tunbridge-Lyman	---	---	3.3	3.0	2.5	5.2	450
Ud**---------------------- Udorthents-Urban land	---	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

(Miscellaneous areas are excluded. Dashes indicate no acreage)

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I:				
Knox County	---	---	---	---
Lincoln County	175	---	---	---
II:				
Knox County	38,293	11,059	27,030	204
Lincoln County	52,528	13,435	38,194	899
III:				
Knox County	25,204	22,239	999	1,966
Lincoln County	31,487	29,468	590	1,429
IV:				
Knox County	32,449	2,736	28,258	706
Lincoln County	43,901	3,108	39,457	875
V:				
Knox County	---	---	---	---
Lincoln County	---	---	---	---
VI:				
Knox County	86,597	---	2,222	84,375
Lincoln County	119,964	---	2,933	117,031
VII:				
Knox County	32,631	---	1,043	31,588
Lincoln County	27,967	---	552	27,415
VIII:				
Knox County	12,846	---	9,566	3,280
Lincoln County	13,950	---	13,214	736

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: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
AdB, AdC-------- Adams	6S	Slight	Slight	Moderate	Slight	Eastern white pine-- Red pine------------ Red spruce---------- Sugar maple----------	55 55 35 47	6 5 5 2	Eastern white pine, red pine, European larch.
AdD------------- Adams	6S	Moderate	Moderate	Moderate	Slight	Eastern white pine-- Red pine------------ Red spruce---------- Sugar maple----------	55 55 35 47	6 5 5 2	Eastern white pine, red pine, European larch.
AgA, AgB, AgC--- Allagash	10A	Slight	Slight	Slight	Slight	Eastern white pine-- White spruce-------- Red pine------------	85 52 71	10 8 8	Eastern white pine, red pine, European larch, white spruce, Scotch pine.
Bg-------------- Biddeford	6W	Slight	Severe	Severe	Severe	Balsam fir---------- Red maple----------- White ash----------- White spruce--------	48 55 70 49	6 2 3 7	
BoB, BoC-------- Boothbay	8A	Slight	Slight	Slight	Moderate	Eastern white pine-- Balsam fir---------- White spruce-------- Paper birch--------- Red maple-----------	65 55 55 56 56	8 8 9 4 2	Eastern white pine, white spruce.
BoD2------------ Boothbay	8R	Moderate	Moderate	Slight	Moderate	Eastern white pine-- Balsam fir---------- White spruce-------- Paper birch--------- Red maple-----------	65 55 55 56 56	8 8 9 4 2	Eastern white pine, white spruce.
BsB, BtB-------- Brayton	4W	Slight	Severe	Moderate	Severe	Eastern white pine-- Balsam fir---------- White spruce-------- Red maple----------- Red spruce---------- Paper birch---------	67 48 48 65 45 60	8 6 7 3 7 4	Red spruce, black spruce, tamarack.
BuB, BuC-------- Buxton	8A	Slight	Slight	Slight	Moderate	Eastern white pine-- Balsam fir---------- Paper birch--------- White spruce-------- Northern red oak----	62 55 60 55 60	8 8 4 9 3	Eastern white pine, white spruce.

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	Productivity class*	
BuD2------------ Buxton	8R	Moderate	Moderate	Slight	Moderate	Eastern white pine--	62	8	Eastern white pine, white spruce.
						Balsam fir----------	55	8	
						Paper birch---------	57	4	
						White spruce--------	55	9	
						Northern red oak----	60	3	
Ch-------------- Charles	7W	Slight	Severe	Moderate	Moderate	Eastern white pine--	60	7	Black spruce, red spruce, European larch.
						Red spruce----------	40	6	
						White spruce--------	50	7	
						Black spruce--------	50	3	
						Balsam fir----------	50	7	
						Red maple-----------	55	2	
EgB------------- Eldridge	8A	Slight	Slight	Slight	Moderate	Eastern white pine--	65	8	Eastern white pine, red pine.
						White spruce--------	55	3	
HeB, HeC, HtB, HtC------------ Hermon	7S	Slight	Slight	Moderate	Slight	Eastern white pine--	59	7	Eastern white pine, red pine, European larch.
						White spruce--------	45	8	
						Red spruce----------	46	7	
						Red pine------------	65	8	
						Sugar maple---------	55	2	
HtD------------- Hermon	7R	Moderate	Moderate	Moderate	Slight	Eastern white pine--	59	7	Eastern white pine, red pine, European larch.
						White spruce--------	45	8	
						Red spruce----------	46	7	
						Red pine------------	65	8	
						Sugar maple---------	55	2	
HxB, HxC-------- Hermon	7X	Slight	Severe	Severe	Slight	Eastern white pine--	59	7	Eastern white pine, red pine, European larch.
						White spruce--------	45	8	
						Red spruce----------	46	7	
						Red pine------------	65	8	
						Sugar maple---------	55	2	
Le-------------- Lovewell	10A	Slight	Slight	Slight	Moderate	Eastern white pine--	75	10	Eastern white pine, red spruce, white spruce.
						Balsam fir----------	65	9	
						Red spruce----------	55	9	
						White spruce--------	65	10	
						Red maple-----------	62	3	
LmB**: Lyman----------	7D	Slight	Slight	Severe	Moderate	Eastern white pine--	57	7	Eastern white pine, red pine, white spruce, balsam fir.
						White spruce--------	55	9	
						Balsam fir----------	60	8	
						Red spruce----------	40	6	
						Sugar maple---------	50	2	
Brayton Variant	8W	Slight	Severe	Moderate	Severe	Eastern white pine--	67	8	Eastern white pine, white spruce, eastern hemlock.
						Red spruce----------	50	8	
						Northern white cedar	55	3	
						Red maple-----------	65	3	
						Balsam fir----------	55	8	
Rock outcrop.									
LrB**, LrC**: Lyman----------	7D	Slight	Slight	Moderate	Severe	Eastern white pine--	57	7	Eastern white pine, red pine, white spruce, balsam fir.
						White spruce--------	55	9	
						Balsam fir----------	60	8	
						Red spruce----------	40	6	
						Sugar maple---------	50	2	

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	Productivity class*	
LrB**, LrC**: Rock outcrop.									
Tunbridge------	10A	Slight	Slight	Slight	Moderate	Eastern white pine-- Northern red oak---- Red spruce----------	75 70 55	10 4 9	Eastern white pine, white spruce, red spruce.
LrE**: Lyman----------	7D	Moderate	Moderate	Moderate	Severe	Eastern white pine-- White spruce-------- Balsam fir---------- Red spruce---------- Sugar maple---------	57 55 60 40 50	7 9 8 6 2	Eastern white pine, red pine, white spruce, balsam fir.
Rock outcrop.									
Tunbridge------	10R	Moderate	Moderate	Slight	Moderate	Eastern white pine-- Northern red oak---- Red spruce----------	75 70 55	10 4 9	Eastern white pine, white spruce, red spruce.
MaB------------- Madawaska	8A	Slight	Slight	Slight	Slight	Eastern white pine-- White spruce-------- Sugar maple--------- Balsam fir---------- Paper birch--------- Red spruce----------	68 51 63 51 58 49	8 8 3 7 4 7	Eastern white pine, white spruce, European larch, balsam fir.
MrB, MrC-------- Marlow	8A	Slight	Slight	Slight	Moderate	Eastern white pine-- Balsam fir---------- Red spruce---------- Sugar maple--------- Yellow birch-------- Paper birch--------- White spruce-------- White ash----------- American beech------ Northern red oak---- American basswood---	66 58 48 60 62 60 60 67 62 67 56	8 8 7 3 3 4 10 3 3 3 2	Eastern white pine, white spruce, balsam fir.
MrD------------- Marlow	8R	Moderate	Moderate	Slight	Moderate	Eastern white pine-- Balsam fir---------- Red spruce---------- Sugar maple--------- Yellow birch-------- Paper birch--------- White spruce-------- White ash----------- American beech------ Northern red oak---- American basswood---	66 58 48 60 62 60 60 67 62 67 56	8 8 7 3 3 4 10 3 3 3 2	Eastern white pine, white spruce, balsam fir.

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	Productivity class*	
MsB, MsC: Marlow	8A	Slight	Slight	Slight	Moderate	Eastern white pine	66	8	Eastern white pine, white spruce, balsam fir.
						Balsam fir	58	8	
						Red spruce	48	7	
						Sugar maple	59	3	
						Yellow birch	63	3	
						Paper birch	65	4	
						White spruce	58	10	
						White ash	61	3	
MsD: Marlow	8R	Moderate	Moderate	Slight	Moderate	Eastern white pine	66	8	Eastern white pine, white spruce, balsam fir.
						Balsam fir	57	8	
						Red spruce	48	7	
						Sugar maple	59	3	
						Yellow birch	63	3	
						Paper birch	65	4	
						White spruce	58	10	
						White ash	61	3	
MtB**, MtC**:									
Marlow	8A	Slight	Slight	Slight	Moderate	Eastern white pine	66	8	Eastern white pine, white spruce, balsam fir.
						Balsam fir	57	8	
						Red spruce	48	7	
						Sugar maple	59	3	
						Yellow birch	63	3	
						Paper birch	65	4	
						White spruce	58	10	
						White ash	61	3	
Berkshire	9A	Slight	Slight	Slight	Slight	Eastern white pine	72	9	Eastern white pine, red pine, white spruce, balsam fir.
						Sugar maple	52	2	
						Red spruce	50	8	
						White ash	62	3	
						Yellow birch	55	2	
						Paper birch	60	4	
						Balsam fir	60	8	
						White spruce	55	9	
						Red pine	65	8	
MwB**, MwC**:									
Marlow	8A	Slight	Slight	Slight	Moderate	Eastern white pine	66	8	Eastern white pine, white spruce, balsam fir.
						Balsam fir	57	8	
						Red spruce	48	7	
						Sugar maple	59	3	
						Yellow birch	63	3	
						Paper birch	65	4	
						White spruce	58	10	
						White ash	61	3	
Berkshire	9A	Slight	Slight	Slight	Slight	Eastern white pine	72	9	Eastern white pine, red pine, white spruce, balsam fir.
						Sugar maple	52	2	
						Red spruce	50	8	
						White ash	62	3	
						Yellow birch	55	2	
						Paper birch	60	4	
						Balsam fir	60	8	
						White spruce	55	9	
						Red pine	65	8	

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	Productivity class*	
MwD**:									
Marlow	8R	Moderate	Moderate	Slight	Moderate	Eastern white pine	66	8	Eastern white pine, white spruce, balsam fir.
						Balsam fir	57	8	
						Red spruce	48	7	
						Sugar maple	59	3	
						Yellow birch	63	3	
						Paper birch	65	4	
						White spruce	58	10	
						White ash	61	3	
Berkshire	9R	Moderate	Moderate	Slight	Slight	Eastern white pine	72	9	Eastern white pine, red pine, white spruce, balsam fir.
						Sugar maple	52	2	
						Red spruce	50	8	
						White ash	62	3	
						Yellow birch	55	2	
						Paper birch	60	4	
						Balsam fir	60	8	
						White spruce	55	9	
MxB, MxC Masardis	8S	Slight	Slight	Moderate	Slight	Eastern white pine	65	8	Eastern white pine, red pine, white spruce.
						Red spruce	45	7	
						Balsam fir	55	8	
						Paper birch	55	3	
						Sugar maple	55	2	
						Yellow birch	55	2	
						White spruce	55	9	
						Red pine	65	8	
MxD Masardis	8S	Moderate	Moderate	Moderate	Slight	Eastern white pine	65	8	Eastern white pine, red pine, white spruce.
						Red spruce	45	7	
						Balsam fir	55	8	
						Paper birch	55	3	
						Sugar maple	55	2	
						Yellow birch	55	2	
						White spruce	55	9	
						Red pine	65	8	
My Medomak	6W	Slight	Severe	Severe	Severe	Eastern white pine	55	6	Black spruce.
						Red maple	47	2	
Na Naumburg	8W	Slight	Moderate	Moderate	Moderate	Black spruce	55	8	Eastern white pine, Norway spruce, white spruce.
						Sugar maple	55	2	
						Red maple	70	3	
PaB, PaC, PbB, PbC Peru	8A	Slight	Slight	Slight	Moderate	Eastern white pine	67	8	Eastern white pine, red pine, white spruce, European larch.
						Northern red oak	70	4	
						Sugar maple	56	2	
						Red spruce	39	6	
						Balsam fir	55	8	
						White spruce	53	8	
						White ash	64	3	
						Red pine	61	7	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Common trees	Site index	Produc-tivity class*	
RmC**:									
Rock outcrop.									
Lyman----------	7D	Slight	Slight	Moderate	Severe	Eastern white pine-- White spruce-------- Balsam fir---------- Red spruce---------- Sugar maple---------	57 55 60 40 50	7 9 8 6 2	Eastern white pine, red pine, white spruce, balsam fir.
RmE**:									
Rock outcrop.									
Lyman----------	7R	Severe	Severe	Moderate	Severe	Eastern white pine-- White spruce-------- Balsam fir---------- Red spruce---------- Sugar maple---------	57 55 60 40 50	7 9 8 6 2	Eastern white pine, red pine, white spruce, balsam fir.
Sc-------------- Scantic	7W	Slight	Severe	Moderate	Severe	Eastern white pine-- White spruce-------- Balsam fir---------- White ash----------- Red maple-----------	57 60 60 67 55	7 10 8 3 2	White spruce, northern white-cedar, eastern white pine, tamarack, balsam fir, black spruce, red spruce.
Sp-------------- Searsport	6W	Slight	Severe	Severe	Severe	Eastern white pine-- Red maple----------- Balsam fir----------	55 64 53	6 3 7	Northern white-cedar, European larch.
StB------------- Sheepscot	9A	Slight	Slight	Slight	Slight	Eastern white pine-- Red spruce---------- American beech------ Balsam fir---------- Paper birch--------- Sugar maple--------- Yellow birch--------	70 45 55 55 55 55 55	9 7 2 8 3 2 2	Eastern white pine, white spruce, European larch.
Sw-------------- Swanville	7W	Slight	Severe	Moderate	Severe	Eastern white pine-- White spruce-------- Red spruce---------- Sugar maple---------	58 50 40 50	7 8 6 2	Eastern white pine, red spruce, northern white-cedar.
TrB**, TrC**:									
Tunbridge------	10A	Slight	Slight	Slight	Moderate	Eastern white pine-- Northern red oak---- Red spruce---------- Sugar maple--------- Yellow birch-------- White spruce-------- White ash-----------	75 70 55 60 55 55 65	10 4 9 3 2 9 3	Eastern white pine, white spruce, red spruce, Norway spruce, Scotch pine, balsam fir, tamarack.

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	Productivity class*	
TrB**, TrC**:									
Lyman----------	7D	Slight	Slight	Moderate	Severe	Eastern white pine--	57	7	Eastern white pine, red pine, white spruce, balsam fir.
						White spruce--------	55	9	
						Balsam fir----------	60	8	
						Red spruce----------	40	6	
						Sugar maple---------	50	2	
TrD**:									
Tunbridge------	10R	Moderate	Moderate	Slight	Moderate	Eastern white pine--	75	10	Eastern white pine, white spruce, red spruce, Norway spruce, Scotch pine, balsam fir, tamarack.
						Northern red oak----	70	4	
						Red spruce----------	55	9	
						Sugar maple---------	60	3	
						Yellow birch--------	55	2	
						White spruce--------	55	9	
						White ash-----------	65	3	
Lyman----------	7D	Moderate	Moderate	Moderate	Severe	Eastern white pine--	57	7	Eastern white pine, red pine, white spruce, balsam fir.
						White spruce--------	55	9	
						Balsam fir----------	60	8	
						Red spruce----------	40	6	
						Sugar maple---------	50	2	

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--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	Slight----------	Slight----------	Moderate: slope.	Slight----------	Severe: droughty.
AdC------------------ Adams	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Severe: droughty.
AdD------------------ Adams	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope, droughty.
AgA------------------ Allagash	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
AgB------------------ Allagash	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
AgC------------------ Allagash	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
Be*. Beaches					
Bg------------------- Biddeford	Severe: ponding, percs slowly.	Severe: ponding, excess humus, percs slowly.	Severe: excess humus, ponding, percs slowly.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
BoB------------------ Boothbay	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
BoC------------------ Boothbay	Severe: wetness.	Moderate: slope, wetness, percs slowly.	Severe: wetness, slope.	Moderate: wetness.	Moderate: wetness, slope.
BoD2----------------- Boothbay	Severe: slope, wetness.	Severe: slope.	Severe: wetness, slope.	Moderate: wetness, slope.	Severe: slope.
Bp. Borosaprists					
BsB------------------ Brayton	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.
BtB------------------ Brayton	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: large stones, wetness.	Severe: wetness.	Severe: wetness.
BuB------------------ Buxton	Severe: percs slowly, wetness.	Severe: percs slowly.	Severe: percs slowly, wetness.	Moderate: wetness.	Moderate: wetness.
BuC------------------ Buxton	Severe: percs slowly, wetness.	Severe: percs slowly.	Severe: slope, percs slowly, wetness.	Moderate: wetness.	Moderate: slope, wetness.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
BuD2------------------ Buxton	Severe: slope, percs slowly, wetness.	Severe: slope, percs slowly.	Severe: slope, percs slowly, wetness.	Moderate: slope, wetness.	Severe: slope.
Ch-------------------- Charles	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Dp*:					
Dumps.					
Pits.					
EgB------------------- Eldridge	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
HeB------------------- Hermon	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Moderate: droughty.
HeC------------------- Hermon	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope, droughty.
HtB------------------- Hermon	Moderate: large stones, small stones.	Moderate: large stones, small stones.	Severe: large stones, small stones.	Moderate: large stones.	Moderate: small stones, large stones, droughty.
HtC------------------- Hermon	Moderate: slope, large stones, small stones.	Moderate: slope, large stones, small stones	Severe: slope, large stones, small stones.	Moderate: large stones.	Moderate: small stones, large stones, droughty.
HtD------------------- Hermon	Severe: slope.	Severe: slope.	Severe: slope, large stones, small stones.	Moderate: slope, large stones.	Moderate: small stones, large stones, droughty.
HxB------------------- Hermon	Severe: large stones.	Severe: large stones.	Severe: large stones, small stones.	Severe: large stones.	Severe: large stones.
HxC------------------- Hermon	Severe: large stones.	Severe: large stones.	Severe: large stones, slope, small stones.	Severe: large stones.	Severe: large stones.
Le-------------------- Lovewell	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
LmB*:					
Lyman-----------------	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, depth to rock.	Slight----------	Severe: thin layer, droughty.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
LmB*:					
Brayton Variant	Severe: wetness.	Severe: wetness.	Severe: large stones, wetness.	Severe: wetness.	Severe: wetness.
Rock outcrop.					
LrB*:					
Lyman	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, depth to rock.	Slight	Severe: depth to rock, droughty.
Rock outcrop.					
Tunbridge	Moderate: large stones.	Slight	Severe: large stones.	Slight	Moderate: depth to rock, large stones.
LrC*:					
Lyman	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, large stones, depth to rock.	Slight	Severe: depth to rock, droughty.
Rock outcrop.					
Tunbridge	Moderate: slope, large stones.	Moderate: slope.	Severe: slope, large stones.	Slight	Moderate: depth to rock, large stones.
LrE*:					
Lyman	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, large stones, depth to rock.	Severe: slope.	Severe: slope, depth to rock, droughty.
Rock outcrop.					
Tunbridge	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Severe: slope.	Severe: slope.
MaB Madawaska	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Moderate: wetness.	Moderate: wetness.
MrB Marlow	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones.	Slight	Slight.
MrC Marlow	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
MrD Marlow	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
MsB Marlow	Moderate: large stones, percs slowly.	Moderate: large stones, percs slowly,	Severe: large stones.	Slight	Moderate: large stones.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
MsC: Marlow	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: large stones, slope.	Slight	Moderate: large stones, slope.
MsD: Marlow	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
MtB*:					
Marlow	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones.	Slight	Slight.
Berkshire	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
MtC*:					
Marlow	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
Berkshire	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
MwB*:					
Marlow	Moderate: large stones, percs slowly.	Moderate: large stones, percs slowly.	Severe: large stones.	Slight	Moderate: large stones.
Berkshire	Moderate: large stones.	Moderate: large stones.	Severe: large stones.	Slight	Moderate: large stones.
MwC*:					
Marlow	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: large stones, slope.	Slight	Moderate: large stones, slope.
Berkshire	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Slight	Moderate: slope, large stones.
MwD*:					
Marlow	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
Berkshire	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Moderate: slope.	Severe: slope.
MxB: Masardis	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight	Severe: droughty.
MxC: Masardis	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight	Severe: droughty.
MxD: Masardis	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: droughty, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
My: Medomak	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
Na: Naumburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
PaB: Peru	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, small stones, wetness.	Moderate: wetness.	Moderate: wetness.
PaC: Peru	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness, slope.
PbB: Peru	Moderate: large stones, wetness.	Moderate: wetness, large stones.	Large stones, wetness.	Moderate: wetness.	Moderate: large stones, wetness.
PbC: Peru	Moderate: slope, wetness, large stones.	Moderate: slope, wetness, large stones.	Severe: large stones, slope.	Moderate: wetness.	Moderate: large stones, wetness, slope.
Pg*. Pits					
Rc*. Rock outcrop					
RmC*: Rock outcrop.					
Lyman	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, large stones, depth to rock.	Slight	Severe: depth to rock, droughty.
RmE*: Rock outcrop.					
Lyman	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, large stones, depth to rock.	Severe: slope.	Severe: slope, depth to rock, droughty.
Sc: Scantic	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Sp: Searsport	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
StB: Sheepscot	Moderate: small stones, wetness.	Moderate: wetness, small stones.	Severe: small stones.	Moderate: wetness.	Severe: droughty.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Su*:					
Sulfihemists.					
Sulfaquents.					
Sw Swanville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
TrB*:					
Tunbridge	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight	Moderate: small stones, droughty.
Lyman	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock, small stones.	Slight	Severe: depth to rock, droughty.
TrC*:					
Tunbridge	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight	Moderate: small stones, droughty, slope.
Lyman	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock, small stones.	Slight	Severe: depth to rock, droughty.
TrD*:					
Tunbridge	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Lyman	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock, small stones.	Moderate: slope.	Severe: slope, depth to rock, droughty.
Ud*:					
Udorthents.					
Urban land.					

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	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.
AgA---------------- Allagash	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AgB---------------- Allagash	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AgC---------------- Allagash	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Be*. Beaches										
Bg----------------- Biddeford	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
BoB---------------- Boothbay	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BoC---------------- Boothbay	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BoD2--------------- Boothbay	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Bp. Borosaprists										
BsB---------------- Brayton	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
BtB---------------- Brayton	Very poor.	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
BuB---------------- Buxton	Good	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.
BuD2--------------- Buxton	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Ch----------------- Charles	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Dp*: Dumps.										
Pits.										
EgB---------------- Eldridge	Good	Fair	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HeB, HeC----------- Hermon	Fair	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
HtB, HtC, HtD------ Hermon	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
HxB, HxC---------- Hermon	Very poor.	Very poor.	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Le---------------- Lovewell	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
LmB*:										
Lyman-------------	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Brayton Variant---	Very poor.	Poor	Fair	Fair	Fair	Good	Poor	Poor	Fair	Fair.
Rock outcrop.										
LrB*, LrC*, LrE*:										
Lyman-------------	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop.										
Tunbridge---------	Poor	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
MaB--------------- Madawaska	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MrB--------------- Marlow	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MrC--------------- Marlow	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MrD--------------- Marlow	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MsB--------------- Marlow	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
MsC, MsD---------- Marlow	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MtB*:										
Marlow------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Berkshire---------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MtC*:										
Marlow------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Berkshire---------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MwB*:										
Marlow------------	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
MwB*:										
Berkshire----------	Poor	Fair	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
MwC*, MwD*:										
Marlow------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Berkshire----------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
MxB, MxC----------- Masardis	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MxD---------------- Masardis	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
My----------------- Medomak	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Na----------------- Naumburg	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
PaB---------------- Peru	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
PaC---------------- Peru	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
PbB---------------- Peru	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
PbC---------------- Peru	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Pg*. Pits										
Rc*. Rock outcrop										
RmC*, RmE*:										
Rock outcrop.										
Lyman-------------	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Sc----------------- Scantic	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Sp----------------- Searsport	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
StB---------------- Sheepscot	Fair	Good	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
Su*:										
Sulfihemists.										
Sulfaquents.										
Sw----------------- Swanville	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
TrB*:										
Tunbridge	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Lyman	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
TrC*:										
Tunbridge	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Lyman	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
TrD*:										
Tunbridge	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Lyman	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Ud*:										
Udorthents.										
Urban land.										

* See description of the map unit for 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. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

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.
AdC: Adams	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: droughty.
AdD: Adams	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, droughty.
AgA: Allagash	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Slight.
AgB: Allagash	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Slight.
AgC: Allagash	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Be*. Beaches						
Bg: Biddeford	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, low strength, frost action.	Severe: ponding, excess humus.
BoB: Boothbay	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: frost action.	Moderate: wetness.
BoC: Boothbay	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: frost action.	Moderate: wetness, slope.
BoD2: Boothbay	Severe: wetness, slope.	Severe: wetness, slope.	Severe: wetness, slope.	Severe: wetness, slope.	Severe: slope, frost action.	Severe: slope.
Bp. Borosaprists						
BsB: Brayton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
BtB: Brayton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
BuB: Buxton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: frost action, low strength.	Moderate: wetness.
BuC: Buxton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: slope, wetness.	Severe: frost action, low strength.	Moderate: slope, 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
BuD2--------------- Buxton	Severe: slope, wetness.	Severe: slope, wetness.	Severe: wetness, slope.	Severe: slope, wetness.	Severe: slope, frost action, low strength.	Severe: slope.
Ch----------------- Charles	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, frost action.	Severe: wetness, flooding.
Dp*:						
Dumps.						
Pits.						
EgB---------------- Eldridge	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: slope, wetness.	Moderate: wetness, frost action.	Moderate: wetness, droughty.
HeB---------------- Hermon	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: large stones.	Moderate: droughty.
HeC---------------- Hermon	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, large stones.	Moderate: slope, droughty.
HtB---------------- Hermon	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones, slope.	Moderate: large stones.	Moderate: small stones, large stones, droughty.
HtC---------------- Hermon	Severe: cutbanks cave.	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: slope.	Moderate: slope, large stones.	Moderate: small stones, large stones, droughty.
HtD---------------- Hermon	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: small stones, large stones, droughty.
HxB---------------- Hermon	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: large stones.	Severe: large stones.
HxC---------------- Hermon	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, large stones.	Severe: large stones.
Le----------------- Lovewell	Severe: wetness, cutbanks cave.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, frost action.	Moderate: wetness, flooding.
LmB*:						
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, droughty.

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
LmB*:						
Brayton Variant--	Severe: depth to rock, wetness.	Severe: wetness.	Severe: wetness, depth to rock.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
Rock outcrop.						
LrB*:						
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, droughty.
Rock outcrop.						
Tunbridge--------	Severe: depth to rock.	Moderate: depth to rock, large stones.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock, frost action.	Moderate: depth to rock, large stones.
LrC*:						
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, droughty.
Rock outcrop.						
Tunbridge--------	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: slope, depth to rock, frost action.	Moderate: depth to rock, large stones.
LrE*:						
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, droughty.
Rock outcrop.						
Tunbridge--------	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
MaB--------------- Madawaska	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: slope, wetness.	Severe: frost action.	Moderate: wetness.
MrB--------------- Marlow	Moderate: dense layer.	Slight---------	Moderate: wetness.	Moderate: slope.	Moderate: frost action.	Slight.
MrC--------------- Marlow	Moderate: dense layer, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: frost action.	Moderate: slope.
MrD--------------- Marlow	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MsB--------------- Marlow	Moderate: dense layer, wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Moderate: frost action.	Moderate: large stones.

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
MsC: Marlow	Moderate: dense layer, wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: large stones, slope.
MsD: Marlow	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MtB*:						
Marlow	Moderate: dense layer.	Slight	Moderate: wetness.	Moderate: slope.	Moderate: frost action.	Slight.
Berkshire	Slight	Moderate: frost action.	Slight	Moderate: slope.	Moderate: frost action, low strength.	Slight.
MtC*:						
Marlow	Moderate: dense layer, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: frost action.	Moderate: slope.
Berkshire	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action, low strength.	Moderate: slope.
MwB*:						
Marlow	Moderate: dense layer, wetness.	Slight	Moderate: wetness.	Moderate: slope.	Moderate: frost action.	Moderate: large stones.
Berkshire	Slight	Slight	Slight	Moderate: slope.	Moderate: frost action, low strength.	Moderate: large stones.
MwC*:						
Marlow	Moderate: dense layer, wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: large stones, slope.
Berkshire	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action, low strength.	Moderate: slope, large stones.
MwD*:						
Marlow	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Berkshire	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MxB: Masardis	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty.
MxC: Masardis	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: droughty.

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
MxD---------------- Masardis	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: droughty, slope.
My----------------- Medomak	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: ponding, flooding, frost action.	Severe: ponding, flooding.
Na----------------- Naumburg	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
PaB---------------- Peru	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: frost action.	Moderate: wetness.
PaC---------------- Peru	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: frost action.	Moderate: wetness, slope.
PbB---------------- Peru	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: frost action.	Moderate: large stones, wetness.
PbC---------------- Peru	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: frost action.	Moderate: large stones, wetness, slope.
Pg*. Pits						
Rc*. Rock outcrop						
RmC*: 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, droughty.
RmE*: 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, droughty.
Sc----------------- Scantic	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, low strength, frost action.	Severe: wetness.
Sp----------------- Searsport	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, excess humus.

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
StB: Sheepscot	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness.	Severe: droughty.
Su*: Sulfihemists.						
Sulfaquents.						
Sw: Swanville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
TrB*: Tunbridge	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock, frost action.	Moderate: small stones, droughty.
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, droughty.
TrC*: Tunbridge	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.	Moderate: small stones, droughty, slope.
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, droughty.
TrD*: Tunbridge	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
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, droughty.
Ud*: Udorthents.						
Urban land.						

* See description of the map unit for 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," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AdB: Adams	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
AdC: Adams	Severe: poor filter.	Severe: slope, seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
AdD: Adams	Severe: poor filter, slope.	Severe: slope, seepage.	Severe: slope, seepage, too sandy.	Severe: slope, seepage.	Poor: seepage, too sandy, slope.
AgA, AgB: Allagash	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
AgC: Allagash	Severe: poor filter.	Severe: slope, seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Be*. Beaches					
Bg: Biddeford	Severe: ponding, percs slowly.	Severe: excess humus, ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: ponding, too clayey, hard to pack.
BoB: Boothbay	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
BoC: Boothbay	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
BoD2: Boothbay	Severe: wetness, slope, percs slowly.	Severe: slope.	Severe: wetness, slope.	Severe: wetness, slope.	Poor: slope, wetness.
Bp. Borosaprists					
BsB, BtB. Brayton					
BuB: Buxton	Severe: percs slowly, wetness.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, wetness.
BuC: Buxton	Severe: percs slowly, wetness.	Severe: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, wetness.

See footnote 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
BuD2----------------- Buxton	Severe: slope, percs slowly, wetness.	Severe: slope.	Severe: slope, wetness, too clayey.	Severe: slope, wetness.	Poor: slope, too clayey, wetness.
Ch------------------- Charles	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness.	Poor: wetness.
Dp*:					
Dumps.					
Pits.					
EgB------------------ Eldridge	Severe: wetness, percs slowly, poor filter.	Severe: wetness, seepage.	Severe: wetness, too clayey.	Severe: seepage, wetness.	Poor: too clayey, wetness.
HeB------------------ Hermon	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: small stones, seepage, too sandy.
HeC------------------ Hermon	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: small stones, seepage, too sandy.
HtB------------------ Hermon	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: small stones, seepage, too sandy.
HtC------------------ Hermon	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: small stones, seepage, too sandy.
HtD------------------ Hermon	Severe: slope, poor filter.	Severe: seepage, slope.	Severe: slope, seepage, too sandy.	Severe: slope, seepage.	Poor: small stones, seepage, too sandy.
HxB, HxC------------- Hermon	Severe: poor filter.	Severe: seepage, large stones.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy, small stones.
Le------------------- Lovewell	Severe: flooding, wetness.	Severe: flooding, wetness, seepage.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: wetness, thin layer.

See footnote 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
LmB*:					
Lyman	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: area reclaim, small stones, thin layer.
Brayton Variant	Severe: depth to rock, wetness, percs slowly.	Severe: wetness, depth to rock.	Severe: depth to rock, wetness.	Severe: depth to rock, wetness.	Poor: depth to rock, wetness.
Rock outcrop.					
LrB*:					
Lyman	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: area reclaim, small stones, thin layer.
Rock outcrop.					
Tunbridge	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Fair: thin layer, large stones.
LrC*:					
Lyman	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: area reclaim, small stones, thin layer.
Rock outcrop.					
Tunbridge	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Fair: slope, thin layer, large stones.
LrE*:					
Lyman	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage, depth to rock.	Poor: slope, thin layer, small stones.
Rock outcrop.					
Tunbridge	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, large stones.
MaB Madawaska	Severe: wetness, poor filter.	Severe: wetness, seepage.	Severe: seepage, too sandy, wetness.	Severe: wetness, seepage.	Poor: seepage, too sandy.
MrB Marlow	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Moderate: wetness.	Fair: small stones, wetness.

See footnote 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
MrC: Marlow	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: wetness, slope.	Fair: small stones, slope, wetness.
MrD: Marlow	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
MsB: Marlow	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Fair: small stones.
MsC: Marlow	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: small stones, slope.
MsD: Marlow	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
MtB*:					
Marlow	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Fair: small stones, wetness.
Berkshire	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: small stones.
MtC*:					
Marlow	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: wetness, slope.	Fair: small stones, slope, wetness.
Berkshire	Moderate: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Fair: slope, small stones.
MwB*:					
Marlow	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Fair: small stones.
Berkshire	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: small stones.
MwC*:					
Marlow	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: small stones, slope.
Berkshire	Moderate: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Fair: slope, small stones.
MwD*:					
Marlow	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.

See footnote 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
MwD*:					
Berkshire	Severe: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: slope, seepage.	Poor: slope.
MxB Masardis	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy, small stones.
MxC Masardis	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy, small stones.
MxD Masardis	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: seepage, slope, too sandy.	Severe: seepage, slope.	Poor: seepage, too sandy, small stones.
My Medomak	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
Na Naumburg	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
PaB Peru	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: small stones, wetness.
PaC Peru	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Moderate: wetness, slope.	Fair: small stones, slope, wetness.
PbB Peru	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: small stones, wetness.
PbC Peru	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Moderate: wetness, slope.	Fair: small stones, wetness, slope.
Pg*. Pits					
Rc*. Rock outcrop					
RmC*:					
Rock outcrop.					
Lyman	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: area reclaim, small stones, thin layer.

See footnote 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
RmE*:					
Rock outcrop.					
Lyman	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage, depth to rock.	Poor: slope, thin layer, small stones.
Sc Scantic	Severe: percs slowly, wetness.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, too clayey.
Sp Searsport	Severe: ponding, poor filter.	Severe: seepage, excess humus, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
StB Sheepscot	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, small stones.
Su*:					
Sulfihemists.					
Sulfaquents.					
Sw Swanville	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.
TrB*:					
Tunbridge	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim.
Lyman	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: thin layer, area reclaim, small stones.
TrC*:					
Tunbridge	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim.
Lyman	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: thin layer, area reclaim, small stones.
TrD*:					
Tunbridge	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, slope.

See footnote 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
TrD*:					
Lyman	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage, depth to rock.	Poor: slope, thin layer, small stones.
Ud*:					
Udorthents.					
Urban land.					

* See description of the map unit for 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 other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
AdB, AdC------ Adams	Good------	Probable------	Improbable: too sandy.	Poor: too sandy.
AdD------ Adams	Fair: slope.	Probable------	Improbable: too sandy.	Poor: slope, too sandy.
AgA, AgB------ Allagash	Good------	Probable------	Probable------	Fair: thin layer.
AgC------ Allagash	Good------	Probable------	Probable------	Fair: slope, thin layer.
Be*. Beaches				
Bg------ Biddeford	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess humus.
BoB------ Boothbay	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
BoC------ Boothbay	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
BoD2------ Boothbay	Fair: low strength, wetness, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Bp. Borosaprists				
BsB------ Brayton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, wetness.
BtB------ Brayton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, wetness.
BuB, BuC------ Buxton	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
BuD2------ Buxton	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
Ch------ Charles	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Dp*:				
Dumps.				
Pits.				
EgB------------------- Eldridge	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
HeB, HeC, HtB, HtC---- Hermon	Fair: large stones.	Probable-------------	Probable-------------	Poor: small stones, area reclaim.
HtD------------------- Hermon	Fair: slope, large stones.	Probable-------------	Probable-------------	Poor: small stones, area reclaim, slope.
HxB, HxC-------------- Hermon	Fair: large stones.	Probable-------------	Probable-------------	Poor: large stones, area reclaim.
Le-------------------- Lovewell	Fair: wetness.	Probable-------------	Improbable: too sandy.	Good.
LmB*:				
Lyman-----------------	Poor: thin layer, area reclaim.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, area reclaim, thin layer.
Brayton Variant-------	Poor: depth to rock, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, wetness.
Rock outcrop.				
LrB*, LrC*:				
Lyman-----------------	Poor: thin layer, area reclaim.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, area reclaim, thin layer.
Rock outcrop.				
Tunbridge-------------	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
LrE*:				
Lyman-----------------	Poor: slope, thin layer, area reclaim.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: slope, small stones, thin layer.
Rock outcrop.				
Tunbridge-------------	Poor: slope, thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, large stones.
MaB------------------- Madawaska	Fair: wetness.	Probable-------------	Improbable: too sandy.	Fair: small stones, thin layer.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
MrB, MrC: Marlow	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
MrD: Marlow	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
MsB, MsC: Marlow	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
MsD: Marlow	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
MtB*, MtC*:				
Marlow	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Berkshire	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
MwB*, MwC*:				
Marlow	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Berkshire	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
MwD*:				
Marlow	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Berkshire	Fair: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, slope.
MxB, MxC: Masardis	Good	Probable	Probable	Poor: small stones, area reclaim.
MxD: Masardis	Fair: slope.	Probable	Probable	Poor: small stones, area reclaim, slope.
My: Medomak	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Na: Naumburg	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
PaB, PaC, PbB, PbC: Peru	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Pg*. Pits				
Rc*. Rock outcrop				

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
RmC*:				
Rock outcrop.				
Lyman	Poor: thin layer, area reclaim.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, area reclaim, thin layer.
RmE*:				
Rock outcrop.				
Lyman	Poor: slope, thin layer, area reclaim.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: slope, small stones, thin layer.
Sc Scantic	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Sp Searsport	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness, excess humus.
StB Sheepscot	Fair: wetness.	Probable	Probable	Poor: small stones, area reclaim.
Su*:				
Sulfihemists.				
Sulfaquents.				
Sw Swanville	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
TrB*, TrC*:				
Tunbridge	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Lyman	Poor: thin layer, area reclaim.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: thin layer, area reclaim, small stones.
TrD*:				
Tunbridge	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Lyman	Poor: thin layer, area reclaim.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: slope, thin layer, small stones.
Ud*:				
Udorthents.				
Urban land.				

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
AdB: Adams	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Too sandy	Droughty.
AdC, AdD: Adams	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, too sandy.	Slope, droughty.
AgA, AgB: Allagash	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Too sandy	Favorable.
AgC: Allagash	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, too sandy.	Slope.
Be*. Beaches						
Bg: Biddeford	Slight	Severe: ponding, piping, hard to pack.	Severe: slow refill.	Ponding, percs slowly, frost action.	Ponding, percs slowly, erodes easily.	Wetness, erodes easily, rooting depth.
BoB: Boothbay	Moderate: slope.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, frost action, slope.	Erodes easily, wetness.	Wetness, erodes easily.
BoC, BoD2: Boothbay	Severe: slope.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, frost action, slope.	Slope, erodes easily, wetness.	Wetness, slope, erodes easily.
Bp. Borosaprists						
BsB: Brayton	Moderate: slope.	Severe: wetness, seepage, piping.	Severe: no water.	Percs slowly, frost action, slope.	Wetness, rooting depth.	Wetness, rooting depth.
BtB: Brayton	Moderate: slope.	Severe: wetness.	Severe: no water.	Percs slowly, frost action, slope.	Large stones, wetness.	Large stones, wetness.
BuB: Buxton	Moderate: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Erodes easily, wetness.	Erodes easily, wetness.
BuC, BuD2: Buxton	Severe: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Slope, erodes easily, wetness.	Slope, erodes easily, wetness.
Ch: Charles	Moderate: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Flooding, frost action.	Erodes easily, wetness.	Wetness, erodes easily.
Dp*: Dumps.						
Pits.						

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
EgB--------------- Eldridge	Severe: seepage.	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Slope, cutbanks cave.	Erodes easily, wetness.	Wetness, erodes easily.
HeB--------------- Hermon	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Large stones, too sandy.	Large stones, droughty.
HeC--------------- Hermon	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, large stones, too sandy.	Large stones, slope, droughty.
HtB--------------- Hermon	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Large stones, too sandy.	Large stones, droughty.
HtC, HtD---------- Hermon	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Large stones, slope, too sandy.	Large stones, slope, droughty.
HxB--------------- Hermon	Severe: seepage.	Severe: seepage, large stones.	Severe: no water.	Deep to water	Large stones, too sandy.	Large stones, droughty.
HxC--------------- Hermon	Severe: seepage, slope.	Severe: seepage, large stones.	Severe: no water.	Deep to water	Slope, large stones, too sandy.	Large stones, slope, droughty.
Le---------------- Lovewell	Moderate: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Flooding, frost action, cutbanks cave.	Erodes easily, wetness.	Erodes easily.
LmB*:						
Lyman------------	Severe: seepage, depth to rock.	Severe: thin layer, piping.	Severe: no water.	Deep to water	Depth to rock	Depth to rock, droughty.
Brayton Variant--	Moderate: depth to rock.	Severe: piping, wetness.	Severe: no water.	Depth to rock, percs slowly.	Depth to rock, large stones.	Wetness, large stones.
Rock outcrop.						
LrB*:						
Lyman------------	Severe: seepage, depth to rock.	Severe: thin layer, piping.	Severe: no water.	Deep to water	Depth to rock	Depth to rock, droughty.
Rock outcrop.						
Tunbridge--------	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope, depth to rock, large stones.	Slope, large stones.
LrC*, LrE*:						
Lyman------------	Severe: slope, seepage, depth to rock.	Severe: thin layer, piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock, droughty.
Rock outcrop.						

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
LrC*, LrE*: Tunbridge	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, depth to rock, large stones.	Slope, large stones.
MaB Madawaska	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Slope, cutbanks cave, frost action.	Wetness, too sandy.	Favorable.
MrB Marlow	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly	Rooting depth, percs slowly.
MrC, MrD Marlow	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, rooting depth, percs slowly.
MsB Marlow	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly	Rooting depth, percs slowly.
MsC, MsD Marlow	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, rooting depth, percs slowly.
MtB*: Marlow	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly	Rooting depth, percs slowly.
Berkshire	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Favorable	Favorable.
MtC*: Marlow	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, rooting depth, percs slowly.
Berkshire	Severe: slope, seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope.
MwB*: Marlow	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Percs slowly	Rooting depth, percs slowly.
Berkshire	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope, large stones.	Large stones.
MwC*, MwD*: Marlow	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, percs slowly.	Slope, rooting depth, percs slowly.
Berkshire	Severe: slope, seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope, large stones.	Slope, large stones.
MxB Masardis	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Too sandy, large stones.	Droughty, large stones.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
MxC, MxD: Masardis	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, too sandy, large stones.	Slope, droughty, large stones.
My: Medomak	Moderate: seepage.	Severe: piping, ponding.	Moderate: slow refill.	Ponding, flooding, frost action.	Erodes easily, ponding.	Wetness, erodes easily.
Na: Naumburg	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, too sandy.	Wetness, droughty.
PaB: Peru	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Wetness, percs slowly.	Rooting depth, percs slowly.
PaC: Peru	Severe: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Slope, rooting depth, percs slowly.
PbB: Peru	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Wetness, percs slowly.	Rooting depth, percs slowly.
PbC: Peru	Severe: slope.	Severe: piping.	Severe: no water.	Percs slowly, frost action, slope.	Slope, wetness, percs slowly.	Slope, rooting depth, percs slowly.
Pg*. Pits						
Rc*. Rock outcrop						
RmC*, RmE*: Rock outcrop.						
Lyman	Severe: slope, seepage, depth to rock.	Severe: thin layer, piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock, droughty.
Sc: Scantic	Slight	Severe: piping, hard to pack, wetness.	Severe: no water.	Percs slowly, frost action.	Wetness, percs slowly, erodes easily.	Wetness, rooting depth, erodes easily.
Sp: Searsport	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, too sandy.	Wetness, droughty.
StB: Sheepscot	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Slope, cutbanks cave.	Wetness, too sandy.	Droughty.
Su*: Sulfihemists.						
Sulfaquents.						

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
Sw----------------- Swanville	Slight---------	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, frost action.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, rooting depth.
TrB*:						
Tunbridge--------	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Depth to rock	Droughty, depth to rock.
Lyman------------	Severe: depth to rock, seepage.	Severe: thin layer, piping.	Severe: no water.	Deep to water	Depth to rock	Depth to rock, droughty.
TrC*, TrD*:						
Tunbridge--------	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, droughty, depth to rock.
Lyman------------	Severe: slope, seepage, depth to rock.	Severe: thin layer, piping.	Severe: no water.	Deep to water	Slope, depth to rock.	Slope, depth to rock, droughty.
Ud*:						
Udorthents.						
Urban land.						

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AdB, AdC, AdD---- Adams	0-6	Loamy fine sand	SM, SP-SM	A-1, A-2, A-3, A-4	0	95-100	95-100	45-85	5-40	---	NP
	6-22	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
	22-60	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
AgA, AgB, AgC---- Allagash	0-8	Fine sandy loam	SM, ML	A-2, A-4, A-5	0	95-100	95-100	65-100	30-90	<44	NP-9
	8-28	Fine sandy loam, loam, silt loam.	SM, ML	A-2, A-4	0	95-100	95-100	65-95	30-75	---	NP
	28-60	Fine sand, loamy fine sand, sand.	SM, SP-SM	A-2, A-1, A-3	0	85-100	75-100	35-95	5-35	---	NP
Be*. Beaches											
Bg--------------- Biddeford	12-0	Mucky-peat-------	PT	A-8	---	---	---	---	---	---	---
	0-4	Silt loam, silty clay loam, silty clay.	ML, OL, MH, OH	A-4, A-6, A-7	0	100	100	90-100	85-100	30-62	5-25
	4-26	Silty clay, silty clay loam, clay.	CL, CL-ML, MH, ML	A-6, A-7, A-4	0	100	100	95-100	90-100	25-55	5-20
	26-60	Silty clay loam, silty clay, clay.	CL, CL-ML	A-6, A-4	0	100	100	95-100	90-100	25-40	5-15
BoB, BoC--------- Boothbay	0-6	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0	100	95-100	85-100	60-90	20-40	3-15
	6-28	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	100	95-100	90-100	65-100	20-40	3-15
	28-60	Silty clay loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0	100	95-100	90-100	65-100	20-40	3-15
BoD2------------- Boothbay	0-3	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0	100	95-100	85-100	60-90	20-40	3-15
	3-25	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	100	95-100	90-100	65-100	20-40	3-15
	25-60	Silty clay loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0	100	95-100	90-100	65-100	20-40	3-15
Bp. Borosaprists											
BsB-------------- Brayton	0-8	Fine sandy loam	SM, ML	A-1, A-2, A-4	0-15	80-90	75-90	45-90	20-80	<15	NP-4
	8-16	Gravelly fine sandy loam, gravelly sandy loam, loam.	GM, ML, SM	A-2, A-4, A-1	0-15	55-95	50-90	30-90	15-80	<15	NP-4
	16-60	Gravelly fine sandy loam, very gravelly sandy loam, loam.	GM, SM, GM-GC, ML	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--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
BtB-------------- Brayton	0-8	Very stony fine sand loam.	GM, GM, ML	A-4, A-1, A-2	5-20	55-80	50-75	30-75	15-70	<15	NP-4
	8-16	Gravelly fine sandy loam, gravelly sandy loam, loam.	GM, ML, SM	A-2, A-4, A-1	0-15	55-95	50-90	30-90	15-80	<15	NP-4
	16-60	Gravelly fine sandy loam, very gravelly sandy loam, loam.	GM, SM, ML, GM-GC	A-2, A-4 A-1	0-15	45-95	40-90	25-85	10-70	<15	NP-4
BuB, BuC--------- Buxton	0-8	Silt loam--------	ML, MH	A-4, A-7, A-5	0	98-100	95-100	95-100	85-100	36-55	5-20
	8-36	Silt loam, silty clay loam, silty clay.	ML, CL, MH, CL-ML	A-4, A-6, A-7	0	98-100	95-100	95-100	85-100	25-55	5-20
	36-60	Silty clay, silty clay loam, clay.	CL, CL-ML	A-6, A-4	0	98-100	95-100	95-100	90-100	25-40	5-15
BuD2------------- Buxton	0-4	Silt loam--------	ML, MH	A-4, A-7, A-5	0	98-100	95-100	95-100	85-100	36-55	5-20
	4-32	Silt loam, silty clay loam, silty clay.	ML, CL, MH, CL-ML	A-4, A-6, A-7	0	98-100	95-100	95-100	85-100	25-55	5-20
	32-60	Silty clay, silty clay loam, clay.	CL, CL-ML	A-6, A-4	0	98-100	95-100	95-100	90-100	25-40	5-15
Ch--------------- Charles	0-6	Silt loam--------	ML, CL-ML	A-4, A-6	0	100	100	95-100	80-95	<40	NP-15
	6-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4, A-6	0	100	100	95-100	80-95	<40	NP-15
Dp*: Dumps.											
Pits.											
EgB-------------- Eldridge	0-8	Fine sandy loam	SM	A-2, A-4	0-5	95-100	90-100	60-80	20-45	---	NP
	8-27	Loamy fine sand, fine sand, sand.	SM, SP-SM	A-2	0-5	95-100	90-100	50-80	10-30	---	NP
	27-60	Stratified very fine sand to clay.	SM, CL-ML, ML	A-4	0	100	90-100	70-100	35-100	<30	NP-5
HeB, HeC--------- Hermon	0-6	Fine sandy loam	SM	A-2, A-4	0-5	85-95	75-90	55-80	25-45	<40	NP-10
	6-22	Very gravelly coarse sand, gravelly fine sandy loam, extremely gravelly sandy loam.	SM, GM	A-2, A-4, A-1	20-30	60-90	30-75	25-60	15-40	<40	NP-10
	22-60	Very gravelly coarse sand, gravelly loamy sand, extremely gravelly sand.	SP-SM, SM, GP-GM, GM	A-1, A-2, A-3	20-40	45-80	25-70	20-55	5-25	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
HtB, HtC, HtD---- Hermon	0-3	Very stony fine sandy loam.	SM	A-2, A-4, A-1	5-30	70-95	50-90	30-80	15-45	<40	NP-10
	3-22	Very gravelly coarse sand, gravelly fine sandy loam, extremely gravelly sandy loam.	SM, GM	A-2, A-4, A-1	20-30	60-90	30-75	25-60	15-40	<40	NP-10
	22-60	Very gravelly coarse sand, gravelly loamy sand, extremely gravelly sand.	SP-SM, SM, GP-GM, GM	A-1, A-2, A-3	20-40	45-80	25-70	20-55	5-25	---	NP
HxB, HxC--------- Hermon	0-3	Extremely bouldery fine sandy loam.	SM	A-1, A-2, A-4	30-80	70-95	50-90	30-80	15-45	<40	NP-10
	3-22	Very gravelly coarse sand, gravelly fine sandy loam, extremely gravelly sandy loam.	SM, GM	A-1, A-2, A-4	20-30	60-90	30-75	25-60	15-40	<40	NP-10
	22-60	Very gravelly coarse sand, gravelly loamy sand, extremely gravelly sand.	SP-SM, SM, GP-GM, GM	A-1, A-2, A-3	20-40	45-80	25-70	20-55	5-25	---	NP
Le--------------- Lovewell	0-12	Very fine sandy loam.	ML, CL-ML, CL	A-4, A-6	0	95-100	100	95-100	80-95	<40	NP-15
	12-29	Very fine sandy loam, silt loam.	ML, CL-ML, CL	A-4, A-6	0	95-100	100	95-100	80-95	<40	NP-15
	29-45	Very fine sandy loam, silt loam, loamy very fine sand.	ML, CL-ML, CL	A-4, A-6	0	95-100	100	95-100	80-95	<40	NP-15
	45-60	Loamy fine sand, gravelly coarse sand.	ML, SM, SW-SM, SP-SM	A-4, A-3, A-2	0	90-100	70-100	50-95	5-85	---	NP
LmB*:											
Lyman-----------	0-2	Very stony fine sandy loam.	SM, ML	A-1, A-2, A-4	5-20	60-80	60-90	35-80	15-75	<30	NP-6
	2-16	Loam, gravelly fine sandy loam, silt loam.	SM, ML	A-1, A-2, A-4	0-20	55-90	60-90	35-85	20-80	<30	NP-4
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Brayton Variant-	0-3	Very stony fine sandy loam.	SM, ML	A-2, A-4	5-20	80-100	75-95	40-95	25-85	<25	NP-3
	3-20	Fine sandy loam, gravelly sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	80-95	70-90	40-80	25-60	<25	NP-3
	20-32	Gravelly sandy loam, gravelly fine sandy loam, loam.	SM, ML	A-2, A-4	0-15	80-95	70-90	40-80	25-60	<25	NP-3
	32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
LrB*, LrC*, LrE*:											
Lyman-----------	0-2	Very stony fine sandy loam.	SM, ML	A-1, A-2, A-4	5-20	60-80	60-90	35-80	15-75	<30	NP-6
	2-16	Loam, gravelly fine sandy loam, silt loam.	SM, ML	A-1, A-2, A-4	0-20	55-90	60-90	35-85	20-80	<30	NP-4
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
Tunbridge-------	0-2	Very stony fine sandy loam.	SM, ML	A-2, A-4	0-15	80-90	70-85	50-70	20-55	<20	NP-2
	2-31	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	0-20	80-90	70-85	60-80	30-65	<20	NP-2
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
MaB-------------- Madawaska	0-10	Fine sandy loam	SM, ML	A-4, A-2	0	100	85-100	65-95	30-75	---	NP
	10-28	Fine sandy loam, sandy loam.	SM, ML	A-4, A-2	0	100	85-100	65-95	30-75	---	NP
	28-60	Fine sand, sand, very fine sand.	SM, SP-SM	A-2, A-4, A-3	0	100	85-100	50-80	5-45	---	NP
MrB, MrC, MrD---- Marlow	0-8	Fine sandy loam	SM, ML, CL-ML	A-2, A-4	0-10	90-100	75-90	50-90	30-80	<30	NP-10
	8-28	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	75-95	60-90	40-85	20-65	<30	NP-10
	28-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	70-90	60-85	35-80	20-60	<30	NP-10
MsB, MsC, MsD---- Marlow	0-3	Very stony fine sandy loam.	SM, ML, CL-ML	A-2, A-4	5-15	90-100	75-90	50-90	30-80	<30	NP-10
	3-28	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	75-95	60-90	40-85	20-65	<30	NP-10
	28-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	70-90	60-85	35-80	20-60	<30	NP-10
MtB*, MtC*:											
Marlow----------	0-8	Fine sandy loam	SM, ML, CL-ML	A-2, A-4	0-10	90-100	75-90	50-90	30-80	<30	NP-10
	8-28	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	75-95	60-90	40-85	20-65	<30	NP-10
	28-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	70-90	60-85	35-80	20-60	<30	NP-10
Berkshire-------	0-8	Fine sandy loam	SM, ML	A-2, A-4	0-15	80-95	70-90	45-90	20-70	<30	NP-10
	8-24	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-20	75-95	65-85	40-85	20-65	<30	NP-10
	24-60	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-20	75-90	65-85	40-80	20-60	<20	NP-6

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
MwB*, MwC*, MwD*: Marlow	0-3	Very stony fine sandy loam.	SM, ML, CL-ML	A-2, A-4	5-15	90-100	75-90	50-90	30-80	<30	NP-10
	3-28	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	75-95	60-90	40-85	20-65	<30	NP-10
	28-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	70-90	60-85	35-80	20-60	<30	NP-10
Berkshire	0-1	Very stony fine sandy loam.	SM, ML	A-2, A-4, A-5	15-25	80-95	70-90	45-85	25-65	<50	NP-10
	1-24	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4, A-5	0-15	75-95	65-85	40-75	20-60	<50	NP-10
	24-60	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-90	65-85	40-80	20-55	<20	NP-6
MxB, MxC, MxD: Masardis	0-4	Gravelly fine sandy loam.	SM, ML	A-1, A-2, A-4	0-15	80-95	50-75	30-75	15-70	<40	NP-6
	4-15	Gravelly sandy loam, silt loam, very gravelly coarse sand.	SM, ML, SP-SM, GP-GM	A-1, A-2, A-3, A-4	0-15	45-95	35-85	20-85	5-70	---	NP
	15-22	Very gravelly coarse sand, very gravelly sand, gravelly fine sandy loam.	GW-GM, SP, SM, GP	A-1, A-2, A-3	5-20	40-85	35-70	20-60	3-35	---	NP
	22-60	Stratified extremely gravelly coarse sand to gravelly loamy coarse sand.	SP, GP, SP-SM, GP-GM	A-1	5-20	30-65	25-50	10-35	1-10	---	NP
My: Medomak	0-12	Silt loam	ML, CL	A-4, A-6	0	100	90-100	85-100	80-95	<40	NP-15
	12-27	Silt loam, very fine sandy loam.	ML	A-4	0	100	90-100	85-100	80-95	<40	NP-10
	27-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	100	90-100	85-100	80-95	<25	NP-5
Na: Naumburg	0-8	Loamy sand	SM, SW-SM, SP-SM	A-2, A-4, A-3	0	95-100	95-100	50-85	5-45	---	NP
	8-31	Loamy fine sand, loamy sand, sand.	SM, SW-SM, SP-SM	A-1, A-2, A-3	0	90-100	90-100	45-85	5-35	---	NP
	31-60	Sand, loamy 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
PaB, PaC: Peru	0-8	Fine sandy loam	SM, ML, CL-ML	A-2, A-4	0-10	90-100	75-90	50-90	30-80	<30	NP-10
	8-25	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	75-95	60-90	40-85	20-65	<30	NP-10
	25-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	70-95	55-95	35-80	20-60	<30	NP-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
PbB, PbC--------- Peru	0-3	Very stony fine sandy loam.	SM, ML, CL-ML, SC	A-2, A-4	5-15	90-100	75-90	50-90	30-80	<30	NP-10
	3-25	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	75-95	60-90	40-85	20-65	<30	NP-10
	25-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC, CL-ML	A-2, A-4, A-1-B	0-15	70-95	55-95	35-80	20-60	<30	NP-10
Pg*. Pits											
Rc*. Rock outcrop											
RmC*, RmE*: Rock outcrop.											
Lyman-----------	0-2	Very stony fine sandy loam.	SM, ML	A-1, A-2, A-4	5-20	60-80	60-90	35-80	15-75	<30	NP-6
	2-16	Loam, gravelly fine sandy loam, silt loam.	SM, ML	A-1, A-2, A-4	0-20	55-90	60-90	35-85	20-80	<30	NP-4
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sc--------------- Scantic	0-7	Silt loam--------	ML, MH	A-4, A-6, A-7, A-5	0	100	95-100	90-100	70-100	36-55	5-20
	7-42	Silty clay loam, silt loam, clay.	CL, MH, CL-ML, ML	A-7, A-6, A-4, A-5	0	100	95-100	95-100	85-100	25-55	5-20
	42-60	Clay, silty clay loam, silty clay.	CL, CL-ML, ML	A-6, A-4	0	100	95-100	95-100	90-100	25-40	5-15
Sp--------------- Searsport	9-0	Mucky peat-------	PT	A-8	0	---	---	---	---	---	---
	0-3	Loamy fine sand, fine sandy loam, mucky sand.	SM, SP-SM	A-1, A-2, A-3	0	95-100	75-100	40-100	5-35	---	NP
	3-42	Loamy sand, coarse sand, fine sand.	SM, SP	A-1, A-2, A-3	0	95-100	75-100	40-100	0-35	---	NP
	42-60	Loamy sand, very gravelly coarse sand.	SP, SM	A-1, A-2, A-3	0	80-100	40-100	20-75	0-30	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
StB-------------- Sheepscot	0-3	Fine sandy loam	GM, SM, ML, CL-ML	A-1, A-2, A-4	0-5	55-95	50-90	25-85	15-60	<15	NP-5
	3-17	Very gravelly fine sandy loam, gravelly loamy sand, very gravelly coarse sand.	GP, GM, SP, SM	A-1, A-2	0-5	50-70	30-55	15-45	2-30	<15	NP-5
	17-25	Very gravelly sand, gravelly loamy sand, extremely gravelly coarse sand.	GP, GM, SP, SM	A-1	0-5	50-70	30-55	15-40	2-15	---	NP
	25-60	Extremely gravelly coarse sand, very gravelly loamy fine sand, very gravelly sand.	GP, GM, SP, SM	A-1	0-10	45-70	25-55	12-40	1-15	---	NP
Su*: Sulfihemists.											
Sulfaquents.											
Sw--------------- Swanville	0-9	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0	100	95-100	85-100	60-90	20-40	3-15
	9-26	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	100	95-100	90-100	65-100	20-40	3-15
	26-60	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	100	95-100	90-100	65-100	20-40	3-15
TrB*, TrC*, TrD*: Tunbridge-------	0-8	Fine sandy loam	SM, ML, GM	A-4, A-2	0-5	55-100	50-95	35-95	20-85	<20	NP-2
	8-26	Gravelly fine sandy loam, silt loam, channery fine sandy loam.	SM, ML	A-4, A-5, A-2	0-15	70-100	65-95	45-95	25-95	<20	NP-6
	26-31	Channery fine sandy loam, gravelly fine sandy loam, silt loam.	SM, ML	A-2, A-4	0-15	70-100	65-95	45-95	25-95	<20	NP-2
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Lyman-----------	0-8	Fine sandy loam	ML, SM	A-4, A-1, A-2	0-15	80-95	70-90	40-85	20-80	<35	NP-6
	8-16	Loam, gravelly fine sandy loam, silt loam.	SM, ML	A-2, A-4, A-1	0-20	65-95	60-90	35-85	20-80	<30	NP-4
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ud*: Udorthents.											
Urban land.											

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
AdB, AdC, AdD---- Adams	0-6	0-5	1.00-1.30	6.0-20	0.05-0.12	4.5-5.5	Low----------	0.17	5	1-4
	6-22	0-5	1.10-1.45	6.0-20	0.04-0.10	4.5-5.5	Low----------	0.17		
	22-60	0-5	1.20-1.50	>20	0.03-0.04	4.5-6.0	Low----------	0.17		
AgA, AgB, AgC---- Allagash	0-8	3-13	0.95-1.25	2.0-6.0	0.16-0.22	4.5-6.5	Low----------	0.28	3	2-8
	8-28	2-12	1.20-1.50	2.0-6.0	0.10-0.24	4.5-6.5	Low----------	0.28		
	28-60	2-5	1.35-1.65	6.0-20	0.06-0.18	4.5-6.5	Low----------	0.28		
Be*. Beaches										
Bg--------------- Biddeford	0-12	---	0.10-0.30	2.0-6.0	0.20-0.45	4.5-6.5	-------------	----	5	---
	12-16	20-50	0.90-1.20	0.2-0.6	0.24-0.34	5.1-7.3	Low----------	0.32		
	16-45	35-55	1.60-1.80	<0.2	0.13-0.23	5.6-7.8	Moderate-----	0.49		
	45-60	35-55	1.70-1.95	<0.2	0.06-0.16	6.1-7.8	Moderate-----	0.49		
BoB, BoC--------- Boothbay	0-6	10-25	1.00-1.30	0.6-2.0	0.22-0.30	4.5-6.5	Low----------	0.32	3	3-6
	6-28	18-35	1.20-1.50	0.06-0.6	0.14-0.22	4.5-7.3	Low----------	0.49		
	28-60	18-35	1.60-1.80	0.06-0.6	0.10-0.20	5.6-7.3	Low----------	0.49		
BoD2------------- Boothbay	0-3	10-25	1.00-1.30	0.6-2.0	0.22-0.30	4.5-6.5	Low----------	0.32	3	3-6
	3-25	18-35	1.20-1.50	0.06-0.6	0.14-0.22	4.5-7.3	Low----------	0.49		
	25-60	18-35	1.60-1.80	0.06-0.6	0.10-0.20	5.6-7.3	Low----------	0.49		
Bp. Borosaprists										
BsB, BtB. Brayton										
BuB, BuC--------- Buxton	0-8	15-30	0.90-1.20	0.2-2.0	0.18-0.28	4.5-6.5	Low----------	0.32	3	4-7
	8-36	20-40	1.20-1.55	0.2-0.6	0.13-0.23	4.5-6.5	Moderate-----	0.49		
	36-60	35-55	1.75-1.95	<0.2	0.06-0.16	5.6-7.3	Moderate-----	0.49		
BuD2------------- Buxton	0-4	15-30	0.90-1.20	0.2-2.0	0.18-0.28	4.5-6.5	Low----------	0.32	3	4-7
	4-32	20-40	1.20-1.55	0.2-0.6	0.13-0.23	4.5-6.5	Moderate-----	0.49		
	32-60	35-55	1.75-1.95	<0.2	0.06-0.16	5.6-7.3	Moderate-----	0.49		
Ch--------------- Charles	0-6	2-10	1.10-1.35	0.6-2.0	0.20-0.30	4.5-6.5	Low----------	0.32	5	3-7
	6-60	2-10	1.20-1.50	0.6-2.0	0.20-0.30	4.5-6.5	Low----------	0.49		
Dp*: Dumps.										
Pits.										
EgB-------------- Eldridge	0-8	1-5	1.2-1.5	6.0-20	0.08-0.16	5.1-6.5	Low----------	0.24	3	3-6
	8-27	1-5	1.3-1.7	6.0-20	0.04-0.11	5.1-6.5	Low----------	0.24		
	27-60	3-16	1.3-1.7	0.2-0.6	0.18-0.22	5.1-7.3	Low----------	0.43		
HeB, HeC--------- Hermon	0-6	2-6	0.95-1.20	6.0-20	0.09-0.15	3.6-5.5	Low----------	0.17	3	3-7
	6-22	2-7	1.00-1.30	6.0-20	0.05-0.10	3.6-6.0	Low----------	0.10		
	22-60	1-4	1.40-1.70	6.0-20	0.02-0.06	5.1-6.0	Low----------	0.10		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
HtB, HtC, HtD----- Hermon	0-3	2-6	0.95-1.20	6.0-20	0.07-0.15	3.6-5.5	Low-----------	0.10	3	---
	3-22	2-7	1.00-1.30	6.0-20	0.05-0.10	3.6-6.0	Low-----------	0.10		
	22-60	1-4	1.40-1.70	6.0-20	0.02-0.06	5.1-6.0	Low-----------	0.10		
HxB, HxC---------- Hermon	0-3	2-6	0.95-1.20	6.0-20	0.05-0.13	3.6-5.5	Low-----------	0.10	3	---
	3-22	2-7	1.00-1.30	6.0-20	0.05-0.10	3.6-6.0	Low-----------	0.10		
	22-60	1-4	1.40-1.70	6.0-20	0.02-0.06	5.1-6.0	Low-----------	0.10		
Le---------------- Lovewell	0-12	0-10	1.10-1.35	0.6-2.0	0.20-0.30	4.5-6.5	Low-----------	0.32	5	2-6
	12-29	2-10	1.10-1.35	0.6-2.0	0.20-0.30	4.5-6.5	Low-----------	0.49		
	29-45	2-10	1.20-1.50	0.6-2.0	0.18-0.28	4.5-6.5	Low-----------	0.49		
	45-60	0-3	1.30-1.50	>2.0	0.04-0.13	4.5-6.5	Low-----------	0.20		
LmB*:										
Lyman------------	0-2	2-10	0.75-1.20	2.0-6.0	0.13-0.24	3.6-6.0	Low-----------	0.20	2	---
	2-16	2-10	0.90-1.40	2.0-6.0	0.08-0.28	3.6-6.0	Low-----------	0.32		
	16-20	---	---	---	---	---	--------------	-----		
Brayton Variant-	0-3	4-10	1.00-1.25	0.6-6.0	0.12-0.24	4.5-6.0	Low-----------	0.24	3	---
	3-20	4-10	1.35-1.60	0.6-6.0	0.10-0.20	4.5-6.5	Low-----------	0.24		
	20-32	4-10	1.55-1.85	0.06-0.2	0.08-0.16	5.1-6.5	Low-----------	0.24		
	32-36	---	---	---	---	---	--------------	-----		
Rock outcrop.										
LrB*, LrC*, LrE*:										
Lyman------------	0-2	2-10	0.75-1.20	2.0-6.0	0.13-0.24	3.6-6.0	Low-----------	0.20	2	---
	2-16	2-10	0.90-1.40	2.0-6.0	0.08-0.28	3.6-6.0	Low-----------	0.32		
	16-20	---	---	---	---	---	--------------	-----		
Rock outcrop.										
Tunbridge--------	0-2	5-9	0.80-1.20	2.0-6.0	0.12-0.16	5.1-7.3	Low-----------	0.20	2	---
	2-31	3-9	1.20-1.50	2.0-6.0	0.10-0.14	5.1-7.3	Low-----------	0.20		
	31	---	---	---	---	---	--------------	-----		
MaB--------------- Madawaska	0-10	3-13	0.95-1.25	2.0-6.0	0.16-0.25	4.5-6.0	Low-----------	0.28	3	3-9
	10-28	2-12	1.20-1.50	2.0-6.0	0.10-0.18	4.5-6.0	Low-----------	0.28		
	28-60	0-5	1.35-1.65	6.0-20	0.06-0.18	4.5-6.0	Low-----------	0.28		
MrB, MrC, MrD----- Marlow	0-8	3-10	1.00-1.30	0.6-2.0	0.10-0.23	3.6-6.0	Low-----------	0.24	3	2-6
	8-28	3-10	1.30-1.60	0.6-2.0	0.06-0.20	3.6-6.0	Low-----------	0.32		
	28-60	3-10	1.70-2.05	0.06-0.6	0.05-0.12	3.6-6.0	Low-----------	0.20		
MsB, MsC, MsD----- Marlow	0-3	3-10	1.00-1.30	0.6-2.0	0.10-0.23	3.6-6.0	Low-----------	0.20	3	---
	3-28	3-10	1.30-1.60	0.6-2.0	0.06-0.20	3.6-6.0	Low-----------	0.32		
	28-60	3-10	1.70-2.05	0.06-0.6	0.05-0.12	3.6-6.0	Low-----------	0.20		
MtB*, MtC*:										
Marlow-----------	0-8	3-10	1.00-1.30	0.6-2.0	0.10-0.23	3.6-6.0	Low-----------	0.24	3	2-6
	8-28	3-10	1.30-1.60	0.6-2.0	0.06-0.20	3.6-6.0	Low-----------	0.32		
	28-60	3-10	1.70-2.05	0.06-0.6	0.05-0.12	3.6-6.0	Low-----------	0.20		
Berkshire--------	0-8	3-10	1.10-1.15	0.6-6.0	0.10-0.22	3.6-6.0	Low-----------	0.24	3	2-5
	8-24	3-10	1.15-1.30	0.6-6.0	0.10-0.20	3.6-6.0	Low-----------	0.32		
	24-60	1-10	1.30-1.60	0.6-6.0	0.10-0.18	3.6-6.0	Low-----------	0.24		
MwB*, MwC*, MwD*:										
Marlow-----------	0-3	3-10	1.00-1.30	0.6-2.0	0.10-0.23	3.6-6.0	Low-----------	0.20	3	---
	3-28	3-10	1.30-1.60	0.6-2.0	0.06-0.20	3.6-6.0	Low-----------	0.32		
	28-60	3-10	1.70-2.05	0.06-0.6	0.05-0.12	3.6-6.0	Low-----------	0.20		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cc	In/hr	In/in	pH				Pct
MwB*, MwC*, MwD*:										
Berkshire-------	0-1	3-10	1.10-1.15	0.6-6.0	0.06-0.22	3.6-6.0	Low----------	0.20	3	---
	1-24	3-10	1.15-1.30	0.6-6.0	0.10-0.20	3.6-6.0	Low----------	0.32		
	24-60	1-10	1.30-1.60	0.6-6.0	0.10-0.18	3.6-6.0	Low----------	0.24		
MxB, MxC, MxD---- Masardis	0-4	5-12	0.85-1.15	2.0-6.0	0.08-0.15	3.6-6.0	Low----------	0.10	3	2-6
	4-15	5-12	0.90-1.20	2.0-6.0	0.06-0.15	3.6-6.0	Low----------	0.10		
	15-22	1-8	1.00-1.40	>6.0	0.03-0.11	3.6-6.0	Low----------	0.10		
	22-60	0-5	1.40-1.70	>6.0	0.01-0.06	4.5-6.0	Low----------	0.10		
My--------------- Medomak	0-12	2-10	0.90-1.20	0.6-2.0	0.20-0.30	4.5-6.5	Low----------	0.32	5	---
	12-27	2-10	1.10-1.35	0.6-2.0	0.20-0.30	4.5-6.5	Low----------	0.49		
	27-60	2-10	1.30-1.50	0.6-2.0	0.20-0.30	5.6-7.3	Low----------	0.49		
Na--------------- Naumburg	0-8	1-5	1.20-1.50	2.0-6.0	0.05-0.09	3.6-5.5	Low----------	0.17	5	3-7
	8-31	1-5	1.20-1.50	6.0-20	0.06-0.08	3.6-5.5	Low----------	0.17		
	31-60	1-5	1.45-1.65	6.0-20	0.04-0.06	4.5-6.5	Low----------	0.17		
PaB, PaC--------- Peru	0-8	3-10	1.00-1.30	0.6-2.0	0.10-0.23	3.6-6.0	Low----------	0.24	3	2-6
	8-25	3-10	1.30-1.60	0.6-2.0	0.06-0.20	3.6-6.0	Low----------	0.32		
	25-60	3-10	1.60-2.05	0.06-0.6	0.05-0.12	3.6-6.0	Low----------	0.24		
PbB, PbC--------- Peru	0-3	3-10	0.80-1.00	0.6-2.0	0.16-0.24	3.6-6.0	Low----------	0.20	3	---
	3-25	3-10	1.30-1.60	0.6-2.0	0.06-0.20	3.6-6.0	Low----------	0.32		
	25-60	3-10	1.60-2.05	0.06-0.6	0.05-0.12	3.6-6.0	Low----------	0.24		
Pg*. Pits										
Rc*. Rock outcrop										
RmC*, RmE*: Rock outcrop.										
Lyman-----------	0-2	2-10	0.75-1.20	2.0-6.0	0.13-0.24	3.6-6.0	Low----------	0.20	2	---
	2-16	2-10	0.90-1.40	2.0-6.0	0.08-0.28	3.6-6.0	Low----------	0.32		
	16-20	---	---	---	---	---	--------------	----		
Sc--------------- Scantic	0-7	15-40	1.05-1.22	0.2-2.0	0.24-0.34	4.5-7.3	Low----------	0.32	3	4-7
	7-42	20-55	1.15-1.75	<0.2	0.13-0.23	5.1-7.3	Moderate-----	0.49		
	42-60	35-55	1.75-1.95	<0.2	0.06-0.16	5.6-7.3	Moderate-----	0.49		
Sp--------------- Searsport	0-9	---	0.55-0.75	6.0-20	0.20-0.45	4.5-6.0	--------------	----	5	---
	9-12	1-5	1.15-1.35	>6.0	0.01-0.13	4.5-6.0	Low----------	0.17		
	12-51	0-2	1.35-1.55	>6.0	0.01-0.09	4.5-6.0	Low----------	0.17		
	51-60	0-2	1.35-1.55	>6.0	0.01-0.09	4.5-6.0	Low----------	0.10		
StB-------------- Sheepscot	0-3	3-5	1.00-1.30	2.0-6.0	0.11-0.21	3.6-6.0	Low----------	0.17	3	2-6
	3-17	1-5	1.21-1.47	2.0-6.0	0.06-0.15	3.6-6.0	Low----------	0.10		
	17-25	0-3	1.45-1.70	>6.0	0.02-0.09	3.6-6.0	Low----------	0.10		
	25-60	0-3	1.45-1.70	>6.0	0.01-0.06	4.5-6.0	Low----------	0.10		
Su*: Sulfihemists.										
Sulfaquents.										
Sw--------------- Swanville	0-9	10-35	1.00-1.30	0.6-2.0	0.22-0.30	4.5-7.3	Low----------	0.28	3	3-6
	9-26	18-35	1.20-1.50	0.06-0.6	0.14-0.22	4.5-7.3	Low----------	0.49		
	26-60	18-35	1.60-1.80	0.06-0.6	0.10-0.20	5.6-7.3	Low----------	0.49		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
TrB*, TrC*, TrD*:										
Tunbridge-------	0-8	5-9	0.80-1.20	0.6-6.0	0.14-0.23	3.6-6.0	Low-----------	0.20	2	2-6
	8-26	3-9	1.20-1.40	0.6-6.0	0.10-0.21	3.6-6.0	Low-----------	0.20		
	26-31	3-7	1.20-1.50	0.6-6.0	0.09-0.15	5.1-6.5	Low-----------	0.20		
	31-35	---	---	---	---	---	-------------	----		
Lyman-----------	0-8	2-10	0.75-1.20	2.0-6.0	0.08-0.25	3.6-6.0	Low-----------	0.28	2	1-4
	8-16	2-10	0.90-1.40	2.0-6.0	0.08-0.28	3.6-6.0	Low-----------	0.32		
	16-20	---	---	---	---	---	-------------	----		
Ud*:										
Udorthents.										
Urban land.										

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

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	Hardness		Uncoated steel	Concrete
					Ft			In				
AdB, AdC, AdD----- Adams	A	None---------	---	---	>6.0	---	---	>60	---	Low------	Low------	High.
AgA, AgB, AgC----- Allagash	B	None---------	---	---	>6.0	---	---	>60	---	Low------	Low------	High.
Be*. Beaches												
Bg**--------------- Biddeford	D	None---------	---	---	+1-0.5	Apparent	Nov-Aug	>60	---	High-----	High-----	Moderate.
BoB, BoC, BoD2---- Boothbay	C	None---------	---	---	1.0-2.0	Apparent	Mar-May	>60	---	High-----	Moderate	Moderate.
Bp. Borosaprists												
BsB, BtB. Brayton												
BuB, BuC, BuD2---- Buxton	C	None---------	---	---	1.0-3.0	Perched	Nov-May	>60	---	High-----	High-----	Moderate.
Ch----------------- Charles	C	Frequent----	Brief-----	Mar-Oct	0-1.5	Apparent	Nov-Jun	>60	---	High-----	High-----	Moderate.
Dp*: Dumps.												
Pits.												
EgB---------------- Eldridge	C	None---------	---	---	1.0-2.0	Apparent	Jan-May	>60	---	Moderate	Moderate	Moderate.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
HeB, HeC, HtB, HtC, HtD, HxB, HxC---------------- Hermon	A	None---------	---	---	>6.0	---	---	>60	---	Low-------	Low-------	High.
Le---------------- Lovewell	B	Occasional	Brief-----	Mar-Oct	1.5-3.0	Apparent	Nov-May	>60	---	High-----	Moderate	Moderate.
LmB*:												
Lyman------------	D	None---------	---	---	>6.0	---	---	8-20	Hard	Moderate	Low-------	High.
Brayton Variant--	C	None---------	---	---	0-1.5	Perched	Nov-May	20-40	Hard	High-----	High-----	Moderate.
Rock outcrop.												
LrB*, LrC*, LrE*:												
Lyman------------	D	None---------	---	---	>6.0	---	---	8-20	Hard	Moderate	Low-------	High.
Rock outcrop.												
Tunbridge--------	C	None---------	---	---	>6.0	---	---	20-40	Hard	Moderate	Low-------	Moderate.
MaB--------------- Madawaska	B	None---------	---	---	1.5-3.0	Apparent	Nov-May	>60	---	High-----	Moderate	High.
MrB, MrC, MrD, MsB, MsC, MsD---- Marlow	C	None---------	---	---	2.0-3.5	Perched	Mar-Apr	>60	---	Moderate	Low-------	Moderate.
MtB*, MtC*, MwB*, MwC*, MwD*:												
Marlow----------	C	None---------	---	---	2.0-3.5	Perched	Mar-Apr	>60	---	Moderate	Low-------	Moderate.
Berkshire--------	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Low-------	High.
MxB, MxC, MxD----- Masardis	A	None---------	---	---	>6.0	---	---	>60	---	Low-------	Low-------	Moderate.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
My**------- Medomak	D	Frequent----	Long------	Mar-Oct	+1-0.5	Apparent	Sep-Jun	>60	---	High-----	High-----	Moderate.
Na------- Naumburg	C	None--------	---	---	0-1.5	Apparent	Nov-May	>60	---	Moderate	High-----	High.
PaB, PaC, PbB, PbC------- Peru	C	None--------	---	---	1.5-2.5	Perched	Nov-May	>60	---	High-----	Moderate	Moderate.
Pg*. Pits												
Rc*. Rock outcrop												
RmC*, RmE*: Rock outcrop.												
Lyman-------	D	None--------	---	---	>6.0	---	---	8-20	Hard	Moderate	Low------	High.
Sc------- Scantic	D	None--------	---	---	0-1.0	Perched	Oct-May	>60	---	High-----	High-----	Moderate.
Sp**------- Searsport	D	None--------	---	---	+1-1.0	Apparent	Sep-Jul	>60	---	Moderate	High-----	High.
StB------- Sheepscot	B	None--------	---	---	1.5-2.5	Apparent	Nov-May	>60	---	Low------	Low------	High.
Su*: Sulfihemists.												
Sulfaquents.												
Sw------- Swanville	C	None--------	---	---	0-1.5	Apparent	Oct-May	>60	---	High-----	High-----	Low.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
TrB*, TrC*, TrD*:												
Tunbridge--------	C	None---------	---	---	>6.0	---	---	20-40	Hard	Moderate	Low------	Moderate.
Lyman------------	D	None---------	---	---	>6.0	---	---	8-20	Hard	Moderate	Low------	High.
Ud*:												
Udorthents.												
Urban land.												

* See description of the map unit for composition and behavior characteristics of the map unit.

**In the "High water table--Depth" column, a plus sign preceeding 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.

TABLE 17.--CLASSIFICATION OF THE SOILS

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
Berkshire	Coarse-loamy, mixed, frigid Typic Haplorthods
Biddeford	Fine, illitic, nonacid, frigid Histic Humaquepts
Boothbay	Fine-silty, mixed, frigid Aquic Dystric Eutrochrepts
Borosaprists	Borosaprists
Brayton	Coarse-loamy, mixed, frigid Aeric Fragiaquepts
Brayton Variant	Coarse-Loamy, mixed, frigid Aeric Fragiaquepts
Buxton	Fine, illitic, frigid Aquic Dystric Eutrochrepts
Charles	Coarse-silty, mixed, nonacid, frigid Aeric Fluvaquents
*Eldridge	Sandy over loamy, mixed, nonacid, mesic Aquic Udorthents
Hermon	Sandy-skeletal, mixed, frigid Typic Haplorthods
Lovewell	Coarse-silty, mixed, frigid Fluvaquentic Dystrochrepts
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
Masardis	Sandy-skeletal, mixed, frigid Typic Haplorthods
Medomak	Coarse-silty, mixed, nonacid, frigid Fluvaquentic Humaquepts
Naumburg	Sandy, mixed, frigid Aeric Haplaquods
Peru	Coarse-loamy, mixed, frigid Aquic Fragiothods
Scantic	Fine, illitic, nonacid, frigid Typic Haplaquepts
Searsport	Sandy, mixed, frigid Histic Humaquepts
Sheepscot	Sandy-skeletal, mixed, frigid Typic Haplorthods
Sulfaquents	Sulfaquents
Sulfihemists	Sulfihemists
Swanville	Fine-silty, mixed, nonacid, frigid Aeric Haplaquepts
Tunbridge	Coarse-loamy, mixed, frigid Typic Haplorthods
Udorthents	Udorthents

*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.

TABLE 18--RELATIONSHIP AMONG POSITION ON THE LANDSCAPE, PARENT MATERIAL, AND DRAINAGE OF SOIL SERIES AND OTHER TAXA

Parent material	Excessively drained	Somewhat excessively drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained	Very poorly drained
				SOILS ON UPLANDS			
Shallow, moderately coarse textured glacial till derived mainly from mica schist		Lyman					
Moderately deep, medium textured and moderately coarse textured glacial till derived mainly from mica schist, gneiss, or phyllite			Tunbridge		Brayton Variant	Brayton Variant	
Deep, moderately coarse textured and coarse textured glacial till derived mainly from gneiss, granite, and schist		Hermon					
Deep, moderately coarse textured, compact glacial till derived mainly from mica schist and some gneiss, phyllite, or granite			Marlow	Peru	Brayton	Brayton	
Deep, moderately coarse textured glacial till derived mainly from mica schist			Berkshire				
				SOILS ON OUTWASH PLAINS, TERRACES, OR ESKERS			
Deep, moderately coarse textured over gravelly coarse textured materials		Masardis		Sheepscot			
Deep, moderately coarse textured over coarse textured materials			Allagash	Madawaska			
Deep, coarse textured materials		Adams			Naumburg	Naumburg	
				SOILS ON MARINE OR LACUSTRINE PLAINS			
Deep, moderately coarse textured and coarse textured over medium and moderately fine textured materials				Eldridge			
Deep, medium textured over medium textured and moderately fine textured materials				Boothbay	Boothbay	Swanville	
Deep, medium textured over moderately fine textured and fine textured materials				Buxton	Buxton	Scantic	Biddeford

TABLE 18--RELATIONSHIP AMONG POSITION ON THE LANDSCAPE, PARENT MATERIAL, AND DRAINAGE OF SOIL SERIES AND OTHER TAXA--Continued

Parent material	Excessively drained	Somewhat excessively drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained	Very poorly drained
	SOILS ON FLOOD PLAINS						
Deep, medium textured materials				Lovewell		Charles	Medomak
	SOILS ON WETLANDS (SWAMPS AND BOGS)						
Deep, well decomposed, herbaceous mossy, or woody fiber							Borosaprists
Deep, decomposed, saltwater marsh grasses							Sulfihemists
Deep, well decomposed saltwater marsh grasses over medium textured materials							Sulfaquents
	SOILS IN DISTURBED AREAS						
Moderately deep and deep, coarse textured or moderately coarse textured materials	Udorthents	Udorthents	Udorthents				

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