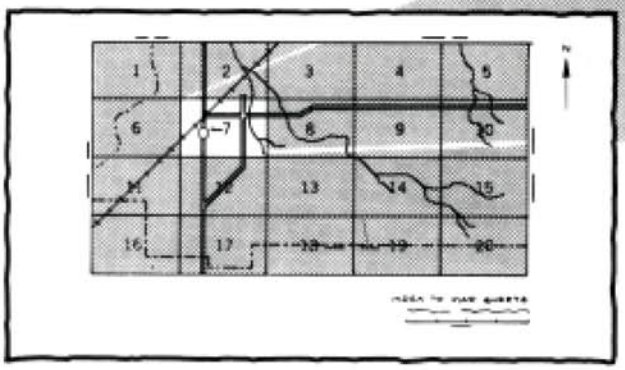
Soil Survey of

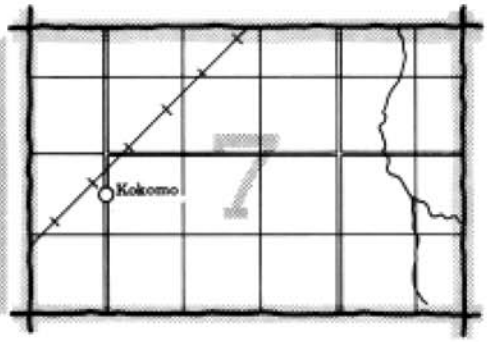
Fairfield County, Connecticut

United States Department of Agriculture, Soil Conservation Service
in cooperation with
Connecticut Agricultural Experiment Station and
Storrs Agricultural Experiment Station

HOW TO USE

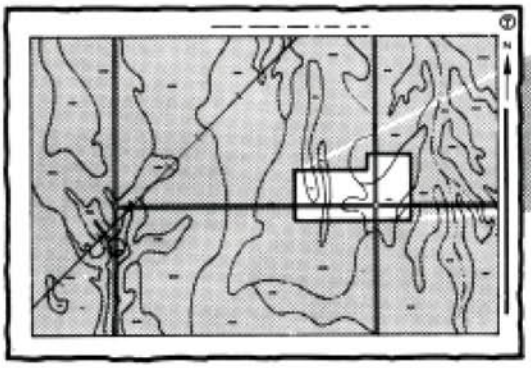
1. Locate your area of interest on the "Index to Map Sheets"

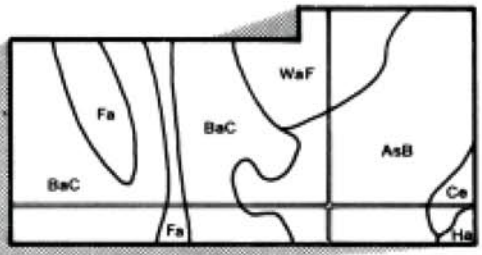




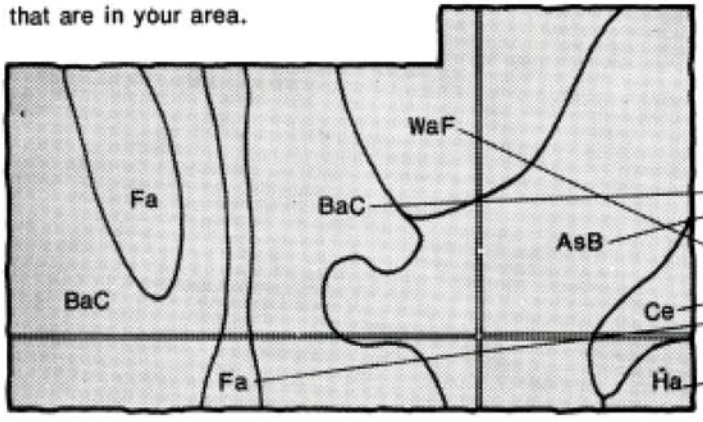
2. Note the number of the map sheet and turn to that sheet.

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





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



Symbols

AsB
BaC
Ce
Fa
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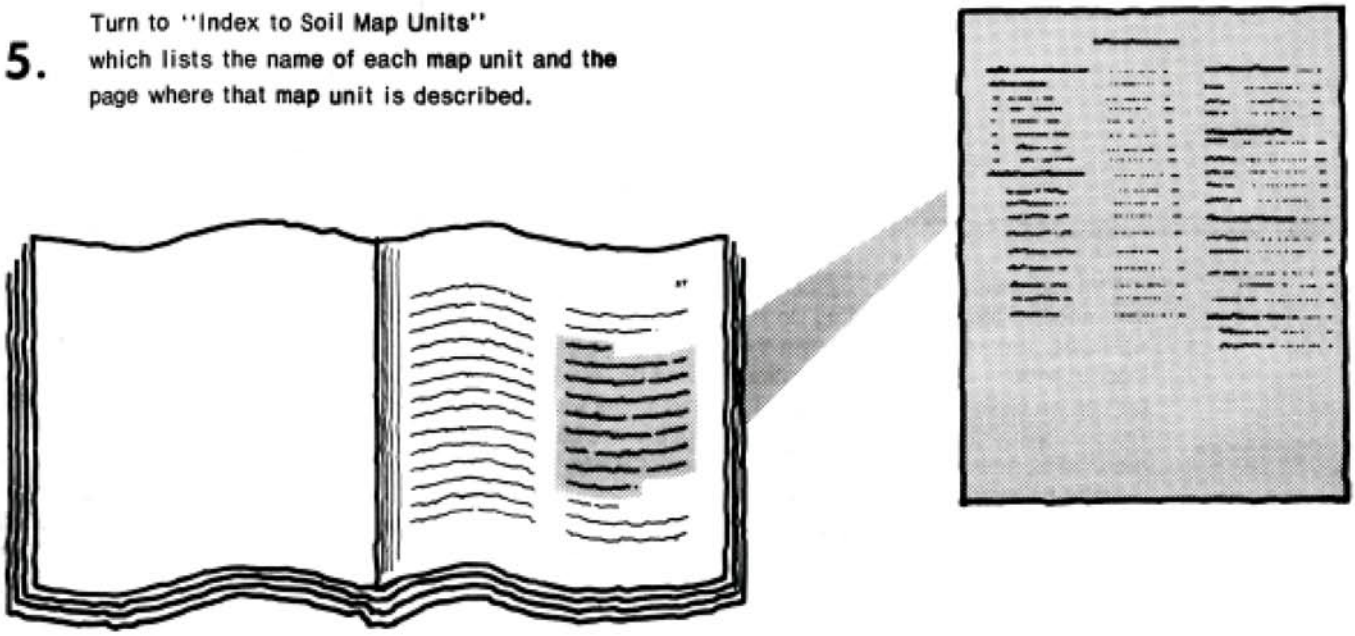
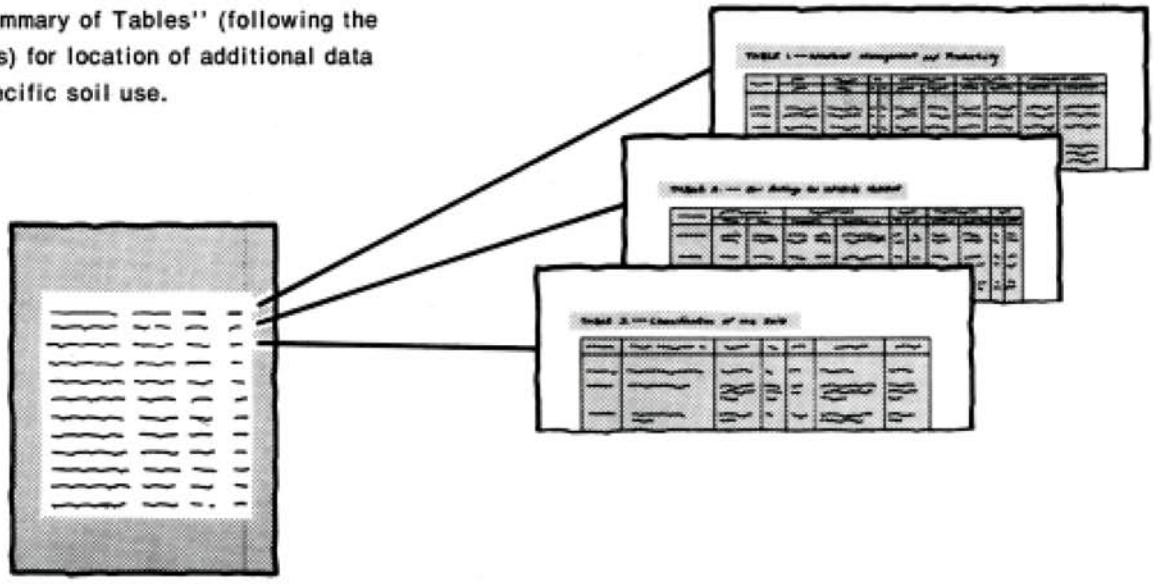
WaF

THIS SOIL SURVEY

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



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



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

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of, race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1960 to 1978. Soil names and descriptions were approved in 1979. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1978. This survey was made cooperatively by the Soil Conservation Service, the Connecticut Agricultural Experiment Station, and the Storrs Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Fairfield County Soil and Water Conservation District. Part of the funding for the survey was provided by the Connecticut Department of Environmental Protection.

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: A few areas in Fairfield County are still used for farming. This farmstead is on an area of Charlton fine sandy loam, 3 to 8 percent slopes.

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soil series

Issued February 1981

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summary of tables

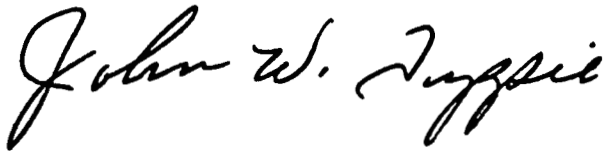
foreword

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

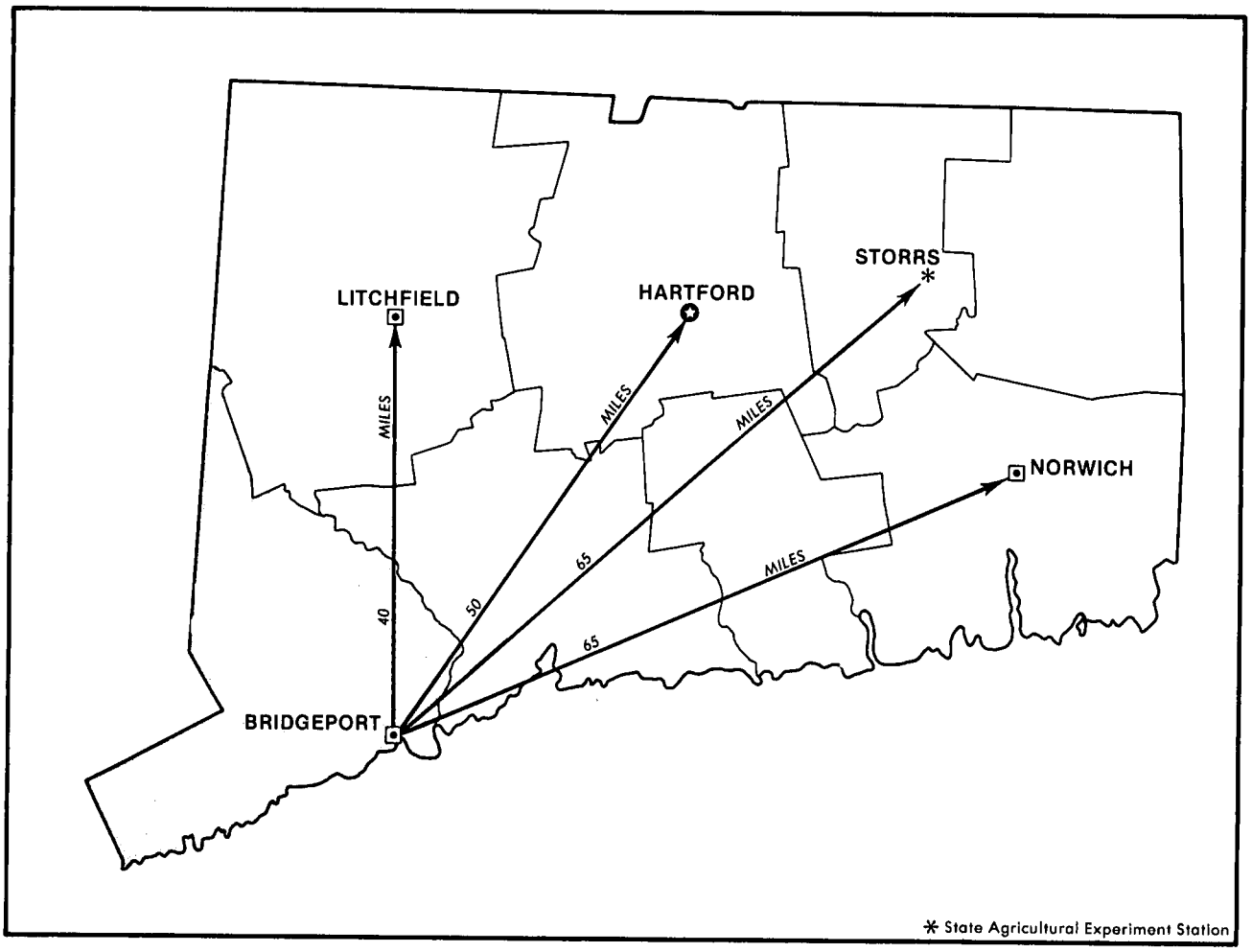
This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey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

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

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



John W. Tippie
State Conservationist
Soil Conservation Service



Location of Fairfield County in Connecticut.

soil survey of
Fairfield County, Connecticut

By Barrie L. Wolf, Soil Conservation Service

Fieldwork by Robin A. Cochran, Marc H. Crouch, Philip S. Gale,
Harry F. McEwen, Henry T. Moeller, Thomas A. Peragallo, Charles A. Reynolds,
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United States Department of Agriculture, Soil Conservation Service
in cooperation with the Connecticut Agricultural Experiment Station and
the Storrs Agricultural Experiment Station

FAIRFIELD COUNTY is in the southwestern part of Connecticut and is bordered on the south by Long Island Sound. The county is made up of 23 towns covering 403,840 acres, or 630 square miles.

In 1975 the population of the county was about 800,000. The largest city is Bridgeport, in the southeast part of the county, with a population of 143,000.

Fairfield County has an economy based mainly on industry and commerce and some farming. Industry and commerce are centered mostly in the southern and central parts of the county, and most of the farming is in the northern part.

general nature of the county

This section provides general information about Fairfield County. The section describes settlement and development, agriculture, industry and transportation, and climate.

settlement and development

Fairfield County is one of the oldest counties in the United States. Settlement was begun not much more than a decade after the *Mayflower* landed at Plymouth. In 1866 the Connecticut General Court authorized the official creation of Fairfield County. At that time the county was composed of the towns of Fairfield, Stratford, Norwalk, Stamford, and Greenwich.

The county was primarily farm oriented until about 1800 when manufacturing was established along the rivers in the county. Some of the early manufacturing plants consisted of grist mills, saw mills, tanneries, iron smelting works, and clothing factories. Later, heavy industry developed in Norwalk, Stamford, Danbury, and Bridgeport. The railroad reached the county in 1848, extending from New York City along the shoreline to the towns between Greenwich and Stratford. The arrival of the railroad marked the beginning of Fairfield County as an industrial, commercial, and residential area.

Until the advent of the railroad, maritime trade was an important part of the county's economy. Wharves lined the Saugatuck and Norwalk Rivers, and four-masted schooners sailed between New York and the coastal towns. Today, the major maritime activities are based on recreation.

agriculture

The major agricultural enterprises in the county are dairying and raising vegetables, nursery stock, and greenhouse crops. There are about 25 dairy farms in the county, with silage corn grown on about 900 acres and hay on about 3,800 acres. Pasture for cattle and horses is a major land use on about 3,000 acres. The county has a few small vegetable farms, about 800 acres of orchards, 400 acres of vegetables, 940 acres of nursery stock, and 390 acres of tree farms.

The county is about 50 percent wooded. The major woodlands are in the south-central and northern parts. A few large tracts are privately owned, and some are in State and local forests and parks. The major forest products are logs for pallets and firewood.

industry and transportation

Commerce and industry are the major sources of employment in the towns of Danbury, Bridgeport,

Stratford, Norwalk, Stamford, Fairfield, and Greenwich. Some of the major industries in the area are cosmetics, electronics, aircraft production, engineering, and research. A number of major corporate headquarters are in the county.

Interstate highways 95 and 84 and the Merritt Parkway are the major roadways in the county. In addition, U.S. Route 1 runs close to the shoreline of Long Island Sound, and several State highways cross the county.

Two major railroads provide commuter and freight service to the county. The two main branches run from Norwalk to Danbury and into New York State and from Danbury to Shelton. Barges and small tankers use Long Island Sound as the county's major source of water transportation.

climate

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

The length of the warm period in Fairfield County is influenced by the Atlantic Ocean. In winter the ground is frequently, but not continuously, covered with snow. Total annual precipitation is nearly always adequate for crops that are suited to local temperatures.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Danbury 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 29 degrees F, and the average daily minimum temperature is 21 degrees. The lowest temperature on record, which occurred at Danbury on January 22, 1961, is -16 degrees. In summer the average temperature is 70 degrees, and the average daily maximum temperature is 81 degrees. The highest recorded temperature, which occurred at Danbury on July 3, 1961, is 101 degrees.

Growing degree days are shown in table 1. They are equivalent to heat units. During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 47 inches. Of this, 24 inches, or 51 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 20 inches. The heaviest 1-day rainfall during the period of record was 6.1 inches at Danbury on October 16, 1955. Thunderstorms occur on about 22 days each year, and most occur in summer.

Average seasonal snowfall is 39 inches. The greatest snow depth at any one time during the period of record was 28 inches. On an average of 27 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 75 percent. The sun shines 60 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 14 miles per hour, in February.

how this survey was made

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

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

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

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

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

general soil map units

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

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

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

soil descriptions

1. Charlton-Hollis

Gently sloping to very steep, well drained and somewhat excessively drained, loamy soils; on glacial till uplands

This map unit makes up about 35 percent of the county. The unit is about 55 percent Charlton soils, 15 percent Hollis soils, and 30 percent soils of minor extent (fig. 1). The Hollis soils are at a higher landscape position than the Charlton soils.

The Charlton soils are well drained. They formed in deep, friable loamy glacial till. Typically, the soils have a surface layer and subsoil of fine sandy loam. The substratum is gravelly sandy loam.

The Hollis soils are somewhat excessively drained and are less than 20 inches deep to bedrock. Typically, the soils have a surface layer and subsoil of fine sandy loam.

The soils of minor extent are mainly well drained Paxton soils in convex areas, moderately well drained Sutton soils in concave areas and slight depressions, poorly drained Ridgebury and Leicester soils and very poorly drained Whitman soils in depressions and small drainageways, and very poorly drained Adrian and Carlisle soils in depressions. Other areas of minor extent consist of Udorthents and urbanized areas.

Many areas of this map unit are used for community development. Some areas have been cleared and are used for hay, pasture, and specialty crops. The steep and rough areas are wooded and used for recreation and wildlife habitat.

The gently sloping to moderately steep areas of this unit are generally suitable for community development. Many of these areas are suitable for nursery and specialty crops and for hay and pasture. The steep, stony areas that are shallow to bedrock are generally better suited to recreation, to trees, or to wildlife habitat.

2. Hollis-Charlton-Rock outcrop

Gently sloping to very steep, somewhat excessively drained and well drained, loamy soils and areas of exposed bedrock; on glacial till uplands

This map unit makes up about 20 percent of the county. The unit is about 30 percent Hollis soils, 25 percent Charlton soils, 15 percent exposed bedrock, and 30 percent soils of minor extent (fig. 2).

The Hollis soils are somewhat excessively drained and are shallow to bedrock. They formed in friable loamy glacial till. Typically, the soils have a surface layer and subsoil of fine sandy loam.

The Charlton soils are well drained. They formed in deep, friable loamy glacial till. Typically, the soils have a surface layer and subsoil of fine sandy loam. The substratum is light olive brown gravelly sandy loam.

The soils of minor extent in this map unit are mainly well drained Paxton soils on convex slopes of drumlins, moderately well drained Sutton soils on slightly concave slopes and in small drainageways, poorly drained Leicester soils and very poorly drained Whitman soils in upland drainageways and depressions, and very poorly drained Adrian and Carlisle soils in depressions.

Most areas of this map unit are wooded. Some scattered areas are used for community development. A few small areas have been cleared and are used for pasture.

The shallow depth to bedrock in the Hollis soils and the areas of exposed bedrock limit this map unit for community development. Most areas, particularly the steeper areas, are better suited to trees, recreation, or wildlife habitat.

3. Paxton-Woodbridge-Ridgebury

Nearly level to steep, well drained, moderately well drained, and poorly drained, loamy soils with a compact

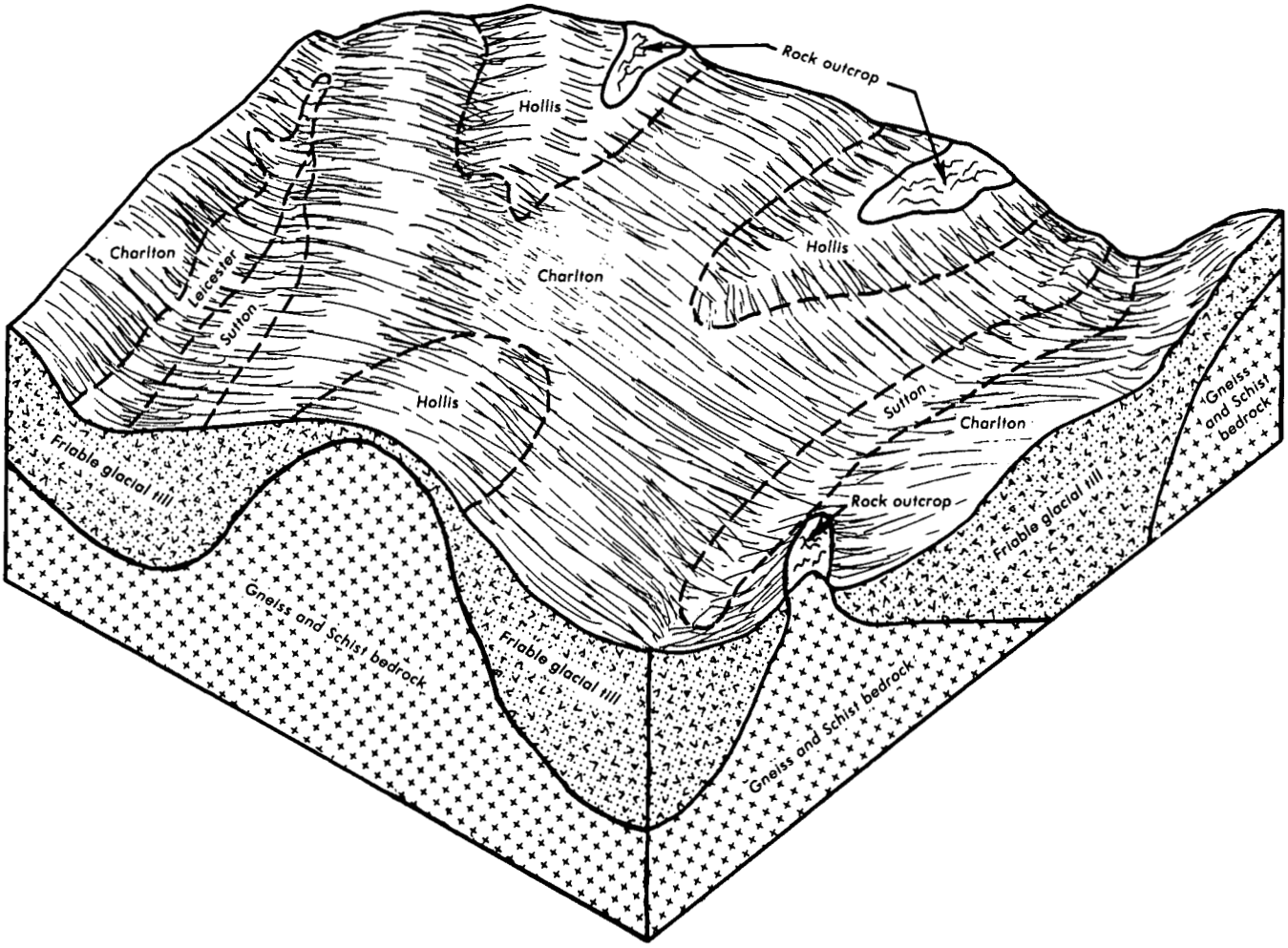

Figure 1.—Typical pattern of soils and parent material in the Charlton-Hollis map unit.

substratum; on glacial till drumlins and broad glacial till plains

This map unit makes up about 25 percent of the county. The unit is about 40 percent Paxton soils, 25 percent Woodbridge soils, 10 percent Ridgebury soils, and 25 percent soils of minor extent (fig. 3). Stones and boulders cover more than 5 percent of the surface of some areas of this unit, but some other areas have no stones or boulders on the surface.

The Paxton soils are gently sloping to steep and are well drained. Typically, the soils have a surface layer and subsoil of fine sandy loam. The substratum is gravelly fine sandy loam.

The Woodbridge soils are nearly level to sloping and are moderately well drained. Typically, the soils are fine sandy loam throughout. The subsoil and substratum are mottled.

The Ridgebury soils are nearly level and poorly drained. Typically, the soils are fine sandy loam throughout. The subsoil and substratum are mottled.

The soils of minor extent in this map unit are mainly poorly drained Leicester soils and very poorly drained Whitman soils in depressions and drainageways. Other soils of minor extent are well drained Charlton soils and moderately well drained Sutton soils, somewhat excessively drained Hollis soil with bedrock at a depth of less than 20 inches, very poorly drained Adrian and Carlisle soils, and Udorthents.

Many areas of this map unit are wooded. Some areas are used for community development, and some are used for pasture and hay or cultivated crops.

The compact substratum in the soils of this map unit has slow or very slow permeabiltiy, which limits the soils for onsite septic systems. A seasonal high water table is

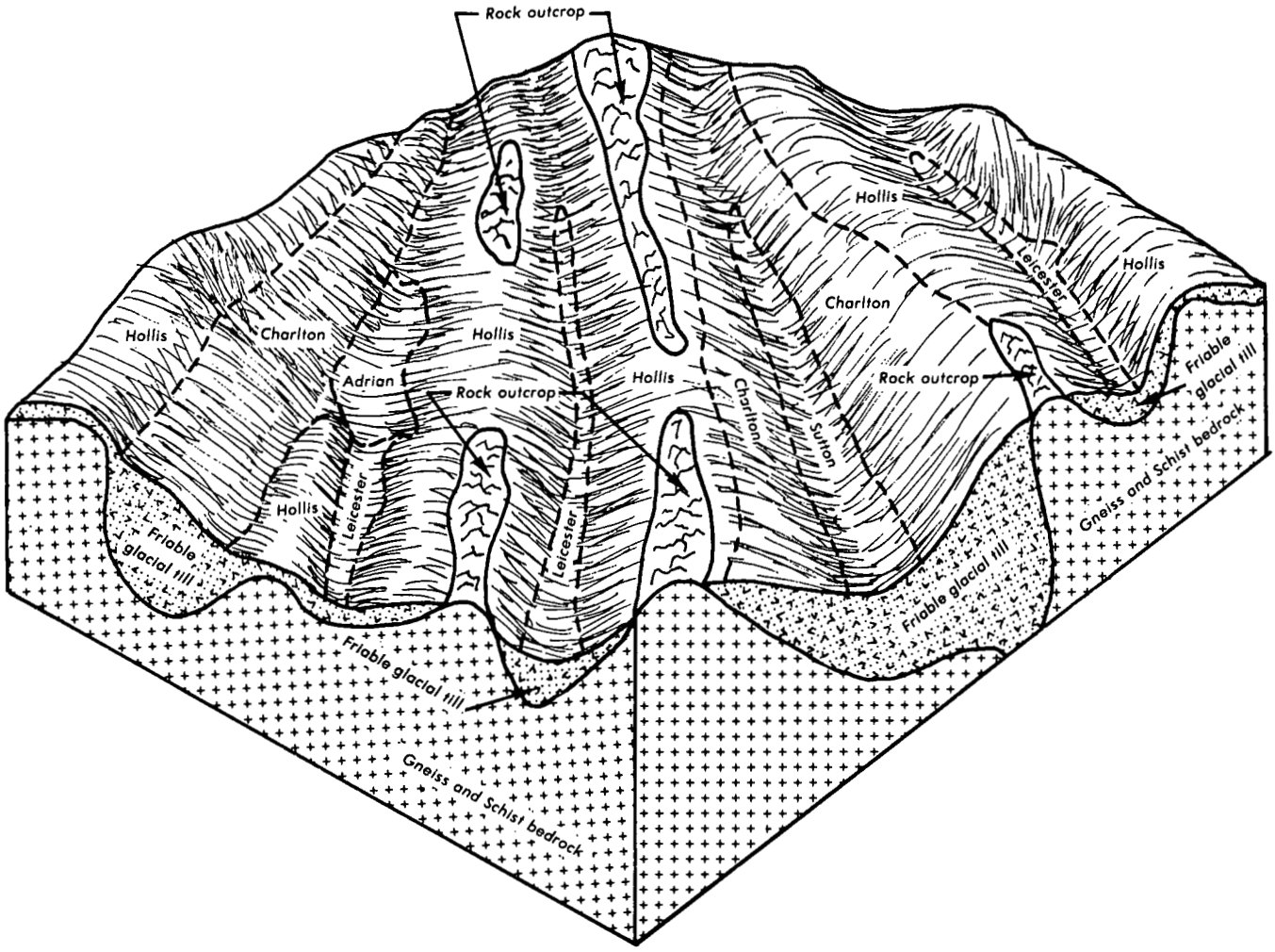

Figure 2.—Typical pattern of soils and parent material in the Hollis-Charlton-Rock outcrop map unit.

a limitation for development of some other areas. Many small areas have been cleared and have good suitability for pasture and hay, cultivated crops, and nursery crops. The steep, wet, or stony areas of the unit are better suited to trees, recreation, or wildlife habitat.

4. Agawam-Hinckley-Haven

Nearly level to steep, well drained and excessively drained, loamy and sandy soils; on glacial outwash plains and terraces

This map unit makes up about 10 percent of the county. The unit is about 25 percent Agawam soils, 25 percent Hinckley soils, 10 percent Haven soils, and 40 percent soils of minor extent (fig. 4).

The Agawam soils are well drained. Typically, the soils have a surface layer and subsoil of fine sandy loam and very fine sandy loam. The substratum is fine sand.

The Hinckley soils are excessively drained. Typically, the soils have a surface layer of gravelly sandy loam. The subsoil is gravelly sandy loam and gravelly loamy sand. The substratum is gravelly and very gravelly sand.

The Haven soils are well drained. Typically, the soils have a surface layer of silt loam. The subsoil is silt loam and fine sandy loam. The substratum is gravelly sand.

The soils of minor extent in this unit are mainly moderately well drained Ninigret soils, poorly drained Raypol and Walpole soils, and very poorly drained Scarboro soils on outwash plains and poorly drained Rippowam soils and very poorly drained Saco soils on flood plains. Also of minor extent are Westbrook soils in coastal tidal marshes and areas of Udorthents, urbanized areas, and gravel pits.

Most areas of this map unit have been cleared and are used for community development. A few areas are in

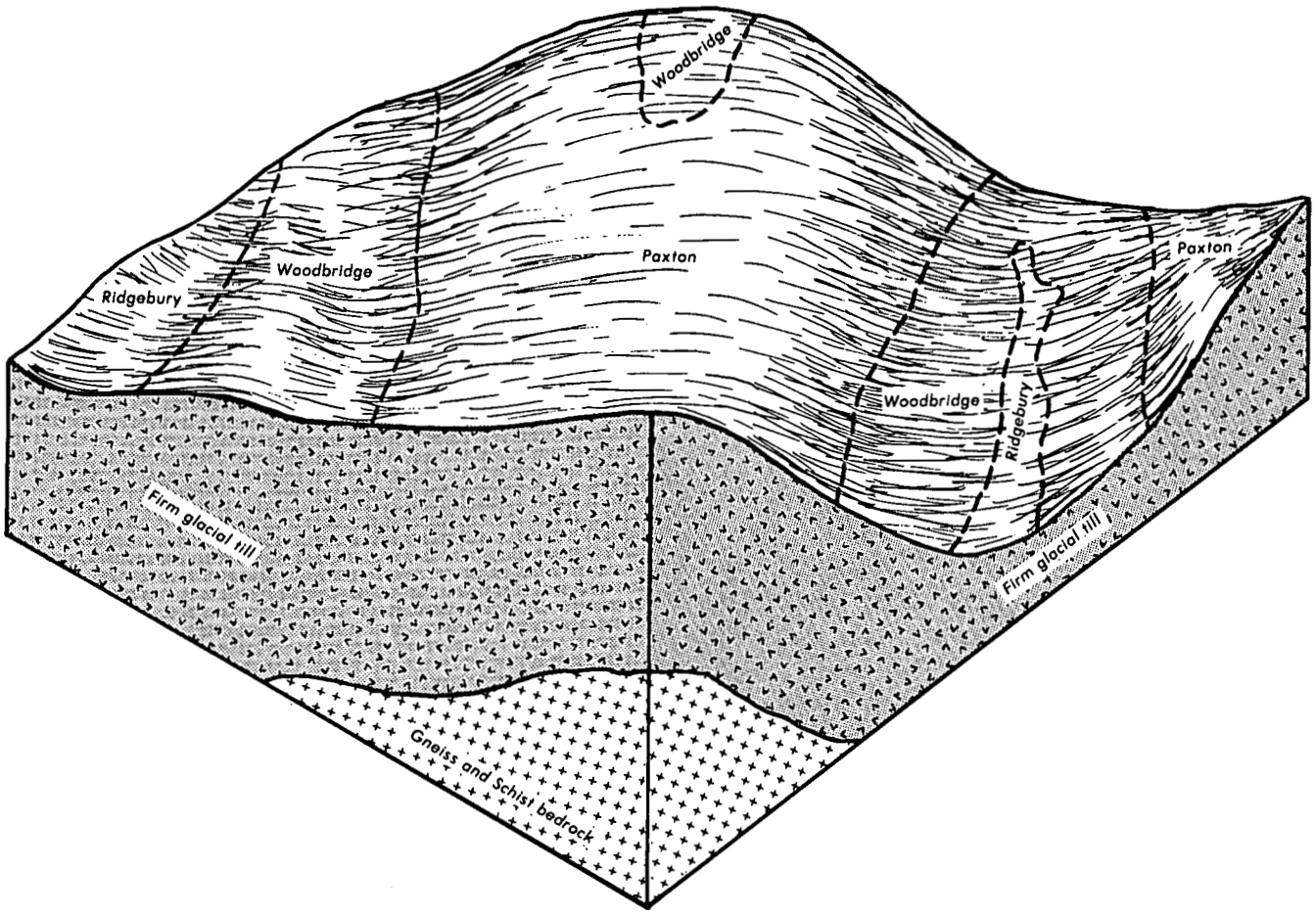

Figure 3.—Typical pattern of soils and parent material in the Paxton-Woodbridge-Ridgebury map unit.

cultivated crops, and some scattered areas are wooded.

The main limitation of this map unit for community development is the rapid permeability of the soils, which causes a hazard of ground-water pollution in areas used for onsite septic systems. The steeper parts of the unit are better suited to trees and wildlife habitat. Much of the acreage of the unit is a good source of sand and gravel.

5. Carlisle-Adrian-Saco

Nearly level, very poorly drained, organic and loamy soils; on outwash plains, in depressions, and on flood plains

This map unit makes up about 3 percent of the county. The unit is about 30 percent Carlisle soils, 25 percent Adrian soils, 20 percent Saco soils, and 25 percent soils of minor extent (fig. 5).

The Carlisle soils typically consist of organic muck more than 51 inches thick.

The Adrian soils typically consist of 16 to 51 inches of organic muck over a layer of loamy sand.

The Saco soils typically have a surface layer of mucky silt loam. The subsoil is silt loam and very fine sandy loam. The substratum is gravelly sand.

The soils of minor extent in this map unit are mainly moderately well drained Pootatuck soils and poorly drained Rippowam soils on flood plains. Other soils of minor extent are excessively drained Hinckley soils, well drained Agawam and Haven soils, moderately well drained Ninigret soils, poorly drained Raypol and Walpole soils, and very poorly drained Scarboro soils on outwash plains and terraces.

Most areas of this map unit are wooded. A few scattered areas have been cleared and are used for pasture. A few small areas have been filled and are used for community development.

A high water table, frequent flooding, and the instability of the organic material in the soils limit this map unit for community development. Much of the unit is better suited to trees, recreation, and wildlife habitat.

6. Udorthents-Urban land

Nearly level to moderately steep, loamy soils that have been altered, and urbanized areas; on various landscapes

This map unit makes up about 5 percent of the county. The unit is about 45 percent Udorthents, 45 percent urbanized areas, and 10 percent soils of minor extent.

Udorthents are nearly level to moderately steep, excessively drained to moderately well drained soils that have been cut or filled. Typically, the soils have had more than 2 feet of the upper part of the original soil removed or have more than 2 feet of fill on top of the original soil.

Urban land is on nearly level to moderately sloping areas. It consists of areas where more than 85 percent of the surface is covered by urban structures such as roads, parking lots, and industrial parks.

The areas of minor extent in this map unit are mainly those that were not appreciably disturbed during cutting or filling and where less than 85 percent of the surface is covered by urban structures. A few areas of Westbrook soils in coastal tidal marshes are in the unit.

The highly variable nature of this unit makes onsite investigation necessary to determine its suitability for most uses.

7. Stockbridge-Georgia-Nellis

Gently sloping to steep, well drained and moderately well drained, loamy soils; on glacial till uplands and drumlins

This map unit makes up about 2 percent of the county. The unit is about 45 percent Stockbridge soils, 30 percent Georgia soils, 10 percent Nellis soils, and 15 percent soils of minor extent. Stones and boulders cover as much as 5 percent of some areas of this unit; some

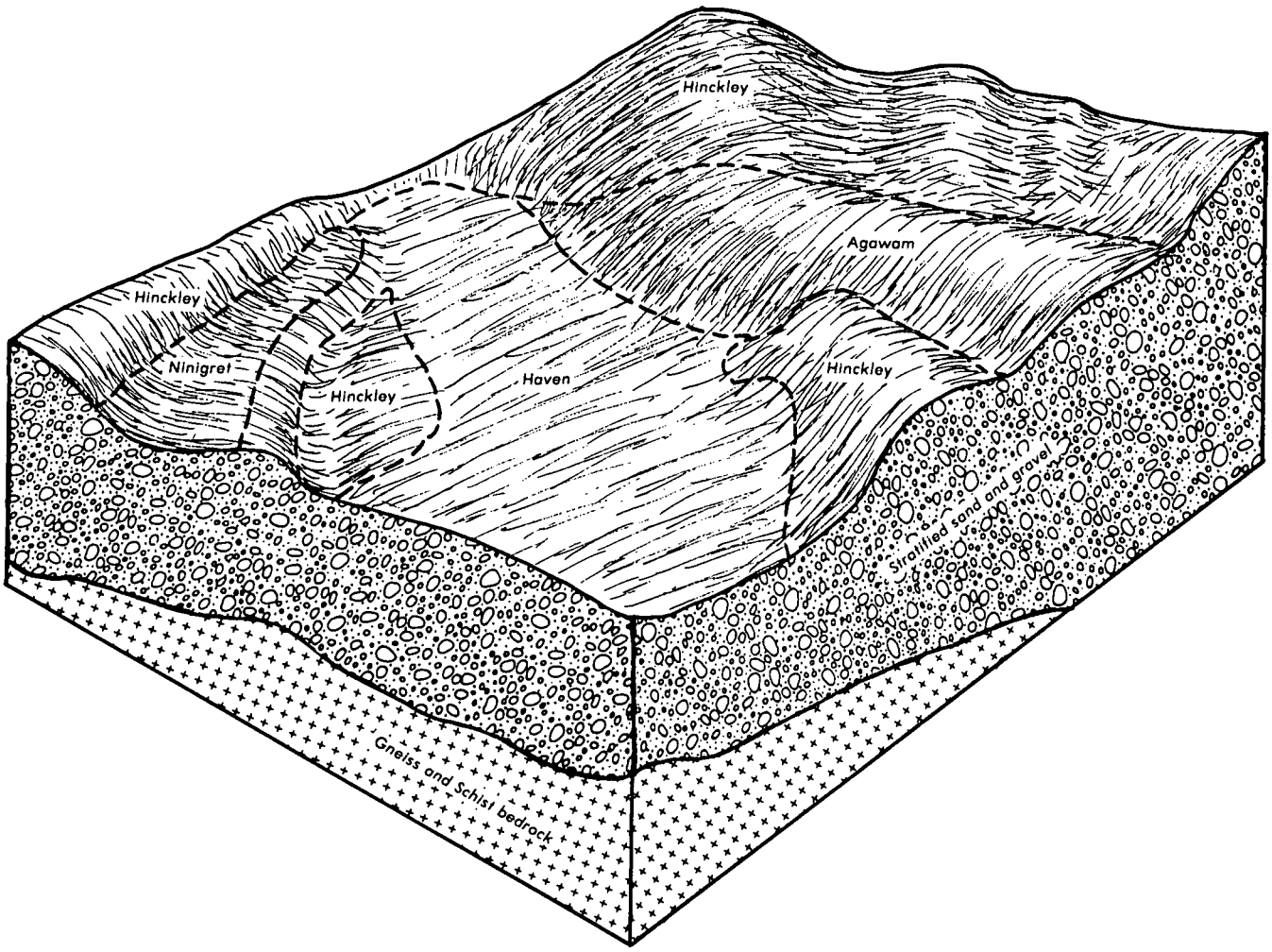

Figure 4.—Typical pattern of soils and parent material in the Agawam-Hinckley-Haven map unit.

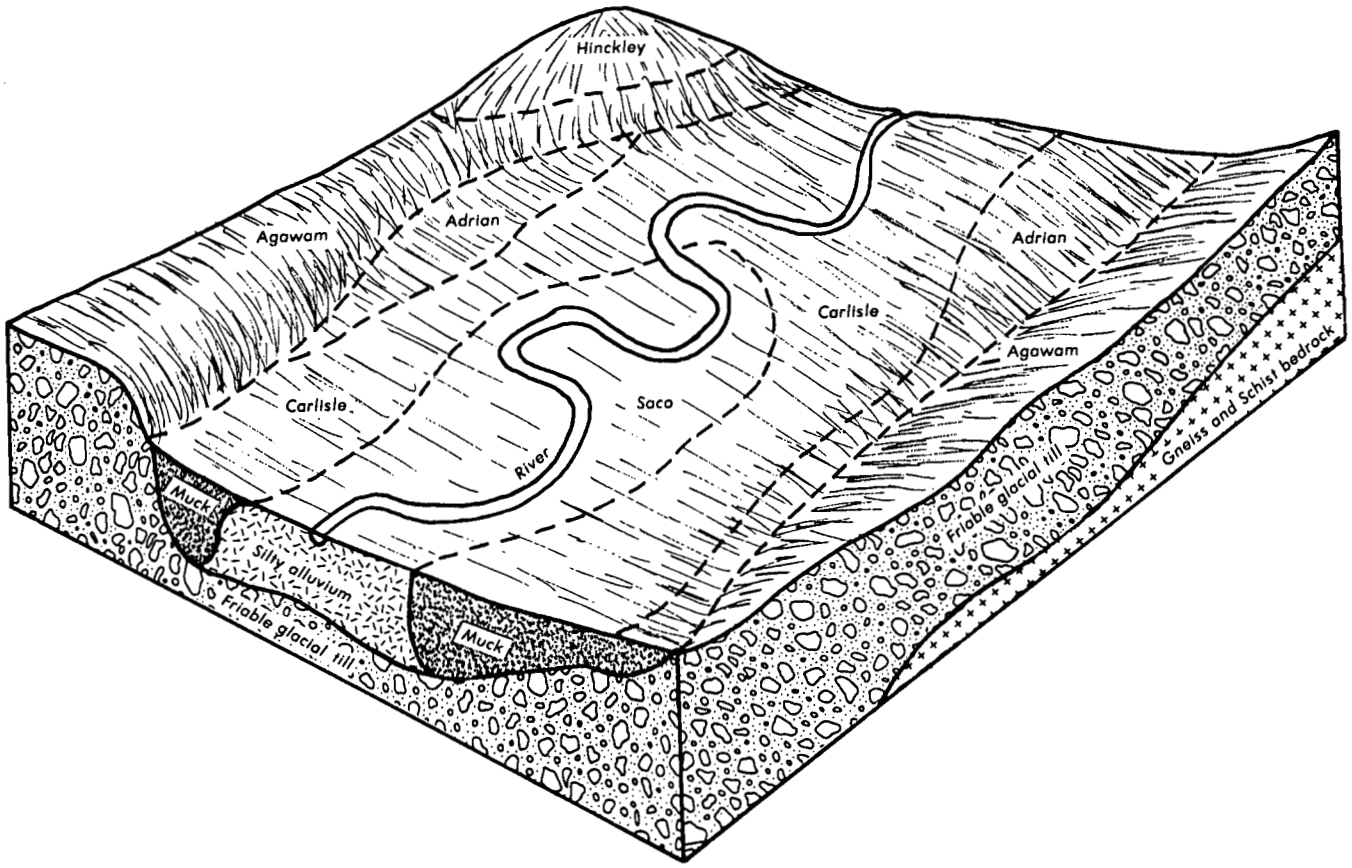

Figure 5.—Typical pattern of soils and parent material in the Carlisle-Adrian-Saco map unit.

areas have no stones or boulders on the surface.

The Stockbridge soils are gently sloping to steep, are well drained, and have a firm substratum. Typically, the soils are loamy throughout.

The Georgia soils are gently sloping to strongly sloping, are moderately well drained, and have a firm substratum. Typically, the soils have a surface layer of silt loam. The subsoil and substratum are loam.

The Nellis soils are gently sloping to steep and are well drained. Typically, the soils have a surface layer of silt loam. The subsoil is fine sandy loam and loam. The substratum is sandy loam.

The soils of minor extent in this map unit are mainly somewhat excessively drained Farmington and Hollis soils with bedrock at a depth of 10 to 20 inches, well drained Charlton and Paxton soils on till plains and drumlins, moderately well drained Woodbridge soils on drumlins, and poorly drained Ridgebury and Leicester soils in depressions and drainageways.

Many areas of this map unit have been cleared and are used for pasture or cultivated crops. Some areas are wooded. A few scattered areas are used for community development.

The substratum of many of the soils in this unit has slow permeability, which limits the soils as a site for onsite septic systems. A seasonal high water table limits development of some other areas. Most of the cleared areas are suitable for pasture, hay, and cultivated crops. The steep and stony areas are better suited to trees, recreation, and wildlife habitat.

detailed soil map units

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

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

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil, a brief description of the soil profile, and a listing of the principal hazards and limitations to be considered in planning management.

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

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Charlton extremely stony fine sandy loam, 3 to 15 percent slopes, is one of several phases in the Charlton series.

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

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Hollis-Charlton-Rock outcrop complex, 3 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 a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Ridgebury, Leicester, and Whitman extremely stony fine sandy loams 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. Pits, gravel, is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

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

soil descriptions

Aa—Adrian muck. This nearly level, very poorly drained soil is on plains and terraces. The areas are mostly oval and range from 3 to 100 acres. Slopes are less than 1 percent.

Typically, this soil has an organic layer of muck 24 inches thick. The upper 3 inches is very dark brown, the next 13 inches is very dark gray, and the lower 8 inches is black. The substratum is gray, mottled loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained Leicester, Ridgebury, and Walpole soils and very poorly drained Carlisle, Saco, Scarboro, and Whitman soils. Included areas make up about 20 percent of this map unit.

This Adrian soil has a water table at the surface most of the year, and water is commonly ponded on the surface from fall to early summer. The permeability of the soil is rapid in the surface layer and substratum. Runoff is very slow, and available water capacity is high. The soil is strongly acid to neutral in the organic layer and medium acid to neutral in the substratum.

Most areas of this soil are wooded or covered by marshgrasses and sedges. A few small scattered areas

have been filled and are used for community development.

The major limitations of this soil for community development are the high water table, ponding, and the instability of the organic layer. Most areas require drainage, but the organic layer shrinks and subsides when drained and many areas do not have drainage outlets. The use of onsite septic systems in this soil requires extensive filling and special design and installation.

Wetness and ponding make this soil unsuitable for cultivated crops and poorly suited to commercial timber production.

The capability subclass is VIw.

AfA—Agawam fine sandy loam, 0 to 3 percent slopes. This nearly level, well drained soil is on plains and terraces in stream valleys. The areas are irregular in shape and mostly range from 5 to 50 acres.

Typically, the surface layer is dark brown fine sandy loam 9 inches thick. The subsoil is brown fine sandy loam 20 inches thick. The substratum is light yellowish brown and pale olive sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, well drained Haven soils, and moderately well drained Ninigret soils. Included areas make up about 15 percent of this map unit.

The permeability of this Agawam soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Runoff is slow, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to slightly acid.

Most areas of this soil are used for community and industrial development. Some areas are used for corn, vegetables, and nursery crops, and a few are wooded.

The rapid permeability of this soil causes a hazard of ground-water pollution in areas used for onsite septic systems. The soil is unstable and thus is limited for excavations. Quickly establishing plant cover, mulching, and using siltation basins help to reduce erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. Minimum tillage and the use of cover crops help to control a slight erosion hazard in cultivated areas. Machine planting is practical in areas used for woodland.

The capability class is I.

AfB—Agawam fine sandy loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on plains and terraces in stream valleys. The areas are mostly irregular in shape and range from 5 to 50 acres.

Typically, the surface layer is dark brown fine sandy loam 9 inches thick. The subsoil is brown fine sandy loam 20 inches thick. The substratum is light yellowish brown and pale olive sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, well drained Haven soils, and moderately well drained Ninigret soils. Included areas make up about 15 percent of this map unit.

The permeability of this Agawam soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to slightly acid.

Most areas of this soil are used for community and industrial development, and a few are used for corn, vegetables, and nursery crops (fig. 6). Some small scattered areas are wooded.

The rapid permeability of the soil causes a hazard of ground-water pollution in areas used for onsite septic systems. The soil is unstable and thus is limited for excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. The hazard of erosion is moderate. Minimum tillage, stripcropping, and the use of cover crops help to control erosion and to maintain fertility. Machine planting is practical in areas used for woodland.

The capability subclass is IIe.

Figure 6.—Nursery stock on an area of Agawam fine sandy loam, 3 to 8 percent slopes.

AfC—Agawam fine sandy loam, 8 to 15 percent slopes. This sloping, well drained soil is on terraces in stream valleys. The areas are mostly irregular in shape and range from 3 to 20 acres.

Typically, the surface layer is dark brown fine sandy loam 9 inches thick. The subsoil is brown fine sandy loam 20 inches thick. The substratum is light yellowish brown and pale olive sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, and well drained Haven soils. Included areas make up about 15 percent of this map unit.

The permeability of this Agawam soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to slightly acid.

Most areas of this soil are used for community development. A few areas are wooded, and a few are farmed.

Slope is the major limitation of this soil for community development. The rapid permeability of the soil causes a hazard of ground-water pollution in areas used for onsite septic systems. The soil is unstable and thus is limited for excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

This soil is suitable for cultivated crops and trees. The hazard of erosion is severe; minimum tillage and the use of cover crops help to control erosion in cultivated areas. Machine planting is practical in areas used for trees.

The capability subclass is IIIe.

Ba—Beaches. This unit consists of beaches along the shore of Long Island Sound (fig. 7). Slopes range from 0 to 10 percent but mainly are less than 8 percent. The areas range from 3 to 35 acres, and most are less than 300 feet wide. Most of the beaches are in the towns of Bridgeport, Fairfield, Greenwich, Norwalk, Stamford, Stratford, and Westport.

Included with this unit in mapping are small areas of sand dunes, areas of very poorly drained Westbrook soils, areas of Udorthents, urbanized areas, and a few areas of exposed bedrock. Included areas make up about 15 percent of this map unit.

Figure 7.—An area of Beaches on an island in Long Island Sound.

The permeability of this unit is rapid or very rapid. The lower areas are subject to tidal inundation; the higher areas are inundated by storm tides. Except for a few of the higher areas that have sparse stands of salt-tolerant and drought-resistant grasses, the unit is devoid of vegetation.

Beaches are poorly suited for most uses other than recreation, and most areas are intensively used for recreation during the summer.

This unit is not assigned to a capability subclass.

Ce—Carlisle muck. This nearly level, very poorly drained soil is in depressions and on plains and terraces. The areas are mostly oval and range from 3 to 150 acres. Slopes are less than 1 percent.

Typically, this soil consists of black, dark brown, and dark grayish brown decomposed organic material to a depth of 66 inches or more.

Included with this soil in mapping are small areas of very poorly drained Adrian, Saco, and Scarboro soils that make up about 15 percent of the map unit.

This Carlisle soil is wet most of the year, and the water table is generally at the surface from early fall to late spring. Runoff is very slow. Some areas have water ponded on the surface. A few areas are subject to flooding. The permeability of the soil is moderate or moderately rapid, and the soil is very strongly acid to neutral.

Most areas of this soil are wooded or are covered by marshgrasses and sedges. A few small areas have been filled and are used for community development.

The major limitations of this soil for community development are the high water table, ponding, and the instability of the organic material. Many areas do not have adequate drainage outlets.

The soil is unsuitable for cultivated crops and poorly suited to timber production. The major limitations are the high water table, ponding, and flooding.

The capability subclass is VIw.

CfB—Charlton fine sandy loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on hills and ridges. The areas are mostly irregular in shape and range from 4 to 100 acres.

Typically, the surface layer is very dark brown fine sandy loam 6 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 23 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Most areas of this soil have been cleared, and many are used for community development. Some areas are used for hay, corn for silage, pasture, vegetables, and woodland.

This soil is generally suitable for community development. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The soil is well suited to cultivated crops and trees. The hazard of erosion is moderate. Minimum tillage, the use of cover crops, and stripcropping help to control erosion in cultivated areas. Machine planting is practical in wooded areas.

The capability subclass is IIe.

CfC—Charlton fine sandy loam, 8 to 15 percent slopes. This sloping, well drained soil is on hills and ridges. The areas are mostly irregular in shape and range from 4 to 100 acres.

Typically, the surface layer is very dark brown fine sandy loam 6 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 23 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Most areas of this soil have been cleared. A few areas are used for community development, and a few others are used for hay, corn, pasture, vegetables, and woodland.

Slope is the main limitation of this soil for community development, especially in areas used for onsite septic systems. Such systems need careful design and installation to prevent effluent from seeping to the surface. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

This soil is suited to cultivated crops and trees. The hazard of erosion is severe. Minimum tillage, maintaining a permanent plant cover, and using cover crops help to control erosion in cultivated areas. Machine planting is practical in areas used for trees.

The capability subclass is IIIe.

CfD—Charlton fine sandy loam, 15 to 25 percent slopes. This moderately steep, well drained soil is on hills and ridges. The areas are mostly irregular in shape and range from 4 to 100 acres.

Typically, the surface layer is very dark brown fine sandy loam 6 inches thick. The subsoil is strong brown

and yellowish brown fine sandy loam 23 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils and well drained Paxton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Most areas of this soil are wooded. A few areas have been cleared and are used for community development or for hay or pasture.

Slope is the main limitation of this soil for community development, especially in areas used for onsite septic systems. Such systems require special design and installation to prevent effluent from seeping to the surface. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

Slope and a severe hazard of erosion make this soil poorly suited to cultivated crops. The soil is suitable for trees, however, and machine planting is practical. Minimum tillage, stripcropping, and the use of cover crops help to control erosion in cultivated areas.

The capability subclass is IVe.

ChB—Charlton very stony fine sandy loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on hills and ridges. Stones and boulders cover 1 to 5 percent of the surface. The areas are mostly irregular in shape and range from 4 to 100 acres.

Typically, the surface layer is very dark brown fine sandy loam 6 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 23 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid. The hazard of erosion is moderate.

Most of the acreage of this soil is wooded, but many areas are used for community development. A few areas have been cleared and are used for pasture.

The stones and boulders on the surface are the main limitation of this soil for community development, especially for landscaping. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The stones and boulders on the surface limit the use of farming equipment and make the soil generally unsuitable for cultivated crops. Although the stones and boulders hinder machine planting, the soil is well suited to trees, and machine planting is feasible in most areas.

The capability subclass is VIs.

ChC—Charlton very stony fine sandy loam, 8 to 15 percent slopes. This sloping, well drained soil is on hills and ridges. Stones and boulders cover 1 to 5 percent of the surface. The areas are mostly irregular in shape and range from 4 to 100 acres.

Typically, the surface layer is brown fine sandy loam 6 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 23 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid. The hazard of erosion is severe.

Most areas of this soil are wooded. Some of the acreage is used for community development, and a few small areas are used for pasture.

Slope and the stones and boulders on the surface limit this soil for community development. Slope makes careful design and installation of onsite septic systems necessary to prevent effluent from seeping to the surface. The removal of stones and boulders is necessary for landscaping. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface limit the use of farming equipment and make the soil generally unsuitable for cultivated crops. Although the stones and boulders hinder machine planting, the soil is suitable for trees, and machine planting is feasible in most areas.

The capability subclass is VIs.

CnC—Charlton extremely stony fine sandy loam, 3 to 15 percent slopes. This gently sloping to sloping, well drained soil is on hills and ridges. Stones and boulders cover 5 to 35 percent of the surface. The areas are mostly irregular in shape and range from 5 to 150 acres.

Typically, the surface layer is very dark brown fine sandy loam 6 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 23 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid. The hazard of erosion is moderate.

Most of the acreage of this soil is in woodland. Some scattered areas are used for community development, and a few small areas are used for pasture.

Slope and the stones and boulders on the surface are the main limitations of this soil for community development. Slope makes careful design and installation of onsite septic systems necessary to prevent effluent from seeping to the surface. The removal of stones and boulders is necessary for landscaping. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface make the use of farming equipment impractical and make the soil generally unsuitable for cultivated crops. The soil is suitable for trees, but the stones and boulders make machine planting impractical.

The capability subclass is VIIs.

CnD—Charlton extremely stony fine sandy loam, 15 to 35 percent slopes. This moderately steep and steep, well drained soil is on hills and ridges. Stones and boulders cover 5 to 35 percent of the surface. The areas are mostly irregular in shape and range from 5 to 150 acres.

Typically, the surface layer is very dark brown fine sandy loam 4 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 25 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils and well drained Paxton soils and small areas of soils with bedrock at a depth of 20 to 40 inches. Also included are a few small areas where stones and boulders cover less than 5 percent of the surface. Included areas make up about 15 percent of this map unit.

The permeability of this Charlton soil is moderate or moderately rapid. The erosion hazard is severe. Available water capacity is moderate. The soil is very strongly acid to medium acid.

Most areas of this soil are wooded. Some scattered areas are used for community development, and a few small areas are used for pasture.

Slope and the stones and boulders on the surface are the main limitations of this soil for community development. Slope makes careful design and installation of onsite septic systems necessary to prevent effluent from seeping to the surface. The removal of stones and boulders is necessary for landscaping. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface make the use of farming equipment impractical and make the soil generally unsuitable for cultivated crops. The soil is suitable for trees, but the stones and boulders make machine planting impractical.

The capability subclass is VIIs.

CrC—Charlton-Hollis fine sandy loams, very rocky, 3 to 15 percent slopes. This complex consists of gently sloping and sloping, well drained and somewhat excessively drained soils on hills and ridges. The areas of the complex are mostly irregular in shape and range from 4 to 250 acres. They have an undulating topography marked with exposed bedrock, a few drainageways, and a few small, wet depressions. Stones and boulders cover 1 to 5 percent of the surface and exposed bedrock up to 10 percent of the surface.

The complex is about 50 percent Charlton soils, 25 percent Hollis soils, and 25 percent other soils and exposed bedrock. The Charlton and Hollis soils are so intermingled on the landscape that it was not practical to map them separately.

Typically, the Charlton soils have a surface layer of very dark brown fine sandy loam 3 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 26 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Typically, the Hollis soils have a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is dark yellowish brown fine sandy loam that extends to bedrock at a depth of 17 inches.

Included with this complex in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, poorly drained Leicester soils, and very poorly drained Adrian soils. Also included are small areas of soils with bedrock at a depth of 20 to 40 inches and a few larger areas, mostly in the southern part of the county, that have been cleared of stones and boulders.

These Charlton and Hollis soils have moderate or moderately rapid permeability. Runoff is medium to rapid. Available water capacity is moderate in the Charlton soils and low in the Hollis soils. The soils dry out and warm up early in spring. They are very strongly acid to medium acid.

Most areas of this complex are wooded. Many areas are used for community development (fig. 8), and a few small areas are used for pasture.

The major limitations of this complex for community development are the shallow depth to bedrock in the Hollis soils, the areas of exposed bedrock, and the stones and boulders on the surface. The depth to bedrock limits the soils as a site for onsite septic systems and hinders excavations. Removal of the stones

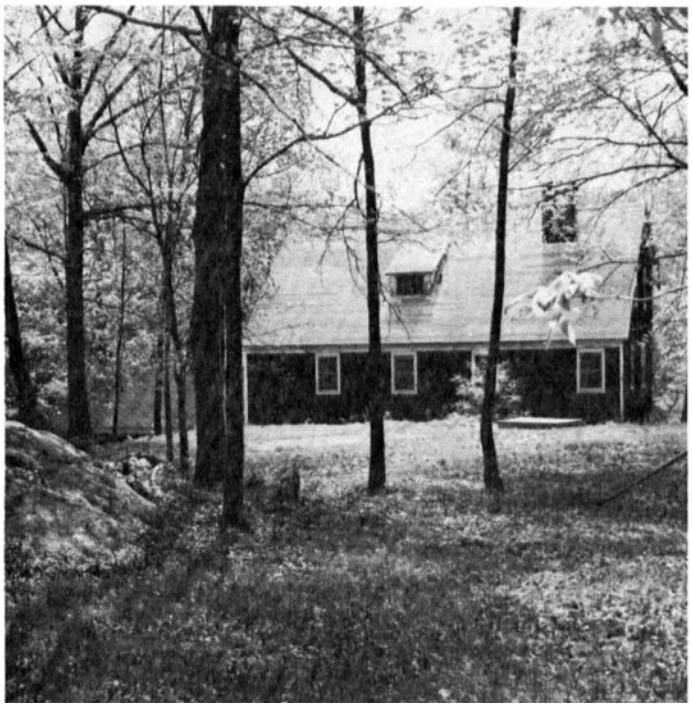

Figure 8.—A homesite on an area of Charlton-Hollis fine sandy loams, very rocky, 3 to 15 percent slopes.

and boulders is necessary for landscaping. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The exposed bedrock and stones on the surface make the use of farming equipment impractical and make the soils generally unsuitable for cultivated crops. The complex is suitable for trees, but the exposed bedrock and stones also limit machine planting and droughtiness in the Hollis soils limits growth. The shallow rooting depth in the Hollis soils causes the uprooting of many trees during windy periods.

The capability subclass is VIs.

CrE—Charlton-Hollis fine sandy loams, very rocky, 15 to 45 percent slopes. This complex consists of moderately steep to very steep, well drained and somewhat excessively drained soils on hills and ridges. The areas of the complex are mostly irregular in shape and range from 5 to 300 acres. They are marked with exposed bedrock, a few drainageways, and a few small, wet depressions. Stones and boulders cover 1 to 5 percent of the surface and exposed bedrock up to 10 percent of the surface.

The complex is about 50 percent Charlton soils, 30 percent Hollis soils, and 20 percent other soils and exposed bedrock. The Charlton and Hollis soils are so intermingled that it was not practical to map them separately.

Typically, the Charlton soils have a surface layer of very dark brown fine sandy loam 3 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 26 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Typically, the Hollis soils have a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is dark brown and dark yellowish brown fine sandy loam that extends to bedrock at a depth of 17 inches.

Included with this complex in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Leicester soils. Also included are small areas of soils with bedrock at a depth of 20 to 40 inches; a few larger areas, mainly in the southern part of the county, that have been cleared of stones and boulders; and a few areas where stones and boulders cover more than 5 percent of the surface.

These Charlton and Hollis soils have moderate or moderately rapid permeability. Runoff is rapid. Available water capacity is moderate in the Charlton soils and low in the Hollis soils. Both soils are very strongly acid to medium acid.

Most areas of this complex are in woodland. A few scattered areas are used for community development, and a few small areas are used for pasture.

The major limitations of this complex for community development are slope, the stones and boulders on the surface, the areas of exposed bedrock, and the shallow depth to bedrock in the Hollis soils. Slope especially limits the complex as a site for onsite septic systems, and such systems commonly require special design and installation to prevent effluent from seeping to the surface. The depth to bedrock limits excavations in the Hollis soils. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

Slope, the stones and boulders, and the exposed bedrock make the use of farming equipment impractical and make the soils generally unsuitable for farming. The complex is suitable for trees, but the same limitations that restrict the use of farming equipment also limit machine planting. Slope and the shallow rooting depth in the Hollis soils result in the uprooting of many trees during windy periods.

The capability subclass is VIIs.

Du—Dumps. This unit consists of land which has been or is being used for solid-waste disposal. Most of these areas are landfills in which the waste is compacted and covered with soil. The areas range from 5 to 50 acres.

Included with this unit in mapping are small areas of Udorthents, urbanized areas, gravel pits, and Agawam, Charlton, Hinckley, and Paxton soils.

This unit requires onsite investigation and evaluation for most uses.

The unit is not assigned to a capability subclass.

GgB—Georgia silt loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is on drumlins and hills. The areas are oblong or irregular in shape and mostly range from 3 to 30 acres.

Typically, the surface layer is very dark grayish brown silt loam 8 inches thick. The subsoil is brown loam 16 inches thick that is mottled in the lower part. The substratum is firm, dark grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Included areas make up about 15 percent of this map unit.

This Georgia soil has a seasonal high water table at a depth of about 20 inches from midfall until late spring. The permeability of the soil is moderate in the surface layer and subsoil and slow in the substratum. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is strongly acid to neutral in the surface layer and upper part of the subsoil and medium acid to neutral in the lower part of the subsoil and in the substratum.

Many areas of this soil have been cleard and are used for hay, corn, or pasture. Some scattered areas are used for community development, and a few areas are wooded.

The seasonal high water table and the slowly permeable substratum limit this soil for community development, especially as a site for onsite septic systems. Lawns on this soil remain soggy for several days after heavy rains, and slopes of excavated areas are unstable when wet. The soil erodes readily during construction. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control this erosion. Foundation drains help prevent wet basements.

This soil is suitable for cultivated crops and trees. The main management concerns for crops are providing drainage and controlling a moderate erosion hazard by using minimum tillage, maintaining a permanent plant cover, stripcropping, and using cover crops. Machine planting is practical in areas used for woodland.

The capability subclass is IIe.

GgC—Georgia silt loam, 8 to 15 percent slopes. This sloping, moderately well drained soil is on drumlins and hills. The areas are oblong or irregular in shape and mostly range from 3 to 30 acres.

Typically, the surface layer is very dark grayish brown loam 8 inches thick. The subsoil is brown loam 16 inches thick and is mottled in the lower part. The substratum is firm, dark grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Included areas make up about 15 percent of this map unit.

This Georgia soil has a seasonal high water table at a depth of about 20 inches from midfall until late spring. The permeability of the soil is moderate in the surface layer and subsoil and slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is strongly acid to neutral in the surface layer and upper part of the subsoil and medium acid to neutral in the lower part of the subsoil and in the substratum.

Many areas of this soil are used for hay, corn, or pasture. Some scattered areas are used for community development, and a few areas are wooded.

The seasonal high water table, the slowly permeable substratum, and slope limit the soil for community development, especially as a site for onsite septic systems. Lawns on this soil remain soggy for several days after heavy rains, and slopes of excavations are unstable when wet. The soil erodes readily during construction. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control this erosion. Foundation drains help prevent wet basements.

This soil is suitable for cultivated crops and trees. The main management concerns for crops are providing artificial drainage and controlling a severe erosion hazard by using minimum tillage, maintaining a permanent plant cover, stripcropping, and using cover crops. Machine planting is practical in areas used for woodland.

The capability subclass is IIIe.

GhB—Georgia very stony silt loam, 3 to 8 percent slopes. This sloping, moderately well drained soil is on drumlins and hills. Stones and boulders cover 1 to 5 percent of the surface. The areas are mostly oblong or irregular in shape and range from 3 to 40 acres.

Typically, the surface layer is very dark grayish brown silt loam 8 inches thick. The subsoil is brown loam 16 inches thick and is mottled in the lower part. The substratum is firm, dark grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Included areas make up about 15 percent of this map unit.

This Georgia soil has a seasonal high water table at a depth of about 20 inches from midfall until late spring. The permeability of the soil is moderate in the surface layer and subsoil and slow in the substratum. Runoff is medium, and available water capacity is moderate. The soil is strongly acid to neutral in the surface layer and upper part of the subsoil and medium acid to neutral in the lower part of the subsoil and in the substratum. The hazard of erosion is moderate.

Most areas of this soil are wooded. Some scattered areas are used for community development, and a few small areas are used for pasture.

The seasonal high water table, the slowly permeable substratum, and the stones and boulders on the surface are the main limitations of this soil for community development. The water table and the slow permeability especially limit the soil as a site for onsite septic systems, and removal of the stones and boulders is necessary for landscaping. Lawns on this soil remain soggy for several days after heavy rains. Slopes of excavations are unstable when wet, and the soil erodes readily during construction. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control this erosion. Foundation drains help prevent wet basements.

The stones and boulders on the surface make the use of farming equipment impractical and make the soil generally unsuitable for farming. Although the stones and boulders hinder machine planting, the soil is well suited to trees, and machine planting is practical in most areas.

The capability subclass is VIs.

GhC—Georgia very stony silt loam, 8 to 15 percent slopes. This sloping, moderately well drained soil is on drumlins and hills. Stones and boulders cover 1 to 5 percent of the surface. The areas are mostly oblong or irregular in shape and range from 3 to 40 acres.

Typically, the surface layer is very dark grayish brown loam 8 inches thick. The subsoil is brown loam 16 inches thick and is mottled in the lower part. The substratum is firm, dark grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Woodbridge soils, and poorly drained Ridgebury soils. Also included are a few small areas where stones and boulders cover more than 5 percent of the surface. Included areas make up about 15 percent of this map unit.

This Georgia soil has a seasonal high water table at a depth of about 20 inches from midfall until late spring. The permeability of the soil is moderate in the surface layer and subsoil and slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil is strongly acid to neutral in the surface layer and upper part of the subsoil and medium acid to neutral in the lower part of the subsoil and in the substratum. The hazard of erosion is moderate.

Most areas of this soil are wooded. Some scattered areas are used for community development, and a few small areas are used for pasture.

The seasonal high water table, the slowly permeable substratum, slope, and the stones and boulders on the surface are the main limitations of this soil for community development. The water table, slope, and the slow permeability especially limit the soil as a site for onsite septic systems, and removal of the stones and boulders is necessary for landscaping. Lawns on this soil remain soggy for several days after heavy rains. Slopes of excavations are unstable when wet, and the soil erodes readily during construction. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control this erosion. Foundation drains help prevent wet basements.

The stones and boulders on the surface make the use of farming equipment impractical and make the soil generally unsuitable for farming. Although the stones and boulders hinder the machine planting, the soil is well suited to trees, and machine planting is practical in most areas.

The capability subclass is VIs.

HcA—Haven silt loam, 0 to 3 percent slopes. This nearly level, well drained soil is on plains and terraces in stream valleys. The areas are irregular in shape and mostly range from 3 to 30 acres.

Typically, the surface layer is very dark brown silt loam 7 inches thick. The subsoil is 17 inches thick. The upper 13 inches is dark brown and dark yellowish brown silt loam. The lower 4 inches is strong brown fine sandy loam. The substratum is yellowish brown gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Merrimac soils, well drained Agawam soils, and moderately well drained Ninigret soils. Included areas make up about 15 percent of this map unit.

The permeability of this Haven soil is moderate in the surface layer and subsoil and very rapid in the substratum. Runoff is slow, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Most areas of this soil are used for community and industrial development. Some scattered areas are used for corn, vegetables, and nursery crops, and a few small areas are wooded.

The soil is generally suitable for community development, but the rapid permeability in the substratum causes a hazard of ground-water pollution in areas used for onsite septic systems. The instability of the soil is a limitation for excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. Minimum tillage and the use of cover crops help to control erosion in cultivated areas. Machine planting is practical in areas used for woodland.

The capability class is I.

HcB—Haven silt loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on plains and terraces in stream valleys. The areas are irregular in shape and mostly range from 3 to 30 acres.

Typically, the surface layer is very dark brown silt loam 7 inches thick. The subsoil is 17 inches thick. The upper

13 inches is dark brown and dark yellowish brown silt loam. The lower 4 inches is strong brown fine sandy loam. The substratum is yellowish brown gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Merrimac soils, well drained Agawam soils, and moderately well drained Ninigret soils. Included areas make up about 15 percent of this map unit.

The permeability of this Haven soil is moderate in the surface layer and subsoil and very rapid in the substratum. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Most areas of this soil are used for community and industrial development. Some areas are used for corn, vegetables, and nursery crops, and a few small areas are wooded.

The soil is generally suitable for community development, but the rapid permeability in the substratum causes a hazard of ground-water pollution in areas used for onsite septic systems. The instability of the soil is a limitation for excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. Minimum tillage and the use of cover crops help to control a moderate erosion hazard in cultivated areas. Machine planting is practical in areas used for woodland.

The capability subclass is IIe.

HkB—Hinckley gravelly sandy loam, 3 to 8 percent slopes. This gently sloping, excessively drained soil is on terraces, kames, and eskers in stream valleys. The areas are irregular in shape and mostly range from 3 to 30 acres.

Typically, the surface layer is dark brown gravelly sandy loam 5 inches thick. The substratum is 10 inches thick. The upper 4 inches is strong brown gravelly sandy loam, and the lower 6 inches is dark brown gravelly loamy sand. The substratum is light olive brown gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Merrimac soils and well drained Agawam and Haven soils. Included areas make up about 15 percent of this map unit.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Runoff is slow, and available water capacity is very low. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Many areas of this soil are used for community and industrial development. Some scattered areas are used as a source of sand and gravel, and a few areas are used for corn, vegetables, and nursery crops.

The main limitations of this soil for community development are the very rapid permeability in the substratum and droughtiness. The permeability causes a hazard of ground-water pollution in areas used for onsite septic systems. Droughtiness makes watering necessary for lawns, gardens, and shrubs on this soil. The soil is unstable, thus limiting excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The soil is suitable for cultivated crops and trees, but droughtiness is a limitation for both uses. Minimum tillage and the use of cover crops help to control erosion in cultivated areas. Machine planting is practical in areas used for woodland.

The capability subclass is IIIs.

HkC—Hinckley gravelly sandy loam, 8 to 15 percent slopes. This sloping, excessively drained soil is on terraces, kames, and eskers in stream valleys (fig. 9). The areas are irregular in shape and mostly range from 3 to 30 acres.

Typically, the surface layer is dark brown gravelly sandy loam 4 inches thick. The subsoil is 10 inches thick. The upper 4 inches is strong brown gravelly sandy loam. The lower 6 inches is dark brown gravelly loamy sand. The substratum is light olive brown gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Merrimac soils and well drained Agawam and Haven soils. Included areas make up about 15 percent of this map unit.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Runoff is medium, and available water capacity is very low. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Many areas of this soil are used for community and industrial development. A few areas are used as a source of sand and gravel, and a few small areas are used for corn, vegetables, and nursery crops.

The main limitations of this soil for community development are the very rapid permeability in the substratum, droughtiness, and slope. The permeability causes a hazard of ground-water pollution in areas used for onsite septic systems. Droughtiness makes watering necessary for lawns, gardens, and shrubs on this soil. The soil is unstable, thus limiting excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The soil is suitable for cultivated crops and trees, but droughtiness is a limitation for both uses. Minimum tillage and the use of cover crops help to control a moderate hazard of erosion in cultivated areas. Machine planting is practical in areas used for woodland.

The capability subclass is IVs.

HkD—Hinckley gravelly sandy loam, 15 to 35 percent slopes. This moderately steep to steep, excessively drained soil is on terraces, kames, and

Figure 9.—An area of Hinckley gravelly sandy loam, 8 to 15 percent slopes.

eskers in stream valleys. The areas are long and narrow and mostly range from 5 to 30 acres.

Typically, the surface layer is dark brown gravelly sandy loam 3 inches thick. The subsoil is 11 inches thick. The upper 5 inches is strong brown gravelly sandy loam. The lower 6 inches is dark brown gravelly loamy sand. The substratum is light olive brown gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Merrimac soils and well drained Agawam soils. Included areas make up about 15 percent of this map unit.

The permeability of this Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum. Runoff is rapid, and available water capacity is very low. The soil is very strongly acid to medium acid. The hazard of erosion is severe.

Most areas of this soil are wooded. A few areas are used as a source of sand and gravel, and a few scattered areas are used for community and industrial development.

The main limitations of this soil for community development are slope and the very rapid permeability in the substratum. The permeability causes a hazard of ground-water pollution in areas used for onsite septic systems. Droughtiness makes watering necessary for lawns, gardens, and shrubs on this soil. The soil is unstable, thus limiting excavations. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

Slope restricts the use of equipment and, along with droughtiness, makes this soil poorly suited to cultivated crops and trees.

The capability subclass is VIs.

HpC—Hollis-Charlton-Rock outcrop complex, 3 to 15 percent slopes. This complex consists of gently sloping and sloping soils on hills and ridges. The areas are irregularly shaped and mostly range from 5 to 200 acres. They have an undulating topography marked with exposed bedrock, a few narrow drainageways, and a few small, wet depressions. Stones and boulders cover 1 to 5 percent of the surface.

The complex is about 35 percent somewhat excessively drained Hollis soils, 20 percent well drained Charlton soils, 20 percent exposed bedrock, and 25

percent other soils. The Hollis and Charlton soils and exposed bedrock are so intermingled on the landscape that it was not practical to map them separately.

Typically, the Hollis soils have a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is dark brown and dark yellowish brown gravelly fine sandy loam and fine sandy loam that extends to bedock at a depth of 17 inches.

Typically, the Charlton soils have a surface layer of very dark brown fine sandy loam 6 inches thick. The subsoil is brown fine sandy loam 23 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this complex in mapping are small areas of moderately well drained Sutton soils, poorly drained Leicester soils, and very poorly drained Adrian soils. Also included are areas of soils with bedrock at a depth of 20 to 40 inches, a few areas where stones cover more than 5 percent of the surface, and a few areas with no stones or boulders on the surface.

These Hollis and Charlton soils have moderate or moderately rapid permeability. Runoff is medium to rapid. The available water capacity is low in the Hollis soils and moderate in the Charlton soils. Both soils dry out and warm up early in spring. Both are very strongly acid to medium acid.

Most areas of this complex are in woodland. Some small scattered areas are used for community development, and a few small areas have been cleared and are used for pasture.

The major limitations of this complex for community development are the shallow depth to bedrock in the Hollis soils and the areas of exposed bedrock. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The complex is unsuitable for cultivated crops and poorly suited to trees. The major limitations for both uses are the areas of exposed bedrock, the shallow depth to bedrock in the Hollis soils, and the stones on the surface. The use of farming equipment is impractical in areas of this complex. The shallow depth to bedrock causes the uprooting of many trees during windy periods.

The capability subclass is VIs.

HrE—Hollis-Rock outcrop-Charlton complex, 15 to 45 percent slopes. This complex consists of moderately steep to very steep soils on hills and ridges. The areas are irregularly shaped and mostly range from 5 to 300 acres. They have an undulating topography marked with exposed bedrock, a few narrow drainageways, and a few small, wet depressions. Stones and boulders cover 1 to 5 percent of the surface.

The complex is about 40 percent somewhat excessively drained Hollis soils, 25 percent exposed bedrock, 20 percent well drained Charlton soils, and 15 percent other soils. The Hollis and Charlton soils and the areas of exposed bedrock are so intermingled that it was not practical to map them separately.

Typically, the Hollis soils have a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is dark brown and dark yellowish brown gravelly fine sandy loam and fine sandy loam that extends to bedrock at a depth of 17 inches.

Typically, the Charlton soils have a surface layer of very dark brown fine sandy loam 4 inches thick. The subsoil is strong brown and yellowish brown fine sandy loam 25 inches thick. The substratum is light olive brown gravelly sandy loam to a depth of 60 inches or more.

Included with this complex in mapping are small areas of moderately well drained Sutton and Woodbridge soils, poorly drained Leicester soils, and very poorly drained Adrian soils. Also included are small areas of soils with bedrock at a depth of 20 to 40 inches. A few small areas have slopes of as much as 90 percent, and in a few areas stones and boulders cover more than 5 percent of the surface.

These Hollis and Charlton soils have moderate or moderately rapid permeability. Runoff is rapid or very rapid. Available water capacity is low in the Hollis soils and moderate in the Charlton soils. Both soils dry out and warm up early in spring. Both are very strongly acid to medium acid.

Most areas of this complex are in woodland. Some small scattered areas are used for community development, and a few small areas have been cleared and are used for pasture.

The major limitations of this complex for community development are slope, the shallow depth to bedrock in the Hollis soils, the stones on the surface, and the areas of exposed bedrock. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

Slope, the shallow depth to bedrock, the areas of exposed bedrock, and the stones on the surface make this complex unsuitable for cultivated crops and poorly suited to trees. The use of farm equipment in areas of this complex is impractical. The shallow depth to bedrock causes the uprooting of many trees during windy periods.

The capability subclass is VIIs.

Lc—Leicester fine sandy loam. This nearly level, poorly drained soil is in drainageways and depressions. The areas are irregular in shape and mostly range from 3 to 20 acres. Slopes range from 0 to 5 percent.

Typically, this soil has a surface layer of black fine sandy loam 7 inches thick. The subsoil is 22 inches thick. The upper 12 inches is grayish brown and light yellowish brown, mottled fine sandy loam. The lower 10 inches is light olive brown, mottled gravelly fine sandy loam. The substratum is olive brown, mottled gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of moderately well drained Sutton soils, poorly drained Ridgebury and Walpole soils, and very poorly drained Whitman soils. Also included are a few areas of slightly

acid soils and a few areas with a surface layer of silt loam. Included areas make up about 15 percent of this map unit.

This Leicester soil has a seasonal high water table at a depth of about 6 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid. Runoff is slow, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid to medium acid.

Most areas of this soil are wooded. A few areas are used for hay and pasture, and a few scattered areas are used for community development.

The seasonal high water table limits this soil for community development; sites for onsite septic systems commonly need extensive filling and require special design and installation. Where suitable outlets are available, footing drains help prevent wet basements. Using siltation basins and quickly establishing plant cover help to control erosion and sedimentation during construction.

The soil is suitable for cultivated crops. The major limitation is wetness, and artificial drainage is needed. Even when drained, the soil remains wet for several days after heavy rains, restricting the use of farming equipment.

Wetness makes this soil poorly suited to trees. The shallow rooting depth to the seasonal high water table causes the uprooting of many trees during windy periods.

The capability subclass is IIIw.

MyB—Merrimac sandy loam, 2 to 8 percent slopes. This gently sloping, somewhat excessively drained soil is on terraces mostly along the Housatonic River. The areas are irregularly shaped and mostly range from 5 to 20 acres.

Typically, this soil has a surface layer of very dark grayish brown sandy loam 9 inches thick. The subsoil is brown sandy loam 15 inches thick. The substratum is yellowish brown gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of excessively drained Hinckley soils, well drained Agawam and Haven soils, and moderately well drained Ninigret soils. Included areas make up about 15 percent of this map unit.

The permeability of this Merrimac soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up early in spring. It is very strongly acid to medium acid.

Most areas of this soil are used for corn, vegetables, and nursery crops. Some scattered areas are used for community development, and a few small areas are wooded.

The rapid permeability in the substratum of this soil causes a hazard of ground-water pollution in areas used for onsite septic systems. Lawns, gardens, and landscaped areas need watering during summer, and slopes of excavated areas are unstable. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. Droughtiness is a limitation during dry periods. Minimum tillage, stripcropping, and the use of cover crops help to control a moderate erosion hazard in cultivated areas. Machine planting is practical in areas used for woodland.

The capability subclass is IIs.

NeB—Nellis fine sandy loam, 3 to 10 percent slopes. This gently sloping to sloping, well drained soil is on hills and ridges. The areas are irregular in shape and mostly range from 3 to 20 acres.

Typically, the soil has a surface layer of very dark grayish brown fine sandy loam 8 inches thick. The subsoil is yellowish brown and is 19 inches thick. The upper 17 inches is fine sandy loam, and the lower 2 inches is loam. The substratum is very pale brown sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Farmington soils, well drained Charlton and Stockbridge soils, and moderately well drained Georgia soils. Included areas make up about 15 percent of this map unit.

The permeability of this Nellis soil is moderate. Runoff is medium, and available water capacity is moderate. This soil dries out and warms up early in spring. The soil is medium acid to neutral in the surface layer and upper part of the subsoil and neutral to mildly alkaline in the lower part of the subsoil and in the substratum.

Many areas of this soil are cultivated. Some scattered areas are used for community development, and a few small areas are in woodland or pasture.

The soil is generally suitable for community development. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. Minimum tillage and the use of cover crops and stripcropping help to control a moderate hazard of erosion in cultivated areas. Machine planting is practical in areas used for woodland.

The capability subclass is IIe.

NfC—Nellis-Farmington fine sandy loams, very rocky, 3 to 15 percent slopes. This complex consists of gently sloping and sloping soils on hills and ridges. The areas are irregularly shaped and mostly range from 3 to 30 acres. They have an undulating topography marked with exposed bedrock and a few drainageways.

The complex is about 50 percent well drained Nellis soils, 35 percent somewhat excessively drained Farmington soils, and 15 percent other soils and exposed bedrock. The Nellis and Farmington soils are so intermingled on the landscape that it was not practical to map them separately.

Typically, the Nellis soils have a surface layer of very dark grayish brown fine sandy loam 8 inches thick. The subsoil is yellowish brown and is 19 inches thick. The upper 17 inches is fine sandy loam, and the lower 2 inches is loam. The substratum is very pale brown sandy loam to a depth of 60 inches or more.

Typically, the Farmington soils have a surface layer of dark brown fine sandy loam 10 inches thick. The subsoil is yellowish red sandy loam that extends to limestone bedrock at a depth of 16 inches.

Included with this complex in mapping are small areas of somewhat excessively drained Hollis soils, well drained Charlton and Stockbridge soils, and moderately well drained Georgia soils.

The Nellis soils have moderate permeability. Runoff is medium to rapid, and available water capacity is moderate. The soil is medium acid to neutral in the surface layer and upper part of the subsoil and neutral to mildly alkaline in the lower part of the subsoil and in the substratum. The soil dries out and warms up early in spring.

The Farmington soils have moderate permeability. Runoff is medium to rapid, and available water capacity is low. The soil is strongly acid to slightly acid in the surface layer and medium acid to mildly alkaline in the subsoil.

Many areas of this complex have been cleared and are used for pasture, hay, or corn. Some areas are in woodland, and a few small areas are used for community development.

The main limitations of this complex for community development, especially for excavations, are the shallow depth to bedrock in the Farmington soils and the areas of exposed bedrock. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The shallow depth to bedrock and the areas of exposed bedrock make this soil poorly suited to cultivated crops. The exposed bedrock especially restricts the use of farming equipment. Minimum tillage and the use of cover crops and stripcropping help to control a moderate to severe erosion hazard in cultivated areas.

The exposed bedrock also hinders machine planting in areas used for woodland, but the soil is well suited to trees. The shallow depth to bedrock in the Farmington soils causes the uprooting of many trees during windy periods.

The capability subclass is IVe.

NfD—Nellis-Farmington fine sandy loams, very rocky, 15 to 35 percent slopes. This complex consists of moderately steep and steep soils on hills and ridges. The areas are irregularly shaped and mostly range from 3 to 50 acres. They have an undulating topography marked with exposed bedrock and a few drainageways.

The complex is about 50 percent well drained Nellis soils, 30 percent somewhat excessively drained Farmington soils, and 20 percent other soils and exposed bedrock. The Nellis and Farmington soils are so intermingled that it was not practical to map them separately.

Typically, the Nellis soils have a surface layer of very dark grayish brown fine sandy loam 8 inches thick. The subsoil is yellowish brown and is 19 inches thick. The upper 17 inches is fine sandy loam, and the lower 2 inches is loam. The substratum is very pale brown sandy loam to a depth of 60 inches or more.

Typically, the Farmington soils have a surface layer of dark brown fine sandy loam 6 inches thick. The subsoil is yellowish red sandy loam that extends to limestone bedrock at a depth of 12 inches.

Included with this complex in mapping are small areas of somewhat excessively drained Hollis soils, well drained Charlton and Stockbridge soils, and moderately well drained Georgia soils. Also included are a few areas of soils with slopes of more than 35 percent.

The Nellis soils have moderate permeability. Runoff is rapid, and available water capacity is moderate. The soil is medium acid to neutral in the surface layer and upper part of the subsoil and neutral to moderately alkaline in the lower part of the subsoil and in the substratum. The soil dries out and warms up early in spring.

The Farmington soils have moderate permeability. Runoff is rapid, and available water capacity is low. The soil is strongly acid to slightly acid in the surface layer and medium acid to mildly alkaline in the subsoil.

Many areas of this complex have been cleared and are used for pasture and hay. Some areas are in woodland, and a few small areas are used for community development.

The major limitations of this complex for community development are slope, the shallow depth to bedrock in the Farmington soils, and the areas of exposed bedrock. Onsite septic systems need special design to prevent effluent from seeping to the surface, and excavations are hindered by the depth to bedrock. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The shallow depth to bedrock, slope, and the areas of exposed bedrock make this soil poorly suited to cultivated crops. The exposed bedrock especially restricts the use of farming equipment.

Slope and the exposed bedrock make machine planting impractical in areas used for woodland, but the soil is well suited to trees. The shallow depth to bedrock in the Farmington soils causes the uprooting of many trees during windy periods.

The capability subclass is VIIs.

Nn—Ninigret fine sandy loam. This nearly level to gently sloping, moderately well drained soil is on plains and terraces in stream valleys. The areas are irregular in shape and mostly range from 3 to 15 acres. Slopes range from 0 to 5 percent.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 10 inches thick. The

subsoil is brown fine sandy loam 16 inches thick and is mottled in the lower part. The substratum is light yellowish brown, mottled gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Merrimac soils, well drained Agawam and Haven soils, and poorly drained Raypol and Walpole soils. Included areas make up about 15 percent of this map unit.

This Ninigret soil has a seasonal high water table at a depth of about 20 inches from late fall until midspring. Permeability is moderately rapid in the surface layer and subsoil and rapid in the substratum. Runoff is slow, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid to medium acid.

Many areas of this soil are used for hay, corn, vegetables, and nursery crops. Some scattered areas are used for community development, and a few small areas are wooded.

The seasonal high water table is the main limitation of this soil for community development. The water table makes special design and installation of onsite septic systems necessary. Slopes of excavations are commonly unstable. Where outlets are available, footing drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees, but drainage is needed in some of the farmed areas. Minimum tillage and the use of cover crops help to control a moderate hazard of erosion in cultivated areas. Machine planting is practical in areas used for woodland.

The capability subclass is IIw.

PbB—Paxton fine sandy loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on drumlins and hills. The areas are commonly oblong and mostly range from 4 to 50 acres.

Typically, this soil has a surface layer of dark brown fine sandy loam 9 inches thick. The subsoil is brown gravelly fine sandy loam 22 inches thick. The substratum is very firm, grayish brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton and Stockbridge soils, moderately well drained Georgia and Woodbridge soils, and poorly drained Ridgebury soils. Also included are a few areas of nearly level soils. Included areas make up about 15 percent of this map unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid to slightly acid.

Many areas of this soil are used for hay, corn, pasture, and vegetables. Some scatterd areas are used for community development, and a few small areas are wooded.

The slow or very slow permeability of the substratum limits this soil for community development, especially for onsite septic systems. Slopes of excavations are unstable when wet, and lawns are wet and soft in autumn and spring. Artificial drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins help to prevent erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. Minimum tillage, stripcropping, and the use of crover crops help to control a moderate erosion hazard in cultivated areas. Machine planting is practical in areas used for woodland.

The capability subclass is IIe.

PbC—Paxton fine sandy loam, 8 to 15 percent slopes. This sloping, well drained soil is on drumlins and hills. The areas are commonly oblong and mostly range from 4 to 50 acres.

Typically, this soil has a surface layer of dark brown fine sandy loam 9 inches thick. The subsoil is brown fine sandy loam 22 inches thick. The substratum is very firm, grayish brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton and Stockbridge soils, moderately well drained Georgia and Woodbridge soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of this map unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid to slightly acid.

Most areas of this soil are used for hay, corn, vegetables, and pasture. Many scattered areas are used for community development, and many small areas are wooded.

The major limitations of this soil for community development are slope and the slow or very slow permeability of the substratum. Onsite septic systems require special design and installation to prevent effluent from seeping to the surface. Slopes of excavations are unstable when wet, and lawns are wet and soft in autumn and spring. Artificial drains help prevent wet basements. Quickly establishing plant cover, mulching, and the use of diversions and siltation basins help to prevent erosion and sedimentation during construction.

This soil is suitable for cultivated crops and well suited to trees. Slope limits the use of farming equipment. Minimum tillage, stripcropping, and the use of cover crops help to control a severe erosion hazard in cultivated areas. Machine planting is practical in areas used for trees.

The capability subclass is IIIe.

PbD—Paxton fine sandy loam, 15 to 25 percent slopes. This moderately steep, well drained soil is on

drumlins and hills. The areas are commonly long and narrow and mostly range from 5 to 50 acres.

Typically, this soil has a surface layer of dark brown fine sandy loam 6 inches thick. The subsoil is brown fine sandy loam 22 inches thick. The substratum is very firm, grayish brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Charlton and Stockbridge soils, and moderately well drained Georgia and Woodbridge soils. Also included are a few small areas of soils with slopes of more than 25 percent. Included areas make up about 15 percent of this map unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil is very strongly acid to slightly acid.

Most areas of this soil are wooded. Some small scattered areas are used for community development, and a few areas are used for pasture or hay.

The major limitations of this soil for community development are slope and the slow or very slow permeability of the substratum. Onsite septic systems require special design and installation to prevent effluent from seeping to the surface. Slopes of excavations are unstable when wet, and the soil erodes readily during construction. Quickly establishing plant cover, mulching, and using diversions and siltation basins help to control this erosion.

Slope makes this soil poorly suited to cultivated crops. Establishing a permanent plant cover, minimum tillage, stripcropping, and using cover crops help to control a severe erosion hazard in cultivated areas. The soil is well suited to trees, and machine planting is practical.

The capability subclass is IVe.

PdB—Paxton very stony fine sandy loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on drumlins and hills. Stones and boulders cover 1 to 5 percent of the surface. The areas are irregularly shaped and mostly range from 4 to 50 acres.

Typically, this soil has a surface layer of dark brown fine sandy loam 6 inches thick. The subsoil is brown fine sandy loam 22 inches thick. The substratum is very firm, brittle, grayish brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton and Stockbridge soils, moderately well drained Georgia and Woodbridge soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of this map unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Runoff is medium, and available water capacity is moderate. The soil is very strongly acid to slightly acid.

Most areas of this soil are wooded. Some small scattered areas are used for community development, and a few areas are used for pasture.

The slow or very slow permeability in the substratum is the main limitation of this soil for community development; onsite septic systems require special design and installation to prevent effluent from seeping to the surface. Quickly establishing a plant cover, mulching, and using siltation basins help to control erosion and sedimentation during construction.

The stones and boulders on the surface restrict the use of farming equipment and make the soil unsuitable for cultivated crops. Although the stones and boulders hinder machine planting, the soil is well suited to trees, and machine planting is practical in most areas.

The capability subclass is VIs.

PdC—Paxton very stony fine sandy loam, 8 to 15 percent slopes. This sloping, well drained soil is on drumlins and hills. Stones and boulders cover 1 to 5 percent of the surface. The areas are commonly oblong or irregularly shaped and mostly range from 4 to 50 acres.

Typically, this soil has a surface layer of dark brown fine sandy loam 6 inches thick. The subsoil is brown fine sandy loam 22 inches thick. The substratum is very firm, brittle, grayish brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton and Stockbridge soils, moderately well drained Georgia and Woodbridge soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of this map unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil is very strongly acid to slightly acid. The hazard of erosion is severe.

Most areas of this soil are wooded. Some scattered areas are used for community development, and a few areas have been cleared and are used for pasture.

The slow or very slow permeability in the substratum and slope are the main limitations of this soil for community development. Onsite septic systems require special design and installation to prevent effluent from seeping to the surface, and slopes of excavations are unstable. Quickly establishing a plant cover, mulching, and using diversions and siltation basins help to control erosion and sedimentation during construction.

The stones and boulders on the surface restrict the use of farming equipment and make the soil unsuitable for cultivated crops. Although the stones and boulders hinder machine planting, the soil is well suited to trees, and machine planting is practical in most areas.

The capability subclass is VIs.

PeC—Paxton extremely stony fine sandy loam, 3 to 15 percent slopes. This gently sloping and sloping,

well drained soil is on drumlins and hills. Stones and boulders cover 5 to 35 percent of the surface. The areas are commonly oblong or irregularly shaped and mostly range from 4 to 60 acres.

Typically, this soil has a surface layer of dark brown fine sandy loam 6 inches thick. The subsoil is brown fine sandy loam 22 inches thick. The substratum is very firm, brittle, grayish brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton and Stockbridge soils, moderately well drained Georgia and Woodbridge soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of this map unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil is very strongly acid to slightly acid.

Most areas of this soil are wooded. Some scattered areas are used for community development, and a few areas are used for pasture.

The slow or very slow permeability in the substratum, slope, and the stones and boulders on the surface are the main limitations of this soil for community development. Onsite septic systems require special design and installation to prevent effluent from seeping to the surface, and slopes of excavations are unstable. Quickly establishing a plant cover, mulching, and using diversions and siltation basins help to control erosion and sedimentation during construction.

The stones and boulders on the surface restrict the use of farming equipment and make the soil unsuitable for cultivated crops. The soil is well suited to trees, but the stones and boulders also restrict machine planting and hinder the use of tree harvesting equipment.

The capability subclass is VIIs.

PeD—Paxton extremely stony fine sandy loam, 15 to 35 percent slopes. This moderately steep to steep, well drained soil is on drumlins and hills. Stones and boulders cover 5 to 35 percent of the surface. The areas are commonly oblong or irregularly shaped and mostly range from 5 to 60 acres.

Typically, this soil has a surface layer of dark brown fine sandy loam 3 inches thick. The subsoil is brown fine sandy loam 22 inches thick. The substratum is very firm, brittle, grayish brown gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Charlton and Stockbridge soils, and moderately well drained Georgia and Woodbridge soils. Also included are a few small areas where stones and boulders cover less than 5 percent of the surface. Included areas make up about 15 percent of this map unit.

The permeability of this Paxton soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Runoff is rapid. This soil is very strongly acid to slightly acid.

Most areas of this soil are wooded. A few small scattered areas are used for community development, and a few areas are in pasture.

Slope, the slow or very slow permeability in the substratum, and the stones and boulders on the surface limit this soil for community development. Onsite septic systems require special design and installation to prevent effluent from seeping to the surface. Slopes of excavations are unstable when wet. The soil erodes readily during construction. Quickly establishing plant cover, mulching, and using diversions and siltation basins help to control this erosion.

The stones and boulders on the surface and the slope make the use of farm machinery impractical and make the soil unsuitable for cultivated crops. The soil is well suited to trees, but slope and the stones and boulders also restrict the use of woodland planting and harvesting equipment.

The capability subclass is VIIs.

Pr—Pits, gravel. This unit consists of areas that have been excavated for sand and gravel. The areas are irregularly shaped and mostly range from 5 to 40 acres. Many of the pits have escarpments along the edges.

The permeability of this unit is rapid or very rapid. In a few areas the water table is at or near the surface most of the year. A few small areas are adjacent to streams and are subject to periodic flooding.

Included with this unit in mapping are small areas of excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, and well drained Agawam and Haven soils. Also included are a few small areas of exposed bedrock and a few small ponds.

A few abandoned pits are used for community development, but onsite investigation is generally needed to determine the suitability of the unit for most uses.

This unit is not assigned to a capability subclass.

Ps—Pootatuck fine sandy loam. This nearly level, moderately well drained soil is on flood plains of the major streams and their tributaries. Most areas are long and narrow and range from 4 to 20 acres. Slopes range from 0 to 2 percent.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 4 inches thick. The subsoil is dark brown fine sandy loam and sandy loam 24 inches thick and is mottled in the lower part. The substratum is brown, mottled sand and gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained Rippowam soils and very poorly drained Saco soils. Also included are a few small areas of well drained soils and soils that have a surface layer and subsoil of silt loam. Included areas make up about 15 percent of this map unit.

This Pootatuck soil is subject to frequent flooding. It has a seasonal high water table at a depth of about 20

inches from late fall until spring. Permeability is moderate or moderately rapid in the surface layer and subsoil and rapid or very rapid in the substratum. Runoff is slow, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid to slightly acid.

Many areas of this soil are wooded. A few areas have been cleared and are used for corn, hay, pasture, and vegetables. A few scattered areas have been filled and are used for community development.

Flooding limits this soil for community development, and slopes of excavations in the soil are unstable.

The soil is well suited to cultivated crops and trees. Its use is limited by the seasonal high water table and flooding, but most areas are seldom flooded during the summer growing season. Machine planting is practical in areas used for trees.

The capability subclass is IIw.

Rb—Raypol silt loam. This nearly level, poorly drained soil is in depressions on plains and terraces. The areas are irregularly shaped and mostly range from 3 to 45 acres. Slopes range from 0 to 3 percent.

Typically, this soil has a surface layer of black silt loam 6 inches thick. The subsoil is grayish brown and light brownish gray, mottled silt loam and very fine sandy loam 13 inches thick. The substratum extends to a depth of 60 inches or more. It is 3 inches of brown, mottled loamy sand underlain by mottled sand.

Included with this soil in mapping are small areas of moderately well drained Ninigret soils, poorly drained Walpole soils, and very poorly drained Saco and Scarboro soils. Also included are a few areas of soils that have loamy material to a depth of more than 40 inches. Included areas make up about 20 percent of this map unit.

This Raypol soil has a seasonal high water table at a depth of about 6 inches from fall until late spring. The permeability of the soil is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. Runoff is slow, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid or strongly acid in the surface layer and subsoil and strongly acid to slightly acid in the substratum.

Most areas of this soil are wooded. A few scattered areas are used for hay, pasture, corn, and vegetables, and a few small areas are used for community development.

The seasonal high water table and the rapid permeability in the substratum limit this soil for community development. Ground-water pollution is a hazard in areas used for onsite septic systems. Excavations in the soil are commonly filled with water, and many areas do not have drainage outlets. Quickly establishing plant cover and using siltation basins help to control erosion and sedimentation during construction.

The soil is suitable for cultivated crops. Many areas need drainage, but a lack of suitable outlets makes the soil difficult to drain. The soil is poorly suited to trees. The high water table restricts root growth, and many trees are uprooted during windy periods.

The capability subclass is IIIw.

Rd—Ridgebury fine sandy loam. This nearly level to gently sloping, poorly drained soil is in low areas and drainageways on drumlins and hills. The areas are mostly long and narrow and range from 4 to 30 acres. Slopes range from 0 to 5 percent.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 8 inches thick. The subsoil is brown and brownish gray, mottled fine sandy loam 10 inches thick. The substratum is grayish brown and dark yellowish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of moderately well drained Woodbridge soils, poorly drained Leicester soils, and very poorly drained Whitman and Adrian soils. Also included are a few small areas of soils with a surface layer and subsoil of silt loam and soils that have slopes of more than 5 percent. Included areas make up about 15 percent of this map unit.

This Ridgebury soil has a high water table at a depth of about 6 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Available water capacity is moderate, and runoff is slow. The soil dries out and warms up slowly in spring. It is very strongly acid or medium acid.

Most areas of this soil have been cleared and are used for hay or pasture. A few areas are wooded, and some scattered areas are used for community development.

The seasonal high water table and the slow or very slow permeability in the substratum limit this soil for community development, especially for onsite septic systems. Slopes of excavations are unstable when wet, and lawns are frequently soggy. Quickly establishing plant cover and using siltation basins help to control erosion and sedimentation during construction.

The soil is suitable for cultivated crops and trees. Artificial drainage is needed. Even when drained, however, the soil usually remains wet for several days after heavy rains, restricting the use of farming equipment. The high water table restricts the root growth of trees, and many trees are uprooted during windy periods.

The capability subclass is IIIw.

Rn—Ridgebury, Leicester, and Whitman extremely stony fine sandy loams. This unit consists of poorly drained and very poorly drained soils in depressions and drainageways on uplands and in valleys. Stones and boulders cover 5 to 35 percent of the surface. The areas are irregularly shaped or long and narrow and mostly range from 3 to 50 acres. Slopes range from 0 to 8 percent but are dominantly less than 3 percent.

The mapped acreage of this unit is about 35 percent Ridgebury soils, 30 percent Leicester soils, 20 percent Whitman soils, and 15 percent other soils. The soils were mapped together because they have no major differences in use and management. Some areas of this unit contain only one of the major soils, and some contain two or three.

Typically, the Ridgebury soils have a surface layer of very dark grayish brown fine sandy loam 4 inches thick. The subsoil is brown and light brownish gray, mottled fine sandy loam 14 inches thick. The substratum is grayish brown and dark yellowish brown, mottled fine sandy loam to a depth of 60 inches or more.

Typically, the Leicester soils have a surface layer of black fine sandy loam 4 inches thick. The subsoil is brown, mottled fine sandy loam and gravelly fine sandy loam 25 inches thick. The substratum is olive brown, mottled gravelly fine sandy loam to a depth of 60 inches or more.

Typically, the Whitman soils have a surface layer of very dark gray fine sandy loam 8 inches thick. The subsoil is 16 inches thick. The upper 10 inches is dark grayish brown gravelly fine sandy loam. The lower 6 inches is grayish brown, mottled fine sandy loam. The substratum is very firm, grayish brown, mottled gravelly fine sandy loam to a depth of 60 inches or more.

Included with this unit in mapping are small areas of moderately well drained Woodbridge and Sutton soils and very poorly drained Adrian and Scarboro soils. Also included are small areas where stones and boulders cover less than 5 percent of the surface or more than 35 percent and small areas that have slopes of more than 8 percent.

The major soils in this unit have a seasonal high water table at or near the surface from fall through spring. The permeability of the Ridgebury and Whitman soils is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. The permeability of the Leicester soils is moderate or moderately rapid throughout. Available water capacity is moderate in all three soils. Runoff is slow on all three, and water is ponded on the surface of some areas of the Whitman soils. The Ridgebury and Leicester soils are very strongly acid to medium acid, and the Whitman soils are very strongly acid to slightly acid. These soils dry out and warm up slowly in the spring.

Most areas of this unit are wooded (fig. 10). A few small areas are used for pasture, and a few small areas are used for community development.

The high water table, ponding, and the stones and boulders on the surface limit these soils for community development. Onsite septic systems require extensive filling and special design and installation because of the high water table. Excavations are commonly filled with water, and many areas do not have suitable drainage outlets. Quickly establishing plant cover and using siltation basins help to control erosion and sedimentation during construction.

Figure 10.—A wooded area of Ridgebury, Leicester, and Whitman extremely stony fine sandy loams.

The stones and boulders on the surface make the use of farming equipment impractical and make the soils generally unsuitable for cultivated crops. The soils are suitable for trees, but the stones and boulders also limit the use of woodland planting and harvesting equipment. The seasonal high water table in these soils restricts the rooting depth of trees and causes the uprooting of many trees during windy periods.

The capability subclass is VIIs.

Ro—Rippowam fine sandy loam. This nearly level, poorly drained soil is on flood plains of major streams and their tributaries. The areas are long and narrow or irregularly shaped and mostly range from 3 to 30 acres. Slopes are less than 3 percent.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 5 inches thick. The subsoil is brown and gray, mottled fine sandy loam and sandy loam 19 inches thick. The substratum is dark gray loamy sand and grayish brown gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of moderately well drained Pootatuck soils and very poorly drained Saco and Scarboro soils. Also included are a few areas with a surface layer and subsoil of silt loam. Included areas make up about 15 percent of this map unit.

This Rippowam soil is subject to frequent flooding. It has a seasonal high water table at a depth of about 6 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and rapid or very rapid in the substratum. Runoff is slow or very slow, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is mainly very strongly acid to slightly acid, but some layers above a depth of 40 inches are medium acid or slightly acid.

Most areas of this soil are wooded. A few areas are used for hay, pasture, and corn, and a few small scattered areas have been filled and are used for community development.

The frequent flooding and the seasonal high water table are the main limitations of this soil for community development. Extensive filling is needed for onsite septic systems. Excavations are commonly inundated by water, and slopes of excavations are unstable when wet.

This soil is suitable for cultivated crops. The high water table and frequent flooding limit farming, but most areas are seldom flooded during the summer. The soil is poorly suited to trees. Wetness limits the use of equipment, and the seasonal high water table restricts rooting depth and causes the uprooting of many trees during windy periods.

The capability subclass is IIIw.

Rp—Rock outcrop-Hollis complex. This complex is on hills and ridges. It consists of gently sloping to steep, somewhat excessively drained soils and areas of exposed bedrock. The areas of the complex are mostly long and narrow or irregularly shaped and range from 3 to 80 acres. Most have a rough topography marked with exposed bedrock, a few small drainageways, and a few small, wet depressions. Stones and boulders cover 1 to 25 percent of the surface. Slopes range from 3 to 45 percent.

The complex is about 50 percent exposed bedrock, 30 percent Hollis soils, and 20 percent other soils. The exposed rock and Hollis soils are so intermingled on the landscape that it was not practical to map them separately.

Typically, the Hollis soils have a surface layer of very dark grayish brown fine sandy loam 3 inches thick. The subsoil is dark brown and dark yellowish brown fine sandy loam that extends to bedrock at a depth of 14 inches.

Included with this soil in mapping are small areas of well drained Charlton soils, moderately well drained Sutton soils, poorly drained Leicester soils, and very poorly drained Adrian soils and areas of soils with bedrock at a depth of 20 to 40 inches. A few areas have slopes of more than 45 percent.

These Hollis soils have moderate to moderately rapid permeability. Available water capacity is low, and runoff is rapid or very rapid. The soil is very strongly acid to medium acid.

Most of this complex is wooded. Some small scattered areas are used for community development.

The areas of exposed bedrock, the shallow depth to bedrock, and slope limit this complex for community development, especially for onsite septic systems and excavations.

Slope, the shallow depth to bedrock, the areas of exposed bedrock, and the stones and boulders on the surface make the complex unsuitable for cultivated crops and poorly suited to trees. The use of farming and timber equipment is impractical. The shallow depth to bedrock limits rooting depth, and many trees are uprooted during windy periods.

The capability subclass is VIIs.

Sb—Saco silt loam. This nearly level, very poorly drained soil is on low flood plains of major streams and their tributaries. The areas are mostly long and narrow and range from 5 to 60 acres. Slopes are mostly less than 1 percent.

Typically, this soil has a surface layer of black silt loam 14 inches thick. The substratum is dark gray and is 27 inches thick. The upper 20 inches is silt loam, and the lower 7 inches is very fine sandy loam. The substratum is dark gray gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of moderately well drained Pootatuck soils, poorly drained Rippowam soils, and very poorly drained Adrian, Carlisle, and Scarboro soils. Included areas make up about 15 percent of this map unit.

This Saco soil is subject to frequent flooding. The water table is at or near the surface most of the year. The permeability of the soil is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. Runoff is very slow, and water is ponded on the surface of some areas. Available water capacity is high. The soil is strongly acid to slightly acid above a depth of 30 inches and medium acid to neutral below a depth of 30 inches.

Most areas of this soil are wooded or covered by marshgrasses and sedges. A few areas are used for pasture, and a few small areas have been filled and are used for community development.

The frequent flooding and high water table limit this soil for community development, especially for onsite septic systems, and make the soil generally unsuitable for cultivated crops or commercial tree production. The use of equipment is impractical, and a shallow rooting depth causes the uprooting of many trees during windy periods.

The capability subclass is VIw.

Sc—Scarboro mucky sandy loam. This nearly level, very poorly drained soil is in depressions on plains and terraces. The areas are generally oval and mostly range from 3 to 50 acres. Slopes are less than 1 percent.

Typically, this soil has a surface layer of black mucky sandy loam 9 inches thick. The subsoil is dark gray sand 5 inches thick. The substratum is gray sand and gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained Leicester, Raypol, Rippowam, and Walpole soils and very poorly drained Adrian and Carlisle soils. Included areas make up about 15 percent of this map unit.

This Scarboro soil has a high water table at or near the surface most of the year. Permeability is rapid in the surface layer and rapid or very rapid in the substratum. Available water capacity is low. Runoff is very slow, and water is ponded on the surface of some areas. This soil is very strongly acid to medium acid.

Most areas of this soil are wooded or covered by marshgrasses and sedges. A few small areas are used for pasture or have been filled and are used for community development.

The high water table and ponding limit this soil for community development. Onsite septic systems require extensive filling and special design and installation. Slopes of excavations are commonly unstable, and many areas do not have suitable drainage outlets.

The high water table makes this soil unsuitable for cultivated crops and poorly suited to trees. The water table restricts rooting depth, and many trees are uprooted during windy periods.

The capability subclass is Vlw.

SnB—Stockbridge loam, 3 to 8 percent slopes. This gently sloping, well drained soil is on drumlins and hills. The areas are commonly oblong and mostly range from 3 to 40 acres.

Typically, this soil has a surface layer of dark brown loam 8 inches thick. The subsoil is yellowish brown loam 16 inches thick. The substratum is firm, dark grayish brown, mottled loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Nellis and Paxton soils, moderately well drained Georgia and Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Also included are a few areas of soils with very slow permeability in the substratum and a few areas with stones on the surface. Included areas make up about 15 percent of this map unit.

The permeability of this Stockbridge soil is moderate in the surface layer and subsoil and slow in the substratum. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up fairly slowly in the spring. It is strongly acid to slightly acid in the surface layer and upper part of the subsoil and medium acid to neutral in the lower part of the subsoil and in the substratum.

Many areas of this soil are used for hay, corn, or pasture. Some scattered areas are used for community development, and a few areas are wooded.

The slow permeability of the substratum limits this soil for community development; onsite septic systems require special design and installation to prevent effluent from seeping to the surface. Slopes of excavations are unstable when wet, and the soil erodes readily during construction. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control this erosion.

This soil is well suited to cultivated crops and trees. Minimum tillage, stripcropping, and the use of cover crops help to control a moderate erosion hazard in cultivated areas. Machine planting is practical in areas used for trees.

The capability subclass is IIe.

SnC—Stockbridge loam, 8 to 15 percent slopes. This sloping, well drained soil is on drumlins and hills. The areas are commonly oblong and mostly range from 3 to 40 acres.

Typically, this soil has a surface layer of dark brown loam 8 inches thick. The subsoil is yellowish brown loam 16 inches thick. The substratum is firm, dark grayish brown, mottled loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Nellis and Paxton soils and moderately well drained Georgia and Woodbridge soils. Also included are a few areas of soils with very slow permeability in the substratum. Included areas make up about 15 percent of this map unit.

The permeability of this Stockbridge soil is moderate in the surface layer and subsoil and slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up fairly slowly in the spring. It is strongly acid to slightly acid in the surface layer and upper part of the subsoil and medium acid to neutral in the lower part of the subsoil and in the substratum.

Most areas of this soil are used for hay, corn, or pasture. Some small scattered areas are used for community development, and a few areas are wooded.

The slow permeability of the substratum and slope limit this soil for community development; onsite septic systems require special design and installation to prevent effluent from seeping to the surface. Slopes of excavations are unstable when wet, and the soil erodes readily during construction. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control this erosion.

This soil is suitable for cultivated crops and well suited to trees. Minimum tillage, stripcropping, and the use of cover crops help to control a severe erosion hazard in cultivated areas. Machine planting is practical in areas used for trees.

The capability subclass is IIIe.

SnD—Stockbridge loam, 15 to 25 percent slopes. This moderately steep, well drained soil is on drumlins and hills. The areas are commonly oblong and mostly range from 3 to 50 acres.

Typically, this soil has a surface layer of dark brown loam 8 inches thick. The subsoil is yellowish brown loam 16 inches thick. The substratum is firm, dark grayish brown, mottled loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton, Nellis, and Paxton soils and moderately well drained Georgia and Woodbridge soils. Also included are a few areas of soils with very slow permeability in the substratum. Included areas make up about 15 percent of this map unit.

The permeability of this Stockbridge soil is moderate in the surface layer and subsoil and slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil dries out and warms up fairly slowly in spring. It is strongly acid to slightly acid in the surface layer and upper part of the subsoil and medium acid to neutral in the lower part of the subsoil and in the substratum.

Most areas of this soil are used for hay and pasture. A few areas are wooded, and a few scattered areas are used for community development.

The slow permeability of the substratum and slope limit this soil for community development; onsite septic systems require special design and installation to prevent effluent from seeping to the surface. Slopes of excavations are unstable when wet, and the soil erodes readily during construction. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control this erosion.

Slope and a severe erosion hazard make this soil poorly suited to cultivated crops. The soil is well suited to trees, and machine planting is practical in areas used for woodland.

The capability subclass is IVe.

SpC—Stockbridge very stony loam, 8 to 15 percent slopes. This sloping, well drained soil is on drumlins and hills. Stones and boulders cover 1 to 5 percent of the surface. The areas are oblong and mostly range from 3 to 40 acres.

Typically, this soil has a surface layer of dark brown loam 5 inches thick. The subsoil is yellowish brown loam 16 inches thick. The substratum is firm, dark grayish brown, mottled loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton, Nellis, and Paxton soils and moderately well drained Georgia and Woodbridge soils. Also included are areas of soils with very slow permeability in the substratum and a few areas where stones and boulders cover more than 5 percent of the surface. Included areas make up about 15 percent of this map unit.

The permeability of this soil is moderate in the surface layer and subsoil and slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil is strongly acid to slightly acid in the surface layer and upper part of the subsoil and medium acid to neutral in the lower part of the subsoil and in the substratum. The hazard of erosion is severe.

Most areas of this soil are wooded. A few scattered areas are used for community development, and a few are used for pasture.

Slow permeability in the substratum, slope, and the stones and boulders on the surface limit this soil for community development. Onsite septic systems require special design and installation to prevent effluent from seeping to the surface. Slopes of excavations are unstable when wet, and the soil erodes readily during construction. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control this erosion.

The stones and boulders on the surface and the slope make the use of farming equipment impractical and make the soil unsuitable for cultivated crops. The stones and boulders also hinder machine planting, but the soil is well suited to trees, and machine planting is practical in most areas.

The capability subclass is VIs.

SpD—Stockbridge very stony loam, 15 to 25 percent slopes. This moderately steep, well drained soil is on drumlins and hills. Stones and boulders cover 1 to 5 percent of the surface. The areas are oblong and mostly range from 3 to 50 acres.

Typically, this soil has a surface layer of dark brown loam 5 inches thick. The subsoil is yellowish brown loam 16 inches thick. The substratum is firm, dark grayish brown, mottled loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton, Nellis, and Paxton soils and moderately well drained Georgia and Woodbridge soils. Also included are a few areas of soils with very slow permeability in the substratum and a few areas where stones and boulders cover more than 5 percent of the surface. Included areas make up about 15 percent of this map unit.

The permeability of this Stockbridge soil is moderate in the surface layer and subsoil and slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil is strongly acid to slightly acid in the surface layer and upper part of the subsoil and medium acid to neutral in the lower part of the subsoil and in the substratum.

Most areas of this soil are wooded. A few areas are used for pasture, and a few small areas are used for community development.

Slow permeability in the substratum, slope, and the stones and boulders on the surface limit this soil for community development. Onsite septic systems require special design and installation to prevent effluent from seeping to the surface. Slopes of excavations are unstable when wet, and the soil erodes readily during construction. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control this erosion.

The stones and boulders on the surface and the slope make the use of farming equipment impractical and make the soil unsuitable for cultivated crops. The soil is well suited to trees, but the slope and stones and boulders restrict machine planting.

The capability subclass is VIs.

SvB—Sutton fine sandy loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is in slight depressions and on the sides of hills and ridges. The areas are irregular in shape and mostly range from 4 to 40 acres.

Typically, this soil has a surface layer of dark grayish brown fine sandy loam 8 inches thick. The subsoil and substratum are yellowish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton and Paxton soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Also included are a few areas of soils with slopes of less than 3 percent or more than 8 percent. Included areas make up about 15 percent of this map unit.

This Sutton soil has a seasonal high water table at a depth of about 20 inches from late fall until midspring. The permeability of the soil is moderate or moderately rapid. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up slowly in the spring. It is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum.

Many areas of this soil are used for community development. A few small areas are used for pasture, hay, corn, and vegetables, and a few are wooded.

The seasonal high water table limits community development and makes special design and installation of onsite septic systems necessary. Footing drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops and trees. Artificial drainage is needed in most farmed areas. Minimum tillage and the use of cover crops help to control a moderate erosion hazard in cultivated areas. Machine planting is practical in areas used for trees.

The capability subclass is IIw.

SwB—Sutton very stony fine sandy loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is in slight depressions and on the sides of hills and ridges. Stones and boulders cover 1 to 5 percent of the surface. The areas are irregularly shaped and mostly range from 4 to 30 acres.

Typically, this soil has a surface layer of dark grayish brown fine sandy loam 8 inches thick. The subsoil and substratum are yellowish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton and Paxton soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Also included are a few areas of nearly level soils. Included areas make up about 15 percent of this map unit.

This Sutton soil has a seasonal high water table at a depth of about 20 inches from late fall until midspring. The permeability of the soil is moderate or moderately rapid. Runoff is medium, and available water capacity is moderate. The soil is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum. The hazard of erosion is moderate.

Many areas of this soil are wooded. Some scattered areas are used for community development, and a few small areas are used for hay or pasture.

The seasonal high water table and the stones and boulders on the surface limit community development. Onsite septic systems require special design and installation because of the seasonal high water table. Footing drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface limit the use of farming equipment and make the soil generally unsuitable for cultivated crops. The stones and boulders also limit machine planting for woodland, but the soil is well suited to trees, and machine planting is practical in most areas.

The capability subclass is VIs.

SxB—Sutton extremely stony fine sandy loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is in slight depressions and on the sides of hills and ridges. Stones and boulders cover 5 to 35 percent of the surface. The areas are irregularly shaped and mostly range from 4 to 30 acres.

Typically, this soil has a surface layer of dark grayish brown fine sandy loam 6 inches thick. The subsoil and substratum are yellowish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Charlton and Paxton soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Also included are a few areas with slopes of more than 8 percent or less than 3 percent. Included areas make up about 15 percent of this map unit.

This Sutton soil has a seasonal high water table at a depth of about 20 inches from late fall until midspring. The permeability of the soil is moderate or moderately rapid. Runoff is medium, and available water capacity is moderate. The soil is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum.

Most areas of this soil are wooded. Some scattered areas are used for community development, and a few small areas are in pasture.

The seasonal high water table and the stones and boulders on the surface limit community development. Onsite septic systems require special design and installation because of the seasonal high water table. Footing drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation

basins and diversions help to control erosion during construction.

The stones and boulders on the surface make the use of farming equipment impractical and make the soil generally unsuitable for cultivated crops. The soil is well suited to trees, but the stones and boulders make machine planting impractical.

The capability subclass is VIIs.

UD—Udorthents, smoothed. This unit consists of areas that have been altered by cutting or filling. The areas are commonly rectangular and mostly range from 5 to 100 acres. Slopes are mainly 0 to 25 percent. The material in these areas is mostly loamy, and in the filled areas it is more than 20 inches thick. Some of the filled areas are on flood plains, in tidal marshes, and on areas of poorly drained and very poorly drained soils.

Included with this unit in mapping are small areas of soils that have not been cut or filled. Also included are a few larger urbanized areas and a few small areas containing material such as logs, tree stumps, concrete, and industrial wastes. A few areas have exposed bedrock. Included areas make up about 30 percent of this map unit.

The properties and characteristics of this unit are variable, and the unit requires onsite investigation and evaluation for most uses.

This unit is not assigned to a capability subclass.

Ur—Urban land. This unit consists of areas where urban structures cover more than 85 percent of the surface. Examples of such structures are roads, parking lots, shopping and business centers, and industrial parks. Most areas are in the towns of Bridgeport, Danbury, Fairfield, Norwalk, Shelton, Stamford, and Stratford. The areas are commonly rectangular and range from 5 to 500 acres. Slopes range from 0 to 8 percent but are dominantly less than 5 percent.

Included with this unit in mapping are small areas of Udorthents and areas of excessively drained Hinckley soils; somewhat excessively drained Hollis soils; well drained Agawam, Charlton, and Paxton soils; and moderately well drained Ninigret and Sutton soils. Included areas make up about 15 percent of this map unit.

This unit requires onsite investigation and evaluation for most uses.

The unit is not assigned to a capability subclass.

Wd—Walpole fine sandy loam. This nearly level, poorly drained soil is in low areas on plains and terraces. The areas are irregularly shaped and mostly range from 3 to 20 acres. Slopes are 0 to 3 percent.

Typically, this soil has a surface layer of black fine sandy loam 6 inches thick. The subsoil is grayish brown and is 14 inches thick. The upper 7 inches is mottled fine sandy loam, and the lower 7 inches is mottled gravelly sandy loam. The substratum is brown gravelly loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of moderately well drained Ninigret soils, poorly drained Raypol soils, and very poorly drained Scarboro soils. Also included are a few areas of soils that are less acid than this Walpole soil. Included areas make up about 15 percent of this map unit.

This Walpole soil has a seasonal high water table at a depth of about 6 inches from fall until spring. The permeability of the soil is moderately rapid in the surface layer and subsoil and rapid or very rapid in the substratum. Available water capacity is moderate, and runoff is slow. The soil is very strongly acid to medium acid.

Most areas of this soil are wooded. The areas that have been cleared are used mostly for hay, pasture, corn, and vegetables. A few are used for community development.

The high water table limits this soil for community development, especially for onsite septic systems. Slopes of excavations in the soil are unstable, and some areas do not have suitable drainage outlets.

The soil is suitable for cultivated crops. Providing drainage is the main concern, but drainage is difficult in some areas because of a lack of suitable outlets. The soil is poorly suited to trees. The seasonal high water table restricts root growth and causes the uprooting of many trees during windy periods.

The capability subclass is IIIw.

We—Westbrook mucky peat. This nearly level, very poorly drained soil is in tidal marshes and estuaries that are subject to tidal inundation (fig. 11). The areas are irregularly shaped and mostly range from 3 to 30 acres. Slopes are less than 1 percent.

Typically, this soil has a surface layer of dark olive gray mucky peat 12 inches thick. The subsurface layer is olive gray mucky peat 20 inches thick. The substratum is dark gray silt loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained Raypol and Walpole soils and very poorly drained Saco and Scarboro soils. Also included are areas of Udorthents and areas of other Westbrook soils that have a lower salt content than this Westbrook soil. Included areas make up about 10 percent of this map unit.

The permeability of this Westbrook soil is moderate to rapid in the surface and subsurface layers and moderate in the substratum. Available water capacity is high. Runoff is very slow, and water is ponded on the surface of some areas. The soil is very strongly acid to neutral in its natural state and extremely acid when drained.

Most areas of this soil provide saltwater habitat for fish, shellfish, and waterfowl. A few areas have been filled and used for community and industrial development.

The tidal flooding, the high water table, a high salt content, and instability of the surface and subsurface layers make the soil unsuitable for most uses other than

Figure 11.—An area of Westbrook mucky peat.

wetland wildlife habitat. Extensive filling is needed in areas used for community development.

The capability subclass is VIIIw.

Wh—Westbrook mucky peat, low salt. This very poorly drained soil is in tidal marshes and estuaries. Though the areas have been diked from tidal flooding, most are subject to inundation by storm tides. The areas are irregularly shaped and mostly range from 3 to 30 acres. Slopes are less than 1 percent.

Typically, this soil has a surface layer of dark reddish brown mucky peat 8 inches thick. The subsurface layer is dark grayish brown and black mucky peat 22 inches thick. The substratum is dark gray silt loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained Raypol and Walpole soils and very poorly drained Saco and Scarboro soils. Also included are areas of Westbrook soils that have a higher salt content than this Westbrook soil and small areas of Udorthents. A few areas of this unit have several inches of harbor dredgings on the surface. Included areas make up about 10 percent of this map unit.

The permeability of this Westbrook soil is moderate to rapid in the surface and subsurface layers and moderate in the substratum. Available water capacity is high. Runoff is very slow, and water is ponded on the surface of some areas. The soil is very strongly acid to neutral in its natural state and extremely acid when drained.

Tidal flooding, the high water table, and the instability of the surface and subsurface layers make the soil unsuitable for most uses. A few small areas of this soil have been filled, however, and are used for community development.

The capability subclass is VIIIw.

WxA—Woodbridge fine sandy loam, 0 to 3 percent slopes. This nearly level, moderately well drained soil is on drumlins and hills. The areas are oblong and mostly range from 4 to 50 acres.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 8 inches thick. The subsoil is yellowish brown fine sandy loam 24 inches thick that is mottled in the lower part. The substratum is firm, grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Georgia and Sutton soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of this map unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Runoff is slow, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum.

Many scattered areas of this soil are used for community development. A few areas are used for pasture, hay, corn, and vegetables, and a few are wooded.

The slow or very slow permeability of the substratum and the seasonal high water table limit the soil for community development, especially for onsite septic systems. Slopes of excavations in this soil are unstable when saturated, and lawns are soggy from autumn to spring. Footing drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops, but drainage is needed. Minimum tillage and the use of cover crops help to control erosion in cultivated areas. The soil is well suited to trees, and machine planting is practical.

The capability subclass is IIw.

WxB—Woodbridge fine sandy loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is on drumlins and hills. The areas are oblong and mostly range from 4 to 80 acres.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 8 inches thick. The

subsoil is yellowish brown fine sandy loam 24 inches thick that is mottled in the lower part. The substratum is firm, grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Georgia and Sutton soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of this map unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Runoff is medium, and available water capacity is moderate. The soil dries out and warms up slowly in spring. It is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum.

Most areas of this soil are used for community development. A few areas are used for pasture, hay, corn, or vegetables, and a few are wooded.

The slow or very slow permeability of the substratum and the seasonal high water table limit this soil for community development, especially for onsite septic systems. Slopes of excavations in the soil are unstable when wet, and lawns are often soggy from autumn to spring. Foundation drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

This soil is well suited to cultivated crops, but drainage is needed. Minimum tillage, stripcropping, and using cover crops help to control a moderate erosion hazard in cultivated areas. This soil is well suited to trees, and machine planting is practical.

The capability subclass is IIw.

WxC—Woodbridge fine sandy loam, 8 to 15 percent slopes. This sloping, moderately well drained soil is on drumlins and hills. The areas are long and narrow and mostly range from 4 to 60 acres.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 8 inches thick. The subsoil is yellowish brown fine sandy loam 24 inches thick that is mottled in the lower part. The substratum is firm and brittle, grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Georgia soils, and poorly drained Ridgebury soils. Included areas make up about 10 percent of this map unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Runoff is rapid, and available water capacity is moderate. This soil dries out and warms up slowly in spring. It is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum.

Most areas of this soil are used for community development. A few areas are wooded, and a few scattered areas are used for pasture, hay, corn, and vegetables.

Slope, the slow or very slow permeability of the substratum, and the seasonal high water table limit this soil for community development, especially for onsite septic systems. Slopes of excavations are unstable when wet, and lawns are commonly soggy from autumn to spring. Foundation drains are generally needed. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

This soil is suitable for cultivated crops. Drainage is generally needed. Minimum tillage, stripcropping, and using cover crops help to control a severe erosion hazard in cultivated areas. The soil is suited to trees, and machine planting is practical.

The capability subclass is IIIe.

WyB—Woodbridge very stony fine sandy loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is on drumlins and hills. Stones and boulders cover 1 to 5 percent of the surface. The areas are irregular in shape and mostly range from 4 to 50 acres.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 6 inches thick. The subsoil is yellowish brown fine sandy loam 24 inches thick that is mottled in the lower part. The substratum is firm, grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Georgia and Sutton soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of this map unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Runoff is medium, and available water capacity is moderate. The soil is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum. The hazard of erosion is moderate.

Many areas of this soil are wooded. Some scattered areas are used for community development, and a few areas are used for pasture.

The slow or very slow permeability of the substratum and the seasonal high water table limit this soil for community development, especially for onsite septic systems. Slopes of excavations are unstable when wet, and lawns are soggy from autumn to spring. Foundation drains help prevent wet basements. Quickly establishing

plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface make the use of farming equipment impractical and make the soil generally unsuitable for cultivated crops. Although the stones and boulders hinder machine planting, the soil is well suited to trees, and machine planting is practical in most places.

The capability subclass is VIs.

WyC—Woodbridge very stony fine sandy loam, 8 to 15 percent slopes. This sloping, moderately well drained soil is on drumlins and hills. Stones and boulders cover 1 to 5 percent of the surface. The areas are irregularly shaped and mostly range from 4 to 50 acres.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 6 inches thick. The subsoil is yellowish brown fine sandy loam 24 inches thick that is mottled in the lower part. The substratum is firm and brittle, grayish brown, mottled fine sandy loam.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Georgia soils, and poorly drained Ridgebury soils. Included areas make up about 10 percent of this map unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Runoff is rapid, and available water capacity is moderate. The soil is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum. The hazard of erosion is severe.

Most areas of this soil are wooded. Some scattered areas are used for community development, and a few areas are used for pasture.

Slope, the slow or very slow permeability of the substratum, and the seasonal high water table limit this soil for community development, especially for onsite septic systems. Slopes of excavations in the soil are unstable when wet, and lawns are soggy from autumn to spring. Foundation drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface make the use of farming equipment impractical and, along with slope and wetness, make the soil unsuitable for cultivated crops. Although the stones and boulders limit machine planting, the soil is well suited to trees, and machine planting is practical in most areas.

The capability subclass is VIs.

WzB—Woodbridge extremely stony fine sandy loam, 3 to 15 percent slopes. This gently sloping and sloping, moderately well drained soil is on drumlins and hills. Stones and boulders cover 5 to 35 percent of the surface. The areas are irregular in shape and mostly range from 4 to 80 acres.

Typically, this soil has a surface layer of very dark grayish brown fine sandy loam 6 inches thick. The subsoil is yellowish brown fine sandy loam 24 inches thick that is mottled in the lower part. The substratum is firm and brittle, grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton and Stockbridge soils, moderately well drained Georgia and Sutton soils, and poorly drained Ridgebury soils. Included areas make up about 15 percent of this map unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall until late spring. The permeability of the soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Runoff is medium to rapid, and available water capacity is moderate. The soil is very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum. The hazard of erosion is severe.

Most areas of this soil are wooded. A few areas are used for community development, and a few are used for pasture.

The slow or very slow permeability of the substratum, the seasonal high water table, and stones and boulders on the surface limit the soil for community development. Onsite septic systems require special design and installation because of the high water table and slow permeability. Slopes of excavations are unstable when wet, and lawns are soggy from autumn to spring. The stones and boulders need to be removed for landscaping. Foundation drains help prevent wet basements. Quickly establishing plant cover, mulching, and using siltation basins and diversions help to control erosion and sedimentation during construction.

The stones and boulders on the surface make the use of farming equipment impractical and, along with slope and wetness, make the soil generally unsuitable for cultivated crops. The soil is suitable for trees, but the stones and boulders make machine planting impractical.

The capability subclass is VIIs.

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; for 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

General management needed for crops and pasture are in the descriptions of the map units. In this section 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.

yields per acre

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

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils.

land capability classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other

characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit (*4*). Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

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."

woodland management and productivity

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *d*, restricted root depth; *s*, sandy texture; and *r*, steep slopes. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: x, w, d, s, and r.

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

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *windthrow hazard* are based on the soil characteristics that affect the development of tree roots and the ability of the soil to hold trees firmly. A rating of *slight* indicates that a few trees may be blown down by normal winds; *moderate*, that some trees will be blown down during periods of excessive soil wetness and strong winds; and *severe,* that many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is

the average height, in feet, that dominant and codominant trees of a given species attain in 50 years. The site index applies to fully stocked, even-aged, unmanaged stands. Site index is listed for trees that woodland managers generally favor for production; they are the most important tree species in regard to growth rate, quality, value, and marketability. Other common tree species are also listed regardless of potential value or growth.

Trees to plant are those that are suited to the soils and to commercial wood production.

recreation

The soils of the survey area are rated in table 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 hardpan should be considered.

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

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

wildlife habitat

Timothy N. Dodge, biologist, Soil Conservation Service, assisted in preparing this section.

In Fairfield County, as in many other areas, the pressures of urbanization are reducing the quality and quantity of available wildlife habitat and are causing a shift in population diversity toward smaller species, primarily songbirds.

Populations of songbirds and small animals, including cottontail rabbits, raccoon, skunk, opposum, chipmunks, and squirrels, are generally high. Parts of the county provide habitat for white-tail deer, ruffed grouse, woodchuck, bobwhite quail, fox, owls, and hawks.

Waterfowl, including ducks, geese, and shore birds, are common on the many ponds, lakes, and streams in the county. In addition, the waters of Long Island Sound and its environs provide wintering and nesting areas for many of these birds.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 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 used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn and wheat.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, timothy, bromegrass, clover, and alfalfa.

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

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, and rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

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

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, raccoon, 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, herons, shore birds, muskrat, mink, and beaver.

engineering

Whitney T. Ferguson, Jr., state conservation engineer, Soil Conservation Service, Storrs, Connecticut, assisted in preparing this section.

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, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil

reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

sanitary facilities

Table 11 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site 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 (*3*). Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 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 or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

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 or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium 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, a cemented pan, 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 toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

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

water management

Table 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 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 or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

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 or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

soil properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

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

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

engineering index properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent.

Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

physical and chemical properties

Table 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.

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.

soil and water features

Table 16 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt and water in swamps and marshes are not considered flooding.

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

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate floodprone 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, artesian, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 16.

An apparent water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An artesian water table is under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A perched water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping.

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

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

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

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

classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*6*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 17, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Inceptisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquept (*Aqu*, meaning water, plus *ept*, from Inceptisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplaquepts (*Hapl*, meaning minimal horizonation, plus *aquept*, the suborder of the Inceptisols that have an aquic moisture regime).

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 *Aeric* identifies the subgroup that is thought to have a moisture regime not quite as wet as is typical for the great group. An example is Aeric Haplaquepts.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, mixed, acid, mesic Aeric Haplaquepts.

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.

soil series and morphology

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

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*5*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*6*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

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

Adrian series

The Adrian series consists of very poorly drained soils that formed in organic material over sand and gravel derived mainly from gneiss and schist. The soils are in depressions and along slow-moving streams. Slopes are less than 1 percent.

Adrian soils are on the landscape adjacent to poorly drained Leicester, Raypol, Ridgebury, and Walpole soils and very poorly drained Carlisle, Saco, Scarboro, and Whitman soils. Agawam, Ninigret, and Hinckley soils are on nearby terraces. The Adrian soils formed in a thicker layer of organic material than the Saco, Scarboro, or

Whitman soils and in a thinner layer of organic material than the Carlisle soils.

Typical pedon of Adrian muck, in the town of Trumbull, 100 feet west of the cul-de-sac of Orleans Drive:

Oa1—0 to 3 inches, very dark brown (10YR 2/2) muck (sapric material); 30 percent fibers, 5 percent rubbed; weak fine granular structure; friable; many fine and medium roots; herbaceous and woody fibers; strongly acid; clear wavy boundary.

Oa2—3 to 16 inches, very dark gray (10YR 3/1) muck (sapric material); 15 percent fibers, 5 percent rubbed; moderate medium granular structure; friable; many fine roots; herbaceous and woody fibers; medium acid; clear wavy boundary.

Oa3—16 to 24 inches, black (10YR 2/1) muck (sapric material); 10 percent fibers, 5 percent rubbed; massive; friable; few fine roots; herbaceous and woody fibers; medium acid; clear wavy boundary.

IIC—24 to 60 inches, gray (5Y 5/1) loamy sand; few fine distinct strong brown (7.5YR 5/6) mottles; single grain; loose; 15 percent coarse fragments; medium acid.

The organic material is 16 to 51 inches thick. A few pedons have woody fragments 1/8 inch to 6 inches in diameter. Coarse fragments make up 5 to 35 percent of the IIC horizon. The soil is strongly acid to neutral in the organic layers and medium acid to neutral in the IIC horizon.

The surface layer has neutral colors or hue of 10YR, value of 2, and chroma of 0 to 2.

The subsurface layer has neutral colors or hue of 5YR to 10YR, value of 2 or 3, and chroma of 0 to 3. The layer has granular or thin to thick platy structure, or it is massive.

The IIC horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 1 or 2. It is loamy sand, fine sand, sand, or their gravelly analogues.

Agawam series

The Agawam series consists of well drained soils that formed in a loamy mantle over stratified sand and gravel derived mainly from gneiss and schist. Agawam soils are on outwash plains and terraces in stream valleys. Slopes range from 0 to 15 percent but are dominantly 3 to 8 percent.

Agawam soils are on the landscape with well drained Haven soils, excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, moderately well drained Ninigret soils, poorly drained Raypol soils, and very poorly drained Scarboro soils. Agawam soils have a coarser textured solum than Haven soils.

Typical pedon of Agawam fine sandy loam, 3 to 8 percent slopes, in the town of Greenwich, on the E. Thompson Boy Scout Reservation, 600 feet east of the Merritt Parkway and 20 feet north of a woods road:

O2—2 inches to 0, very dark brown (10YR 2/2) partially decomposed leaf litter.

Ap—0 to 9 inches, dark brown (10YR 3/3) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 5 percent coarse fragments; strongly acid; clear wavy boundary.

B21—9 to 19 inches, strong brown (7.5YR 5/6) fine sandy loam; massive; friable; common fine and medium roots; 5 percent coarse fragments; strongly acid; clear wavy boundary.

B22—19 to 29 inches, yellowish brown (10YR 5/6) fine sandy loam; massive; friable; few fine roots; 5 percent coarse fragments; strongly acid; gradual wavy boundary.

IIC1—29 to 35 inches, light yellowish brown (2.5Y 6/4) sand; single grain; loose; 15 percent coarse fragments; medium acid; gradual wavy boundary.

IIC2—35 to 60 inches, pale olive (5Y 6/3) sand; single grain; loose; 15 percent coarse fragments; medium acid.

The solum is 15 to 35 inches thick. Coarse fragments make up 0 to 20 percent of the solum, 0 to 30 percent of the IIC horizon above a depth of 40 inches, and 0 to 50 percent of the IIC horizon below 40 inches. The soil is very strongly acid to slightly acid.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The B horizon has hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8. It is fine sandy loam or very fine sandy loam in the upper part and fine sandy loam in the lower part. Some pedons have a B3 horizon of sandy loam up to 5 inches thick.

The IIC horizon has hue of 10YR to 5Y, value of 3 to 7, and chroma of 1 to 4. It is loamy fine sand, loamy sand, fine sand, sand, or their gravelly analogues.

Carlisle series

The Carlisle series consists of very poorly drained soils that formed in deep sapric organic material. Carlisle soils are in depressions and along slow-moving streams on glacial till plains and outwash plains and terraces. Slopes are less than 1 percent.

Carlisle soils are on the landscape adjacent to very poorly drained Adrian, Saco, Scarboro, and Whitman soils and poorly drained Leicester, Raypol, and Walpole soils. The Carlisle soils formed in a thicker layer of organic material than the Adrian, Scarboro, or Whitman soils.

Typical pedon of Carlisle muck, in the town of Newtown, 1.2 miles southwest of the junction of Connecticut Routes 302 and 25, and 300 feet northwest of Connecticut Route 302:

Oa1—0 to 3 inches, black (10YR 2/1) muck (sapric material); 30 percent fiber, 5 percent rubbed; weak medium granular structure; friable; mostly

herbaceous fibers; many fine and medium roots; slightly acid; clear smooth boundary.
Oa2—3 to 6 inches, black (10YR 2/1) muck (sapric material); 25 percent fiber, 5 percent rubbed; weak medium granular structure; friable; mostly herbaceous fibers; many fine roots; medium acid; clear smooth boundary.
Oa3—6 to 16 inches, black (10YR 2/1) muck (sapric material); 10 percent fiber, 5 percent rubbed; weak coarse granular structure; friable; herbaceous fibers; common fine roots; medium acid; abrupt wavy boundary.
Oa4—16 to 25 inches, black (N 2/0) muck (sapric material); 10 percent fiber, 5 percent rubbed; weak coarse subangular blocky structure; friable; herbaceous fibers; few fine roots; slightly acid; gradual wavy boundary.
Oa5—25 to 34 inches, dark brown (7.5YR 3/2) muck (sapric material); 50 percent fiber, 15 percent rubbed; massive; friable; herbaceous fibers; slightly acid; gradual wavy boundary.
Oa6—34 to 66 inches, dark grayish brown (10YR 4/2) muck (sapric material); 25 percent fiber, 15 percent rubbed; massive; friable; mostly herbaceous fibers; neutral.

The organic material is more than 51 inches thick. A few pedons have woody fragments 1/8 inch to 10 inches in diameter. The soil is very strongly acid to neutral.

The surface layer has neutral colors or hue of 10YR, value of 2, and chroma of 0 to 2. The surface layer has weak, fine to coarse, granular or subangular blocky structure.

The subsurface layer has neutral colors or hue of 5YR to 10YR, value of 2 or 3, and chroma of 0 to 2. This layer has weak medium or coarse subangular blocky structure, or the horizon is massive. The fibers are dominantly herbaceous, with up to 15 percent woody fibers.

The bottom layer has neutral colors or hue of 5YR to 10YR, value of 2 to 4, and chroma of 0 to 2. This layer is massive. Some pedons have layers of hemic material up to 10 inches thick.

Charlton series

The Charlton series consists of well drained and nonstony to extremely stony soils that formed in loamy glacial till derived mainly from gneiss and schist. Charlton soils are on hills and ridges of glacial till uplands. Slopes range from 3 to 45 percent but are dominantly 3 to 15 percent.

Charlton soils are on the landscape with somewhat excessively drained Hollis soils, well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Leicester and Ridgebury soils. Charlton soils have a more friable C horizon than Paxton soils.

Typical pedon of Charlton fine sandy loam, 3 to 8 percent slopes, in the town of Redding, 1,300 feet northwest of the intersection of Umpawaug Road and Seventy Acres Road:

O2—1 inch to 0, partially decomposed hardwood leaf litter.
A1—0 to 6 inches, very dark brown (10YR 2/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 5 percent rock fragments; strongly acid; clear wavy boundary.
B21—6 to 16 inches, strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 15 percent rock fragments; strongly acid; gradual wavy boundary.
B22—16 to 29 inches, yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; 15 percent rock fragments; strongly acid; gradual wavy boundary.
C—29 to 60 inches, light olive brown (2.5Y 5/4) gravelly sandy loam; massive; friable; 20 percent rock fragments; medium acid.

The solum is 20 to 36 inches thick. Rock fragments make up 5 to 35 percent of the solum and 5 to 65 percent of the C horizon. The soil is very strongly acid to medium acid.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 3. It has weak or moderate, medium or fine granular structure and is very friable or friable.

The upper part of the B horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6, and the lower part has hue of 10YR or 2.5Y and value and chroma of 4 to 6. The B horizon is fine sandy loam, sandy loam, or their gravelly analogues. It has weak medium subangular blocky structure, or the horizon is massive. It is friable or very friable.

The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. It is sandy loam, fine sandy loam, or their gravelly analogues. It is very friable or friable and many places have firm lenses.

Farmington series

The Farmington series consists of somewhat excessively drained soils that formed in a mantle of glacial till derived mainly from limestone, gneiss, and schist. Farmington soils are on hills and side slopes of bedrock-controlled uplands. Slopes range from 3 to 35 percent but are dominantly 3 to 15 percent. The Farmington soils in this survey area are a taxadjunct because the B horizon is redder and coarser textured than that described in the range for the Farmington series.

Farmington soils are on the landscape with somewhat excessively drained Hollis soils; well drained Charlton, Nellis, and Stockbridge soils; and moderately well

drained Georgia soils. Farmington soils are more alkaline than Hollis soils.

Typical pedon of Farmington fine sandy loam, in an area of Nellis-Farmington fine sandy loams, very rocky, 3 to 15 percent slopes, in the town of Sherman, 1,300 feet north of Taber Road and 1,100 feet west of Connecticut Route 39:

Ap—0 to 10 inches, dark brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 5 percent rock fragments; slightly acid; abrupt smooth boundary.
B2—10 to 16 inches, yellowish red (5YR 4/6) sandy loam; weak medium subangular blocky structure; friable; few fine roots; 5 percent rock fragments; neutral; abrupt wavy boundary.
R—16 inches, weathered, interbedded limestone and micaceous schist bedrock.

The solum thickness and the depth to bedrock are 10 to 20 inches. Rock fragments make up 5 to 35 percent of the solum. The soil is strongly acid to slightly acid in the surface layer and medium acid to mildly alkaline in the subsoil.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. It is fine sandy loam, very fine sandy loam, or loam.

The B horizon has hue of 5YR to 10YR, value of 4 or 5, and chroma of 2 to 6. It is fine sandy loam, very fine sandy loam, or sandy loam. The horizon is friable or very friable.

Georgia series

The Georgia series consists of moderately well drained, nonstony to very stony soils that formed in loamy glacial till derived from limestone, shale, and schist. Georgia soils are on the tops and side slopes of drumlins. Slopes range from 0 to 15 percent but are dominantly 3 to 8 percent.

Georgia soils are on the landscape with somewhat excessively drained Farmington soils, well drained Nellis and Stockbridge soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Georgia soils are more alkaline than Woodbridge soils.

Typical pedon of Georgia silt loam, 3 to 8 percent slopes, in the town of Ridgefield, 1,600 feet west of the intersection of George Washington Highway and North Ridgebury Road:

Ap—0 to 8 inches, very dark grayish brown (10YR 3/2) silt loam; weak medium granular structure; friable; common fine and medium roots; 5 percent rock fragments; strongly acid; clear smooth boundary.
B21—8 to 14 inches, yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable, slightly sticky; few fine and medium roots; 5 percent rock fragments; strongly acid; gradual wavy boundary.
B22—14 to 24 inches, olive brown (2.5Y 4/4) loam; common medium distinct light olive gray (5Y 6/2) and strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm, slightly sticky; few fine roots; 5 percent rock fragments; medium acid; gradual wavy boundary.
C—24 to 60 inches, dark grayish brown (2.5Y 4/2) fine sandy loam; common medium distinct strong brown (7.5YR 5/6) and olive gray (5Y 5/2) mottles; moderate thick platy structure; firm, slightly sticky; 15 percent rock fragments; slightly acid.

The solum is 18 to 32 inches thick. Rock fragments make up 0 to 15 percent of the solum and 5 to 35 percent of the C horizon. The soil is strongly acid to neutral in the upper part of the solum and medium acid to neutral in the lower part of the solum and in the substratum.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. It is silt loam or loam and is friable or very friable.

The upper part of the B horizon has hue of 10YR, value of 4 or 5, and chroma of 4 to 6. The lower part has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 or 4. The B horizon is loam or silt loam. It has weak or moderate medium subangular blocky structure.

The C horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4. It is loam, fine sandy loam, silt loam, or their gravelly analogues. It has weak or moderate, medium or thick, platy structure, or it is massive.

Haven series

The Haven series consists of well drained soils that formed in a loamy mantle over stratified sand and gravel derived mainly from gneiss and schist. Haven soils are on outwash plains and terraces in stream valleys. Slopes range from 0 to 15 percent but are dominantly 3 to 8 percent.

Haven soils are on the landscape with excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, well drained Agawam soils, moderately well drained Ninigret soils, and poorly drained Raypol soils. Haven soils have a finer textured solum than Agawam soils.

Typical pedon of Haven silt loam, 0 to 3 percent slopes, in the town of Fairfield, 300 feet south of Stillson Road and 800 feet east of Mill Plain Road:

Ap—0 to 7 inches, very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; very friable; many fine roots; 5 percent coarse fragments; very strongly acid; clear smooth boundary.
B21—7 to 14 inches, dark brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable;

common fine roots; 5 percent coarse fragments; very strongly acid; gradual wavy boundary.
B22—14 to 20 inches, dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; 5 percent coarse fragments; very strongly acid; gradual wavy boundary.
B3—20 to 24 inches, strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; 10 percent coarse fragments; strongly acid; abrupt smooth boundary.
IIC—24 to 60 inches, yellowish brown (10YR 5/4) gravelly sand; single grain; loose; 30 percent coarse fragments; medium acid.

The solum is 18 to 36 inches thick. Coarse fragments make up 0 to 15 percent of the solum and 10 to 50 percent of the IIC horizon. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. It is silt loam or very fine sandy loam.

The B horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 8. It is silt loam, very fine sandy loam, or loam. Some pedons have a B3 horizon of fine sandy loam or sandy loam up to 5 inches thick.

The IIC horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. It is sand, loamy sand, or their gravelly analogues.

Hinckley series

The Hinckley series consists of excessively drained soils, moderately well drained Sutton soils, poorly mainly from gneiss and schist. Hinckley soils are on outwash terraces, plains, kames, and eskers in stream valleys. Slopes range from 3 to 35 percent but are dominantly 3 to 15 percent.

Hinckley soils are on the landscape with somewhat excessively drained Merrimac soils, well drained Agawam and Haven soils, moderately well drained Ninigret soils, poorly drained Raypol and Walpole soils, and very poorly drained Scarboro soils.

Typical pedon of Hinckley gravelly sandy loam, 8 to 15 percent slopes, in the town of Newtown, 0.1 mile south of Brushy Hill Road and 380 feet east of Huntington Road:

Ap—0 to 5 inches, dark brown (10YR 3/3) gravelly sandy loam; weak medium granular structure; friable; common fine roots; 20 percent coarse fragments; strongly acid; abrupt wavy boundary.
B21—5 to 9 inches, strong brown (7.5YR 5/6) gravelly sandy loam; weak medium granular structure; friable; common fine and medium roots; 20 percent coarse fragments; strongly acid; clear wavy boundary.
B22—9 to 15 inches, dark brown (7.5YR 4/4) gravelly loamy sand; single grain; very friable; common fine roots; 35 percent coarse fragments; strongly acid; gradual wavy boundary.
C1—15 to 30 inches, light olive brown (2.5Y 5/4) gravelly sand; single grain; loose; few fine roots; 40 percent coarse fragments; medium acid; clear wavy boundary.
C2—30 to 60 inches, light olive brown (2.5Y 5/4) very gravelly sand; single grain; loose; 60 percent coarse fragments; medium acid.

The solum is 12 to 30 inches thick. Coarse fragments make up 10 to 40 percent of the solum and 35 to 70 percent of the C horizon. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. It is sandy loam, loamy sand, or their gravelly analogues.

The B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8 in the upper part; and hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8 in the lower part. The B horizon is sandy loam, loamy coarse sand, or their gravelly analogues to a depth of 10 inches. Below a depth of 10 inches, the B horizon is loamy fine sand to loamy coarse sand or their gravelly analogues. The horizon has weak granular structure, or it is single grain. The horizon is loose or very friable.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 4 to 8. It is gravelly loamy fine sand to very cobbly coarse sand, and it is stratified.

Hollis series

The Hollis series consists of somewhat excessively drained, nonstony to extremely stony soils that formed in a thin mantle of loamy glacial till derived mainly from gneiss and schist. Hollis soils are on hilltops, ridgetops, and side slopes of bedrock-controlled uplands. Slopes range from 0 to 45 percent but are dominantly 15 to 45 percent.

Hollis soils are on the landscape with well drained Charlton soils, moderately well drained Sutton soils, poorly drained Leicester and Ridgebury soils, and very poorly drained Adrian, Carlisle, and Whitman soils.

Typical pedon of Hollis fine sandy loam, in an area of Charlton-Hollis fine sandy loams, very rocky, 3 to 15 percent slopes, in the town of Wilton, 0.3 mile south of the intersection of Millstone Road, on the east side of Grey Rock Road:

A1—0 to 3 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 15 percent rock fragments; very strongly acid; clear wavy boundary.
B21—3 to 14 inches, dark brown (7.5YR 4/4) gravelly fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 25 percent rock fragments; strongly acid; gradual wavy boundary.
B22—14 to 17 inches, dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky

structure; friable; common fine and medium roots; 15 percent rock fragments; strongly acid; abrupt wavy boundary.
R—17 inches, hard unweathered schist bedrock.

The solum thickness and the depth to bedrock are 10 to 20 inches. Rock fragments make up 5 to 25 percent of the solum. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 2 and 3.

The B horizon has hue of 7.5YR and 10YR, value of 4 or 5, and chroma of 4 through 8. It is fine sandy loam, sandy loam, or their gravelly analogues. The horizon has weak medium subangular blocky structure, or it is massive. Consistence is very friable or friable.

Leicester series

The Leicester series consists of poorly drained, nonstony to extremely stony soils that formed in loamy glacial till derived mainly from gneiss and schist. Leicester soils are in depressions and drainageways on uplands. Slopes range from 0 to 3 percent.

Leicester soils are on the landscape with somewhat excessively drained Hollis soils, well drained Charlton soils, moderately well drained Sutton soils, poorly drained Ridgebury soils, and very poorly drained Whitman soils. Leicester soils have a more friable C horizon than Ridgebury soils.

Typical pedon of Leicester fine sandy loam in an area of Ridgebury, Leicester, and Whitman extremely stony fine sandy loams, in the town of Redding, 600 feet south of the intersection of Seventy Acres Road and Mine Stone Road:

A1—0 to 7 inches, black (10YR 2/1) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 10 percent rock fragments; very strongly acid; clear wavy boundary.
B21—7 to 13 inches, grayish brown (2.5Y 5/2) fine sandy loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine and medium roots; 15 percent rock fragments; very strongly acid; gradual wavy boundary.
B22—13 to 19 inches, light yellowish brown (2.5Y 5/3) fine sandy loam; common medium distinct yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; 15 percent rock fragments; strongly acid; gradual wavy boundary.
B23—19 to 29 inches, light olive brown (2.5Y 5/4) gravelly fine sandy loam; many medium distinct yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; 20 percent rock fragments; strongly acid; gradual wavy boundary.
C—29 to 60 inches, olive brown (2.5Y 4/4) gravelly fine sandy loam; common medium distinct yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles; massive; friable; few firm lenses in upper 10 inches; 20 percent rock fragments; strongly acid.

The solum is 20 to 36 inches thick. Rock fragments make up 5 to 30 percent of the A horizon, 5 to 35 percent of the B horizon, and 10 to 35 percent of the C horizon. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is loam or fine sandy loam and is friable or very friable.

The B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2 in the upper part and chroma of 1 to 4 in the lower part. The B horizon has distinct or prominent mottles. The horizon is fine sandy loam, loam, sandy loam, or their gravelly analogues. The horizon has weak granular or subangular blocky structure, or it is massive.

The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 4. It has distinct or prominent mottles. The horizon is fine sandy loam, sandy loam, or their gravelly analogues. It is friable or firm.

Merrimac series

The Merrimac series consists of somewhat excessively drained soils that formed in a loamy mantle over stratified sand and gravel derived mainly from gneiss and schist. Merrimac soils are on outwash terraces and plains of stream valleys. Slopes range from 2 to 8 percent.

Merrimac soils are on the landscape with excessively drained Hinckley soils, well drained Agawam soils, moderately well drained Ninigret soils, poorly drained Raypol and Walpole soils, and very poorly drained Scarboro soils.

Typical pedon of Merrimac sandy loam, 2 to 8 percent slopes, in the town of Newtown, 0.5 mile north of the intersection of Glen Road and Walnut Tree Hill Road, and 0.1 mile east of Walnut Tree Hill Road:

Ap—0 to 9 inches, very dark grayish brown (10YR 3/2) sandy loam; weak medium granular structure; very friable; common fine roots; 5 percent coarse fragments; slightly acid; clear wavy boundary.
B21—9 to 16 inches, dark brown (7.5YR 4/4) sandy loam; weak medium granular structure; very friable; few fine roots; 5 percent coarse fragments; medium acid; gradual wavy boundary.
B22—16 to 24 inches, brown (7.5YR 5/4) sandy loam; weak medium granular structure; very friable; few fine roots; 15 percent coarse fragments; medium acid; clear wavy boundary.
IIC—24 to 60 inches, yellowish brown (10YR 5/4) gravelly sand; single grain; loose; 40 percent coarse fragments; medium acid.

The solum is 18 to 30 inches thick. Coarse fragments make up 5 to 20 percent of the A horizon and upper part of the B horizon, 5 to 30 percent of the lower part of the B horizon, and 25 to 55 percent of the IIC horizon. The total volume of coarse fragments at a depth of less than 40 inches is less than 35 percent. The soil is very strongly acid to medium acid unless limed.

The A 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 7.5YR or 10YR, value of 3 to 6, and chroma of 3 to 6. The upper part of the B horizon is fine sandy loam or sandy loam. The lower part is sandy loam, loamy sand, or their gravelly analogues. The horizon has weak medium granular structure, or it is massive or single grain.

The IIC horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 1 to 6. It is gravelly sand or very gravelly sand.

Nellis series

The Nellis series consists of well drained, nonstony to very stony soils that formed in glacial till derived mainly from limestone and schist. Nellis soils are on hills and ridges on uplands. Slopes range from 3 to 35 percent but are dominantly 3 to 15 percent.

Nellis soils are on the landscape with somewhat excessively drained Farmington and Hollis soils, well drained Charlton and Stockbridge soils, and moderately well drained Georgia soils. The Nellis soils are more alkaline than the Charlton or Stockbridge soils.

Typical pedon of Nellis fine sandy loam, 3 to 10 percent slopes, in the town of Ridgefield, 0.2 mile south of Haviland Road and 600 feet east of Limekiln Road:

Ap—0 to 8 inches, very dark grayish brown (10YR 3/2) fine sandy loam; moderate medium granular structure; friable; many fine roots; 10 percent coarse fragments; neutral; clear wavy boundary.

B21—8 to 14 inches, dark yellowish brown (10YR 3/4) fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; 10 percent coarse fragments; neutral; gradual wavy boundary.

B22—14 to 25 inches, dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; 5 percent coarse fragments; neutral; gradual wavy boundary.

B3—25 to 27 inches, dark yellowish brown (10YR 4/4) loam; massive; friable; few fine roots; 5 percent coarse fragments; mildly alkaline; calcareous; clear wavy boundary.

C—27 to 60 inches, very pale brown (10YR 7/4) sandy loam; massive; very friable; 10 percent coarse fragments; mildly alkaline; calcareous.

The solum is 16 to 36 inches thick. Coarse fragments make up 5 to 35 percent of the soil. The depth to carbonates is 20 to 40 inches. The soil is medium acid to neutral in the upper part of the solum and neutral to mildly alkaline in the lower part of the solum and in the substratum.

The A horizon has hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 2 or 3. It is fine sandy loam or silt loam. It has weak or moderate, fine or medium granular structure. The horizon is friable or very friable.

The B horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 4 to 6. It is loam, fine sandy loam, or sandy loam. It has weak or moderate, medium or coarse subangular blocky structure, or it is massive. The horizon is friable or very friable.

The C horizon has hue of 10YR or 7.5YR, value of 3 to 7, and chroma of 3 to 6. It is loamy fine sand, fine sandy loam, loam, loamy sand, or their gravelly analogues. The horizon is single grain, or it is massive. It has friable or very friable consistence.

Ninigret series

The Ninigret series consists of moderately well drained soils that formed in a loamy mantle over sand and gravel derived mainly from gneiss and schist. Ninigret soils are on outwash plains and terraces in stream valleys. Slopes range from 0 to 5 percent.

Ninigret soils are on the landscape with excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, well drained Agawam and Haven soils, poorly drained Raypol and Walpole soils, and very poorly drained Scarboro soils.

Typical pedon of Ninigret fine sandy loam, in the town of Monroe, 75 feet north of telephone lines, 320 feet north of East Village Road, and 0.3 mile west of Barn Hill Road:

Ap—0 to 10 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; very friable; common fine and few medium roots; very strongly acid; abrupt smooth boundary.

B21—10 to 15 inches, yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent coarse fragments; strongly acid; clear wavy boundary.

B22—15 to 26 inches, light olive brown (2.5Y 5/4) fine sandy loam; common medium distinct gray (5Y 6/1) and strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; 10 percent coarse fragments; medium acid; clear wavy boundary.

IIC—26 to 60 inches, light yellowish brown (2.5Y 6/4) gravelly loamy sand; common medium prominent yellowish red (5YR 5/8) mottles; single grain; loose; 20 percent coarse fragments; medium acid.

The solum is 18 to 34 inches thick. Coarse fragments make up 0 to 10 percent of the solum, 0 to 30 percent of the IIC horizon at a depth of less than 40 inches, and

0 to 60 percent of the IIC horizon at a depth of more than 40 inches. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. It is fine sandy loam or very fine sandy loam.

The upper part of the B horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6. The lower part of the B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 3 to 6. The lower part of the B horizon has distinct or prominent mottles. The B horizon is fine sandy loam or very fine sandy loam. Some pedons have a B3 horizon of sandy loam or loamy fine sand less than 5 inches thick. The B horizon has weak granular or weak subangular blocky structure, or the horizon is massive.

The IIC horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 6. It is loamy fine sand, loamy sand, sand, or their gravelly analogues. It is single grain or massive.

Paxton series

The Paxton series consists of well drained, nonstony to extremely stony soils that formed in compact loamy glacial till derived mainly from gneiss and schist. Paxton soils are on the tops and side slopes of drumlins and hills. Slopes range from 3 to 35 percent but are dominantly 3 to 8 percent.

Paxton soils are on the landscape with well drained Charlton and Stockbridge soils; moderately well drained Georgia, Sutton, and Woodbridge soils; poorly drained Leicester and Ridgebury soils; and very poorly drained Whitman soils. Paxton soils have a firmer C horizon than the Charlton soils and are more acid than the Stockbridge soils.

Typical pedon of Paxton fine sandy loam, 3 to 8 percent slopes, in the town of Redding, 160 feet east of Fire Hill Road and 800 feet south of Picketts Ridge Road:

Ap—0 to 9 inches, dark brown (10YR 3/3) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 10 percent rock fragments; strongly acid; clear wavy boundary.

B21—9 to 12 inches, dark brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 15 percent rock fragments; strongly acid; gradual wavy boundary.

B22—12 to 25 inches, dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 15 percent rock fragments; medium acid; clear wavy boundary.

B23—25 to 31 inches, light olive brown (2.5Y 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 15 percent rock fragments; medium acid; clear wavy boundary.

Cx—31 to 60 inches, grayish brown (2.5Y 5/2) gravelly sandy loam; weak thick platy structure; very firm, brittle; 30 percent rock fragments; medium acid.

The solum is 20 to 38 inches thick. Rock fragments make up 5 to 35 percent of the soil. The soil is very strongly acid to slightly acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma 2 to 4.

The upper part of the B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8. The lower part of the B horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 or 5. The B horizon is sandy loam, fine sandy loam, loam, or their gravelly analogues. Consistence is friable or very friable.

The Cx horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. It is sandy loam, fine sandy loam, loam, or their gravelly analogues. Consistence is firm or very firm and brittle.

Pootatuck series

The Pootatuck series consists of moderately well drained soils that formed in recent alluvium derived mainly from gneiss and schist. Pootatuck soils are on flood plains of small and large streams throughout the county. Slopes range from 0 to 3 percent.

Pootatuck soils are on the landscape with poorly drained Rippowam soils and very poorly drained Adrian, Carlisle, Saco, and Scarboro soils.

Typical pedon of Pootatuck fine sandy loam, in the town of Easton, 300 feet east of Connecticut Route 58, 0.2 mile north of Silver Hill Road, and 75 feet west of the Aspetuck River:

A1—0 to 4 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; strongly acid; clear wavy boundary.

B21—4 to 14 inches, dark brown (10YR 4/3) fine sandy loam; weak coarse subangular blocky structure; friable; common fine and medium roots; strongly acid; gradual wavy boundary.

B22—14 to 28 inches, dark brown (10YR 3/3) sandy loam; common medium distinct grayish brown (10YR 5/2) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine roots; medium acid; clear wavy boundary.

C1—28 to 35 inches, dark brown (10YR 4/3) sand; common medium distinct grayish brown (10YR 5/2) and strong brown (7.5YR 5/6) mottles; massive; very friable; few fine roots; medium acid; clear wavy boundary.

C2—35 to 40 inches, grayish brown (2.5Y 5/2) sand; few fine faint pale brown (10YR 6/3) mottles; single grain; loose; 5 percent coarse fragments; medium acid; clear wavy boundary.

C3—40 to 60 inches, grayish brown (10YR 5/2) gravelly sand; single grain; loose; 25 percent coarse fragments; medium acid.

The solum is 20 to 40 inches thick. Coarse fragments make up 0 to 15 percent of the solum and 0 to 15 percent of the part of the C horizon at a depth of less than 40 inches. Coarse fragments make up 0 to 40 percent of the C horizon at a depth of more than 40 inches. The soil is strongly acid to slightly acid.

The A 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 to 2.5Y and value and chroma of 3 to 6. It is fine sandy loam or sandy loam. The horizon has weak medium granular structure or weak subangular blocky structure.

The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 6. It is loamy fine sand to coarse sand or is their gravelly analogues at a depth of more than 40 inches.

Raypol series

The Raypol series consists of poorly drained soils that formed in a mantle of silt loam or very fine sandy loam over stratified sand and gravel derived mainly from gneiss and schist. Raypol soils are in depressional areas of outwash plains and terraces. Slopes range from 0 to 3 percent but are dominantly less than 1 percent. The Raypol soils in this survey area are a taxadjunct because they are nonacid.

Raypol soils are on the landscape with poorly drained Walpole soils and very poorly drained Adrian, Carlisle, Saco, and Scarboro soils. They are adjacent to well drained Agawam and Haven soils and moderately well drained Ninigret soils. Raypol soils have a finer textured solum than Walpole soils.

Typical pedon of Raypol silt loam, in the town of Shelton, about 170 feet west of Israel Hill Road, 0.6 mile south of the intersection of Connecticut Route 110 and Israel Hill Road:

Ap—0 to 6 inches, black (10YR 2/1) silt loam; weak medium granular structure; friable; common fine roots; strongly acid; clear wavy boundary.

B21—6 to 10 inches, grayish brown (2.5Y 5/2) silt loam; many medium distinct yellowish brown (10YR 5/6) and light gray (10YR 7/2) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear wavy boundary.

B22—10 to 16 inches, light brownish gray (2.5Y 6/2) silt loam; many medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear wavy boundary.

B3—16 to 19 inches, light brownish gray (2.5Y 6/2) very fine sandy loam; common medium distinct yellowish brown (10YR 5/8) and light yellowish brown (10YR 6/4) mottles; massive; friable; few fine roots; strongly acid; clear wavy boundary.

IIC1—19 to 22 inches, brown (10YR 5/3) loamy sand; common medium faint light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6) mottles; massive; friable; strongly acid; clear wavy boundary.

IIC2—22 to 45 inches, brown (10YR 5/3) sand; few medium faint light yellowish brown (10YR 6/4) mottles; single grain; loose; 5 percent coarse fragments; medium acid; clear wavy boundary.

IIC3—45 to 60 inches, yellowish brown (10YR 5/4) sand; single grain; loose; 10 percent coarse fragments; medium acid.

The solum thickness and depth to sand and gravel are 18 to 40 inches. Coarse fragments make up 0 to 10 percent of the solum and 0 to 50 percent of the IIC horizon. The soil is very strongly acid or strongly acid in the solum and strongly acid through slightly acid in the substratum.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2.

The B horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4. It has distinct or prominent mottles. The horizon is silt loam, very fine sandy loam, or loam. It has weak or moderate medium subangular blocky structure, or it is massive. Consistence is very friable or friable.

The IIC horizon has hue of 10YR to 2.5Y, value of 4 to 6, and chroma of 2 to 4. It is loamy sand, sand, or gravelly sand.

Ridgebury series

The Ridgebury series consists of poorly drained, nonstony to extremely stony soils that formed in loamy compact glacial till derived mainly from gneiss and schist. Ridgebury soils are on side slopes, in slightly concave positions, and in drainageways on drumlins and till plains. Slopes range from 0 to 8 percent but are dominantly less than 3 percent.

Ridgebury soils are on the landscape with well drained Charlton and Paxton soils, moderately well drained Sutton and Woodbridge soils, poorly drained Leicester soils, and very poorly drained Whitman soils. Ridgebury soils have a firmer and more compact C horizon than the Leicester soils.

Typical pedon of Ridgebury fine sandy loam, in the town of Monroe, 0.25 mile east of Connecticut Route 111 and 75 feet west of a pond southeast of Marion Heights Academy:

Ap—0 to 8 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; common fine roots; 5 percent rock fragments; strongly acid; clear smooth boundary.

B21—8 to 14 inches, brown (10YR 5/3) fine sandy loam; common medium distinct yellowish red (5YR 5/8)

and grayish brown (2.5Y 5/2) mottles; weak medium subangular blocky structure; friable; few fine roots; 5 percent rock fragments; strongly acid; clear wavy boundary.

B22—14 to 18 inches, light brownish gray (2.5Y 6/2) fine sandy loam; many medium prominent yellowish red (5YR 4/6) and many medium distinct yellowish brown (10YR 5/4) mottles; weak coarse subangular blocky structure; friable; few fine roots; 5 percent rock fragments; strongly acid; clear wavy boundary.

C1x—18 to 30 inches, grayish brown (2.5Y 5/2) fine sandy loam; many coarse distinct strong brown (7.5YR 5/8) mottles and many medium distinct yellowish brown (10YR 5/4) mottles; moderate medium platy structure; firm, brittle; 15 percent rock fragments; medium acid; clear smooth boundary.

C2x—30 to 60 inches, dark yellowish brown (10YR 4/4) fine sandy loam; many medium distinct yellowish red (5YR 5/8) mottles and many coarse distinct light gray (10YR 7/1) mottles; moderate medium platy structure; very firm, brittle; 15 percent rock fragments; medium acid.

The solum thickness and the depth to the fragipan are 10 to 30 inches. Rock fragments make up 5 to 35 percent of the soil. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. The horizon is fine sandy loam or loam. It has weak, fine or medium granular structure, and consistence is very friable or friable.

The B horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 0 to 3. It is fine sandy loam, loam, or their gravelly analogues. It has weak medium or coarse subangular blocky structure.

The Cx horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4. It is sandy loam, fine sandy loam, loam, or their gravelly analogues. The horizon has weak or moderate, medium or thick platy structure, or it is massive. The horizon is firm or very firm and brittle.

Rippowam series

The Rippowam series consists of poorly drained soils that formed in recent alluvial sediment derived mainly from gneiss and schist. Rippowam soils are on flood plains of small and large streams. Slopes range from 0 to 3 percent.

Rippowam soils are in a drainage sequence with moderately well drained Pootatuck soils. They are associated on the landscape with very poorly drained Scarboro soils.

Typical pedon of Rippowam fine sandy loam, in the town of Redding, 100 feet south of Cross Highway and 100 feet east of the Little River:

A1—0 to 5 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; strongly acid; gradual wavy boundary.

B21—5 to 12 inches, dark grayish brown (10YR 4/2) fine sandy loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.

B22—12 to 19 inches, dark gray (10YR 4/1) fine sandy loam; many medium distinct yellowish red (5YR 4/6) mottles; weak medium subangular blocky structure; friable; few fine and medium roots; strongly acid; clear wavy boundary.

B23—19 to 24 inches, grayish brown (10YR 5/2) sandy loam; common medium distinct strong brown (7.5YR 5/6) mottles; massive; friable; few fine and medium roots; strongly acid; clear wavy boundary.

B24—24 to 27 inches, very dark gray (10YR 3/1) sandy loam; massive; friable; few fine and medium roots; medium acid; clear wavy boundary.

IIC1—27 to 31 inches, dark gray (10YR 4/1) loamy sand; massive; friable; medium acid; clear wavy boundary.

IIC2—31 to 60 inches, grayish brown (10YR 5/2) gravelly sand; single grain; loose; 35 percent coarse fragments; medium acid.

The solum is 20 to 40 inches thick. Coarse fragments make up 0 to 15 percent of the solum and 0 to 40 percent of the IIC horizon. The soil is very strongly acid to slightly acid; some medium acid or slightly acid subhorizons are between the surface and a depth of 40 inches.

The A horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or 2.

The B horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 1 or 2. It has faint to prominent mottles. The horizon is sandy loam, fine sandy loam, or loam. It has weak or moderate, fine or medium subangular blocky or granular structure. Consistence is very friable or friable.

The IIC horizon has hue of 10YR or 5Y, value of 3 to 6, and chroma of 1 or 2. It is loamy sand, sand, or their gravelly analogues.

Saco series

The Saco series consists of very poorly drained soils that formed in loamy alluvial sediments derived mainly from gneiss and schist. Saco soils are on flood plains of small and large streams. Slopes range from 0 to 2 percent but are dominantly less than 1 percent.

Saco soils are on the landscape with moderately well drained Pootatuck soils, poorly drained Rippowam soils, and very poorly drained Adrian and Carlisle soils. In a few places the Saco soils have an organic layer, but this layer is not as thick as the organic layer in the Adrian or Carlisle soils.

Typical pedon of Saco silt loam, in the town of Monroe, on Turkey Roost Road, 300 feet north of the

Connecticut Light and Power Company pole number 3768, and 500 feet east of Copper Mine Brook:

A1—0 to 14 inches, black (10YR 2/1) silt loam; massive; friable; many fine roots; slightly acid; gradual wavy boundary.
C1g—14 to 34 inches, very dark gray (10YR 3/1) silt loam; massive; friable; few fine roots; slightly acid; gradual wavy boundary.
C2g—34 to 41 inches, very dark gray (10YR 3/1) very fine sandy loam; massive; friable; slightly acid; clear wavy boundary.
IIC3g—41 to 60 inches, very dark gray (10YR 3/1) very gravelly sand; single grain; loose; 35 percent coarse fragments; slightly acid.

The depth to sand or sand and gravel is more than 40 inches. Coarse fragments make up 0 to 5 percent of the soil at a depth of less than 40 inches and 0 to 50 percent at a depth of more than 40 inches. The soil is strongly acid to slightly acid at a depth of less than 30 inches and medium acid to neutral at a depth of more than 30 inches.

The A horizon has hue of 10YR to 2.5Y, value of 2 or 3, and chroma of 1 to 3. It is silt loam or mucky silt loam. It has weak granular structure, or it is massive. The horizon is very friable or friable.

The C horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 0 or 1. The horizon is silt loam or very fine sandy loam and is massive. The IIC horizon is sand or stratified sand and gravel and is single grain and loose.

Scarboro series

The Scarboro series consists of very poorly drained soils that formed in shallow organic material over sandy glacial outwash derived mainly from gneiss and schist. Scarboro soils are in depressional areas on glacial outwash terraces and outwash plains. Slopes are less than 1 percent.

Scarboro soils are on the landscape with excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, poorly drained Raypol and Walpole soils, and very poorly drained Adrian and Carlisle soils. Scarboro soils have a thinner organic layer than the Adrian or Carlisle soils.

Typical pedon of Scarboro mucky sandy loam, in the town of Norwalk, 100 feet east of the commuter parking lot at the junction of Connecticut Route 123 and the Merritt Parkway and 150 feet south of the Merritt Parkway:

Oa—12 inches to 0, black (10YR 2/1) muck; many fine and medium roots; massive; friable; medium acid; abrupt smooth boundary.
A1—0 to 9 inches, very dark gray (10YR 3/1) mucky sandy loam; weak medium granular structure; friable; many fine and medium roots; medium acid; abrupt smooth boundary.
A2g—9 to 14 inches, dark gray (10YR 4/1) sand; single grain; loose; few fine roots; 10 percent coarse fragments; medium acid; clear wavy boundary.
C1—14 to 20 inches, olive gray (5Y 5/2) sand; single grain; loose; 5 percent coarse fragments; medium acid; gradual wavy boundary.
C2g—20 to 40 inches, gray (N 5/0) sand; single grain; loose; 10 percent coarse fragments; medium acid; gradual wavy boundary.
C3g—40 to 60 inches, gray (N 5/0) gravelly sand; single grain; loose; 25 percent coarse fragments; medium acid.

The O horizon is 3 to 12 inches thick. Coarse fragments make up 0 to 10 percent of the soil at a depth of less than 40 inches and 0 to 50 percent at a depth of more than 40 inches. The soil is very strongly acid to medium acid.

The O horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is muck or mucky peat.

The A1 horizon has neutral colors or hue of 10YR, value of 2 or 3, and chroma of 0 to 2. The A2 horizon has neutral colors or hue of 10YR, value of 4 to 7, and chroma of 0 or 1. The A horizon is sandy loam, loamy sand, or loamy fine sand.

The C horizon has neutral colors or hue of 10YR to 5Y, value of 4 to 6, and chroma of 0 to 2. The horizon is loamy sand, sand, or their gravelly analogues.

Stockbridge series

The Stockbridge series consists of well drained, nonstony to very stony soils that formed in loamy glacial till derived mainly from limestone, shale, and schist. Stockbridge soils are on side slopes and hilltops of drumlins and hills. Slopes range from 3 to 25 percent but are dominantly 8 to 15 percent.

Stockbridge soils are on the landscape with well drained Charlton, Nellis, and Paxton soils; moderately well drained Georgia and Woodbridge soils; and poorly drained Ridgebury and Leicester soils. Stockbridge soils are less acid than Paxton soils, and they have a firmer substratum than Charlton or Dover soils.

Typical pedon of Stockbridge loam, 3 to 8 percent slopes, in the town of Danbury, 60 feet south of Briar Ridge Road, south of the eastern entrance to Newmont Exploration Ltd.:

A1—0 to 1 inch, black (10YR 2/1) loam; weak medium granular structure; very friable; many fine roots; 5 percent rock fragments; strongly acid; abrupt smooth boundary.
Ap—1 to 8 inches, dark brown (10YR 3/3) loam; weak medium subangular blocky structure; friable; many fine roots; 5 percent rock fragments; strongly acid; clear smooth boundary.

B21—8 to 16 inches, dark yellowish brown (10YR 4/4) loam; moderate medium subangular blocky structure; friable; few fine roots; 5 percent rock fragments; strongly acid; gradual wavy boundary.
B22—16 to 24 inches, yellowish brown (10YR 5/4) loam; few fine faint yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; 5 percent rock fragments; medium acid; clear wavy boundary.
C—24 to 60 inches, dark grayish brown (2.5Y 4/2) loam; few fine distinct dark yellowish brown (10YR 4/6) and olive gray (5Y 4/2) mottles; massive parting to weak thick platy structure; firm, slightly sticky; 15 percent rock fragments; slightly acid.

The solum is 20 to 36 inches thick. Rock fragments make up 5 to 15 percent of the solum and 5 to 30 percent of the C horizon. The soil is strongly acid to slightly acid in the upper part of the solum and medium acid to neutral in the lower part of the solum and the substratum.

The A horizon has hue of 10YR, value or 2 to 4, and chroma of 1 to 3. It has weak or moderate, medium granular structure. Consistence is friable or very friable.

The B horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 6. The horizon is loam or silt loam. It has weak or moderate, medium subangular blocky structure.

The C horizon has hue of 2.5Y or 5Y, value of 3 to 5, and chroma of 2 or 3. It is fine sandy loam, silt loam, loam, or their gravelly analogues. The horizon has weak thick platy structure, or it is massive. Consistence is firm or very firm and nonsticky to slightly sticky.

Sutton series

The Sutton series consists of moderately well drained, nonstony to extremely stony soils that formed in loamy glacial till derived mainly from gneiss and schist. Sutton soils are on concave positions on lower slopes or in slight depressions of glaciated uplands. Slopes range from 3 to 8 percent.

Sutton soils are on the landscape with somewhat excessively drained Hollis soils, well drained Charlton and Paxton soils, moderately well drained Woodbridge soils, and poorly drained Leicester and Ridgebury soils. Sutton soils have a more friable C horizon than Woodbridge soils.

Typical pedon of Sutton fine sandy loam, in an area of Sutton very stony fine sandy loam, 3 to 8 percent slopes, in the town of Monroe, 140 feet south of utility pole number 2709 on Bugg Hill Road, and 0.1 mile east of Cross Hill Road:

Ap—0 to 8 inches, dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 15 percent rock fragments; strongly acid; clear smooth boundary.
B21—8 to 18 inches, yellowish brown (10YR 5/6) fine sandy loam; few medium faint strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; common fine roots; 10 percent rock fragments; strongly acid; clear wavy boundary.
B22—18 to 24 inches, yellowish brown (10YR 5/4) fine sandy loam; common medium distinct strong brown (7.5YR 5/6) and light brownish gray (2.5Y 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; 10 percent rock fragments; medium acid; clear wavy boundary.
C1—24 to 32 inches, yellowish brown (10YR 5/4) fine sandy loam; many medium distinct strong brown (7.5YR 5/6) and light brownish gray (2.5Y 6/2) mottles; weak thick platy structure; friable; 15 percent rock fragments; medium acid; gradual wavy boundary.
C2—32 to 60 inches, yellowish brown (10YR 5/4) fine sandy loam; many medium distinct strong brown (7.5YR 5/6) and light brownish gray (2.5Y 6/2) mottles; massive; friable; 10 percent rock fragments; medium acid.

The solum is 20 to 36 inches thick. Rock fragments make up 5 to 35 percent of the soil. The soil is very strongly acid to medium acid in the solum and very strongly acid to slightly acid in the substratum.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 or 2. It has weak or moderate medium granular structure.

The B horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6. It is fine sandy loam, loam, or sandy loam. The horizon has weak granular or subangular blocky structure, or it is massive. Consistence is very friable or friable.

The C horizon has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 2 to 4. The horizon has weak thick platy structure, or it is massive. Consistence is friable; firm lenses are in many places.

Udorthents

Udorthents consist of excessively drained to moderately well drained soils that have been cut or filled. The areas have had more than 2 feet of the upper part of the original soil removed or have more than 2 feet of fill on top of the original soil. These soils formed in material in loamy glacial till and in sandy or gravelly outwash with a loamy mantle. Udorthents are on glacial till plains and outwash plains and terraces. Slopes range from 0 to 25 percent.

Udorthents are on the landscape with excessively drained Hinckley soils; well drained Charlton, Paxton, and Agawam soils; moderately well drained Ninigret and Woodbridge soils; poorly drained Raypol, Ridgebury, and Walpole soils; very poorly drained Adrian, Saco, Scarboro, and Westbrook soils; and Urban land.

Rock fragments make up 0 to 45 percent of Udorthents. The soils are very strongly acid to neutral.

They are dominantly sandy loam, fine sandy loam, or their gravelly analogues.

Walpole series

The Walpole series consists of poorly drained soils that formed in glacial outwash derived mainly from gneiss and schist. Walpole soils are in low-lying areas on outwash plains and terraces. Slopes range from 0 to 3 percent but are dominantly less than 1 percent.

Walpole soils are on the landscape with excessively drained Hinckley soils, well drained Agawam and Haven soils, moderately well drained Ninigret soils, poorly drained Raypol soils, and very poorly drained Scarboro soils. Walpole soils have a coarser textured solum than the Raypol soils.

Typical pedon of Walpole fine sandy loam, in the town of Monroe, 0.25 mile north of Connecticut Route 110 and 0.3 mile east of Wheeler Road:

A1—0 to 6 inches, black (10YR 2/1) fine sandy loam; weak medium granular structure; friable; many fine and medium roots; 5 percent coarse fragments; strongly acid; abrupt smooth boundary.

B21—6 to 13 inches, dark grayish brown (10YR 4/2) fine sandy loam; few medium faint strong brown (7.5YR 5/6) and brown (10YR 5/3) mottles; friable; few fine roots; 10 percent coarse fragments; strongly acid; gradual wavy boundary.

B22—13 to 20 inches, grayish brown (10YR 5/2) gravelly sandy loam; common medium distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) mottles; massive; friable; few fine roots; 20 percent coarse fragments; medium acid; gradual wavy boundary.

IIC—20 to 60 inches, brown (10YR 4/3) gravelly loamy sand; single grain; loose; 30 percent coarse fragments; medium acid; clear wavy boundary.

The solum is 18 to 28 inches thick. Coarse fragments make up 0 to 25 percent of the solum and 0 to 50 percent of the IIC horizon. The soil is very strongly acid to medium acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is fine sandy loam or sandy loam.

The B horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3. It is fine sandy loam, sandy loam, or their gravelly analogues in the upper part and sandy loam or gravelly sandy loam in the lower part.

The IIC horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3. It is loamy sand, sand, or their gravelly analogues.

Westbrook series

The Westbrook series consists of very poorly drained soils that formed in organic deposits over loamy mineral material. Westbrook soils are in coves and along streams that enter Long Island Sound and are subject to tidal inundation. Slopes are less than 1 percent.

Westbrook soils are adjacent to well drained Agawam and Charlton soils; moderately well drained Ninigret soils; poorly drained Raypol and Walpole soils; very poorly drained Saco and Scarboro soils; and Udorthents, Urban land, and Beaches. Westbrook soils have a higher salt content than Saco or Scarboro soils.

Typical pedon of Westbrook mucky peat, in the Great Meadows in the town of Stratford, 1,000 feet west of the intersection of Sixth Avenue and Oaks Bluff Avenue:

Oe1—0 to 12 inches, dark olive gray (5Y 3/2) mucky peat; 75 percent fiber, 25 percent rubbed; massive; friable; many fine roots; herbaceous fibers; 75 percent organic matter; salt content of 23,400 parts per million; neutral; gradual wavy boundary.

Oe2—12 to 32 inches, olive gray (5Y 4/2) mucky peat; 75 percent fiber, 25 percent rubbed; massive; friable; common fine roots; herbaceous fibers; 65 percent organic matter; salt content of 23,400 parts per million; neutral; gradual wavy boundary.

IIC1—32 to 62 inches, dark gray (5GY 4/1) silt loam; massive; friable: 15 percent organic matter; salt content of 23,400 parts per million; neutral; gradual wavy boundary.

IIC2—62 to 99 inches, dark gray (5GY 4/1) silt loam; massive; friable; 5 percent organic matter; salt content of 23,660 parts per million; neutral.

The organic layers are 16 to 51 inches thick. The soil is strongly acid to neutral in its natural condition and is extremely acid when drained. Total salt content ranges from 1,000 to 35,000 parts per million. Thin layers of silt are common in the organic material. Some pedons have subhorizons of fibric or sapric material up to 12 inches thick.

The surface layer has neutral colors or hue of 10YR or 5Y, value of 2 to 4, and chroma of 0 to 2.

The subsurface layer has neutral colors or hue of 10YR or 5Y, value of 3 or 4, and chroma of 0 to 3.

The IIC horizon has neutral colors or hue of 5Y or 5GY, value of 4 or 5, and chroma of 0 to 2. It is silt, silt loam, or very fine sandy loam. Organic matter content ranges from 5 to 20 percent. Shell fragments and herbaceous fibers are in some pedons.

Whitman series

The Whitman series consists of very poorly drained, extremely stony soils that formed in compact loamy glacial till derived mainly from gneiss and schist. Whitman soils are in drainageways and depressions on uplands. Slopes range from 0 to 5 percent.

Whitman soils are on the landscape with well drained Charlton and Paxton soils, moderately well drained Sutton and Woodbridge soils, and poorly drained Leicester and Ridgebury soils.

Typical pedon of Whitman fine sandy loam, in an area of Ridgebury, Leicester, and Whitman extremely stony fine sandy loams, in the town of Monroe, 50 feet east of Misty Lane and 150 feet north of Maryanne Drive:

O2—1 inch to 0, very dark grayish brown (10YR 3/2) decomposed organic material.
A1—0 to 8 inches, very dark gray (10YR 3/1) fine sandy loam, grayish brown (10YR 5/2) dry; weak medium granular structure; very friable; many fine and medium roots; 10 percent rock fragments; strongly acid; abrupt smooth boundary.
B21g—8 to 18 inches, dark grayish brown (10YR 4/2) gravelly fine sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; 20 percent rock fragments; strongly acid; gradual wavy boundary.
B22—18 to 24 inches, grayish brown (2.5Y 5/2) fine sandy loam; common medium and coarse distinct yellowish brown (10YR 4/6) mottles; weak medium subangular blocky structure; friable; few fine and medium roots; 15 percent rock fragments; strongly acid; clear wavy boundary.
Cx—24 to 60 inches, grayish brown (2.5Y 5/2) gravelly fine sandy loam; common fine faint light olive brown (2.5Y 5/4) mottles; weak thick platy structure; very firm, brittle; 20 percent rock fragments; medium acid

The solum is 10 to 30 inches thick and corresponds to the depth to the fragipan. Rock fragments make up 5 to 35 percent of the soil. The soil is very strongly acid to slightly acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 0 to 2. It is fine sandy loam or loam.

The B horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 0 to 2. It is fine sandy loam, sandy loam, loam, or their gravelly analogues.

The Cx horixon has neutral colors or hue of 2.5Y or 5Y, value of 4 to 6, chroma of 0 to 3. The chroma of 3 is restricted to the part of the profile at a depth of more than 30 inches. The Cx horizon has weak or medium thick platy structure, or it is massive. Consistence is firm to very firm and brittle. The horizon is fine sandy loam, loam, sandy loam, or their gravelly analogues.

Woodbridge series

The Woodbridge series consists of moderately well drained, nonstony to extremely stony soils that formed in compact loamy glacial till derived mainly from gneiss and schist. Woodbridge soils are on the tops and side slopes of drumlins. Slopes range from 0 to 15 percent but are dominantly 3 to 8 percent.

Woodbridge soils are on the landscape with well drained Charlton and Paxton soils, moderately well drained Sutton soils, poorly drained Ridgebury and Leicester soils, and very poorly drained Whitman soils. Woodbridge soils have a firmer substratum than the Sutton soils.

Typical pedon of Woodbridge fine sandy loam, 3 to 8 percent slopes, in the town of Easton, 100 feet southwest of the intersection of Wilson Road and Banks Road:

Ap—0 to 8 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; common fine and medium roots; 5 percent rock fragments; strongly acid; gradual wavy boundary.
B21—8 to 20 inches, dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 10 percent rock fragments; strongly acid; gradual wavy boundary.
B22—20 to 26 inches, yellowish brown (10YR 5/4) fine sandy loam; few medium faint yellowish brown (10YR 5/6) and pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; 10 percent rock fragments; strongly acid; gradual wavy boundary.
B23—26 to 32 inches, brown (10YR 5/3) fine sandy loam; common medium faint light brownish gray (10YR 6/2) mottles and common medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; 10 percent rock fragments; strongly acid; clear wavy boundary.
Cx—32 to 60 inches, grayish brown (2.5Y 5/2) fine sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak thick platy structure; firm, brittle; 15 percent rock fragments; medium acid.

The solum is 18 to 36 inches thick. Rock fragments make up 5 to 35 percent of the soil. The soil is very strongly acid to medium acid in the solum and very strongly acid to slightly acid in the Cx horizon.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 2 or 3. It is fine sandy loam or loam. It has weak fine or medium granular structure. Consistence is very friable or friable.

The B horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 3 to 6. It is fine sandy loam, sandy loam, or their gravelly analogues. It has weak medium subangular blocky or weak medium granular structure.

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 their gravelly analogues. It has weak thick platy structure. Consistence is firm or very firm and brittle.

formation of the soils

David E. Hill, associate soil scientist, Connecticut Agricultural Experiment Station, assisted in the preparation of this section.

Soil formation is a continuing process. Some processes of formation occur seasonally; others occur slowly over hundreds, even thousands, of years. The magnitude of change is influenced by five factors of soil formation—parent material, climate, living organisms, relief, and time.

Climate and living organisms are the dominant active agents that modify parent material deposited by geologic events. In Fairfield County these active forces have influenced soil formation for 10,000 years or more, since the last glacier.

The soil characteristics produced by soil formation are the sum of many physical and chemical processes. Glacial ice ground local bedrock and moved it to different locations. Meltwater from the glacier transported and segregated particles of sediment, forming new landscapes. As the climate warmed and vegetation became established, chemical processes of weathering began to exert an increasing influence on soil formation.

The differences between soils in Fairfield County are primarily attributable to differences in parent material, relief, and time. The influences of climate and living organisms have been relatively uniform throughout the county and do not account for major differences in soils.

Each of the soil-forming factors in Fairfield County is described in the following paragraphs.

climate

Temperature and precipitation are the elements of climate that most affect soil formation. These elements react directly on parent material and indirectly on living organisms. Water moving through a soil alters its chemical composition. The rate of soluble chemicals leached from the soil is related to the amount of rainfall, and rainfall causes erosion of unprotected soils.

Temperature influences the native vegetation that covers the landscape, the living organisms within the soil, and the rate of the chemical weathering processes. A mean annual temperature of 50 degrees F in the county assures high biological activity and rather rapid decomposition of organic matter if the soils are well aerated. In poorly drained and very poorly drained areas, where the soil is saturated for long periods, biological activity is low and organic matter accumulates.

The action of frost affects soil structure and increases the aggregation of soil particles within the frost zone. Increased aggregation increases the rate of water movement through the soil and increases leaching of soluble chemicals.

parent material

Soils inherit characteristics from the parent material. For example, the grayish colored gneisses, schists, and granites in the county are the parent material of soils with a grayish or olive-colored substratum.

Parent material forms the mineral part of the soil and influences mineralogy and texture of the soil. The soil minerals in Fairfield County are mainly quartz, feldspar, microcline, and biotite and muscovite micas. Other minerals are calcite, chlorite, dolomite, sillimanite, hornblende, serpentine, and garnet. Vermiculite and illite are the dominant clay minerals in most of the soils. Small amounts of chlorite, kaolinite, and hydrated iron oxides are in the clay fraction of some soils.

The soils in the county formed in glacial drift of many textures. Glacial till, deposited as a mass by the glacier, consists of a mixture of particle sizes ranging from large boulders to clay-size particles. Glacial till overlies bedrock at a depth ranging from a few inches to 100 feet or more. Glacial outwash was deposited where water from the melting glacier laid down stratified deposits of sand, gravel, and, in many places, cobbles. Glacial outwash is primarily in the valleys, but occasional deposits are high above the valley in kames or ice-contact deposits.

The substratum of most soils has the same texture as when deposited by the glacier. The surface layer and subsoil have been more influenced by soil-forming factors and generally have smaller particle sizes and are finer textured than the substratum.

The youngest soils in the county formed in alluvial sediments on flood plains. In most places, these soils receive annual deposits of sediment.

Other young soils in the county are in tidal marshes along Long Island Sound. These areas receive small deposits of silt and clay from daily tidal inundation and from surrounding uplands. The sediments are deposited with the remains of salt-tolerant plants growing in the marshes.

living organisms

One of the features that distinguishes a soil from its parent material is the organic constituents, the living plants and animals in the soil and their decayed or decaying remains.

Living organisms such as bacteria and fungi influenced the weathering process early in soil formation. Later, these simple life forms were supplemented with a more complex plant and animal life. In Fairfield County, the dominant form of plant life that developed was forest vegetation. The existing forest cover is mainly oak, hickory, maple, birch, poplar, hemlock, and mountain laurel.

Although vegetation is the most common type of living organism, soil formation is strongly influenced by other life forms. These are mainly micro-organisms, earthworms, larvae, burrowing animals, and other forms of life, including man. They are important in the cycle of decaying and regenerating vegetation which produces organic matter and nutrients. Nutrients absorbed by plants are returned to the soil by leaf fall and by decay of the plant itself. Organic matter is mixed into the soil by earthworms, burrowing animals, and decaying roots. Tree windthrow and the activities of man hasten soil mixing. Clearing of land, cultivation, use of lime and fertilizers, artificial drainage, grading, and the introduction of new plants are several ways man has affected soil formation.

relief

The effect of relief on soil formation is primarily expressed in terms of slope gradient, slope orientation, and elevation. In places where parent materials are similar, soils formed on steep slopes have a thinner surface layer and subsoil and morphology is more poorly expressed than in soils formed on more gentle slopes.

On landforms with steep slopes, orientation with respect to the sun has an effect on vegetation. South-facing slopes are warm and dry; north-facing slopes are cool and moist. This difference affects plant species and the kinds of animals living in and on the soil.

Elevation in Fairfield County ranges from sea level to about 1,300 feet above sea level in the northern part of the county. Within 10 miles of Long Island Sound, only a few hills exceed an elevation of 400 feet.

Relief influences the drainage of soils. Poorly drained and very poorly drained soils are on nearly level or concave positions on the landscape. Moderately well drained soils are on nearly level to stoping, generally concave positions. Well drained to excessively drained soils are on convex slopes and on the higher parts of the landscape where runoff cannot accumulate.

time

The degree of profile expression is dependent not only on the intensity of soil-forming processes but also on the duration of these processes. In terms of pedogenetic time, the soils of Fairfield County are relatively young. These comparatively young soils have layers that, except for color, are weakly developed. In the New England Upland area, where the parent material is gneiss, schist, and granite, the color is well developed in the subsoil.

The soils of recent alluvial origin are younger than the soils formed in glacial drift. The alluvial soils lack even the color development that characterizes the soils formed in glacial drift. Many soils of alluvial origin continue to receive sediment. This is especially true of soils in the tidal marshes which receive annual increments of silt, clay, and organic matter eroded from surrounding uplands or winnowed from the bottom of Long Island Sound and deposited on the marsh surface by daily tides.

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glossary

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.

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.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

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. Mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping (or contour farming). 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.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Depth to rock. Bedrock at a depth that adversely affects the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

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.

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 does not provide a source of gravel or sand for construction purposes.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Favorable. Favorable soil features for the specified use.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Fine textured soil. Sandy clay, silty clay, and clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher

bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

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.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

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.

Kame (geology). An irregular, short ridge or hill of stratified glacial drift.

Large stones (in tables). Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

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.)

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.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

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.

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.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

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.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

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.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	Less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

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.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

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.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the low lands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

Month	Temperature[1]						Precipitation[1]				
	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[2]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	35.0	18.4	26.7	58	-8	9	2.99	1.48	4.22	7	8.9
February---	37.7	20.1	28.9	60	-5	10	3.38	2.36	4.32	6	10.7
March------	45.4	27.5	36.5	73	8	41	3.81	2.61	4.91	7	8.2
April------	59.4	37.1	48.2	84	20	254	4.08	2.74	5.29	8	1.2
May--------	69.5	45.9	57.8	90	30	552	3.84	2.61	4.96	8	.0
June-------	78.6	55.4	67.0	95	38	810	3.63	1.81	5.12	8	.0
July-------	83.3	60.3	71.8	96	45	986	3.78	2.30	5.09	7	.0
August-----	81.3	58.7	70.1	93	43	933	4.59	2.22	6.52	7	.0
September--	74.0	52.0	63.0	91	30	690	3.93	2.12	5.41	6	.0
October----	63.8	41.5	52.7	83	22	394	3.92	1.60	5.80	5	.1
November---	50.7	33.1	41.9	71	14	105	4.63	2.99	6.11	7	1.5
December---	38.6	22.9	30.8	62	-1	28	4.49	2.48	6.12	7	8.0
Year-----	59.8	39.4	49.6	97	-9	4,812	47.07	40.00	53.87	83	38.6

[1]Recorded in the period 1951-74 at Danbury, Conn.

[2]A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature[1]		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 12	April 28	May 18
2 years in 10 later than--	April 8	April 23	May 11
5 years in 10 later than--	April 2	April 15	April 29
First freezing temperature in fall:			
1 year in 10 earlier than--	October 17	October 2	September 22
2 years in 10 earlier than--	October 23	October 7	September 27
5 years in 10 earlier than--	November 3	October 17	October 7

[1]Recorded in the period 1951-74 at Danbury, Conn.

TABLE 3.--GROWING SEASON

Probability	Daily minimum temperature during growing season[1]		
	Higher than 24° F	Higher than 28° F	Higher than 32 F
	Days	Days	Days
9 years in 10	194	163	136
8 years in 10	201	171	144
5 years in 10	214	185	160
2 years in 10	228	199	175
1 year in 10	235	207	183

[1]Recorded in the period 1951-74 at Danbury, Conn.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Aa	Adrian muck	5,280	1.3
AfA	Agawam fine sandy loam, 0 to 3 percent slopes	2,940	0.7
AfB	Agawam fine sandy loam, 3 to 8 percent slopes	7,460	1.8
AfC	Agawam fine sandy loam, 8 to 15 percent slopes	1,010	0.3
Ba	Beaches	540	0.1
Ce	Carlisle muck	5,910	1.5
CfB	Charlton fine sandy loam, 3 to 8 percent slopes	18,640	4.6
CfC	Charlton fine sandy loam, 8 to 15 percent slopes	6,430	1.6
CfD	Charlton fine sandy loam, 15 to 25 percent slopes	2,990	0.7
ChB	Charlton very stony fine sandy loam, 3 to 8 percent slopes	7,160	1.8
ChC	Charlton very stony fine sandy loam, 8 to 15 percent slopes	5,100	1.3
CnC	Charlton extremely stony fine sandy loam, 3 to 15 percent slopes	8,500	2.1
CnD	Charlton extremely stony fine sandy loam, 15 to 35 percent slopes	5,880	1.5
CrC	Charlton-Hollis fine sandy loams, very rocky, 3 to 15 percent slopes	56,800	14.1
CrE	Charlton-Hollis fine sandy loams, very rocky, 15 to 45 percent slopes	25,220	6.2
Du	Dumps	470	0.1
GgB	Georgia silt loam, 3 to 8 percent slopes	1,370	0.3
GgC	Georgia silt loam, 8 to 15 percent slopes	810	0.2
GhB	Georgia very stony silt loam, 3 to 8 percent slopes	280	0.1
GhC	Georgia very stony silt loam, 8 to 15 percent slopes	490	0.1
HcA	Haven silt loam, 0 to 3 percent slopes	1,290	0.3
HcB	Haven silt loam, 3 to 8 percent slopes	2,910	0.7
HkB	Hinckley gravelly sandy loam, 3 to 8 percent slopes	4,030	1.0
HkC	Hinckley gravelly sandy loam, 8 to 15 percent slopes	4,530	1.1
HkD	Hinckley gravelly sandy loam, 15 to 35 percent slopes	2,650	0.7
HpC	Hollis-Charlton-Rock outcrop complex, 3 to 15 percent slopes	20,720	5.1
HrE	Hollis-Rock outcrop-Charlton complex, 15 to 45 percent slopes	29,850	7.4
Lc	Leicester fine sandy loam	1,980	0.5
MyB	Merrimac sandy loam, 2 to 8 percent slopes	360	0.1
NeB	Nellis fine sandy loam, 3 to 10 percent slopes	380	0.1
NfC	Nellis-Farmington fine sandy loams, very rocky, 3 to 15 percent slopes	740	0.2
NfD	Nellis-Farmington fine sandy loams, very rocky, 15 to 35 percent slopes	500	0.1
Nn	Ninigret fine sandy loam	4,140	1.0
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	24,440	6.1
PbC	Paxton fine sandy loam, 8 to 15 percent slopes	9,370	2.3
PbD	Paxton fine sandy loam, 15 to 25 percent slopes	4,810	1.2
PdB	Paxton very stony fine sandy loam, 3 to 8 percent slopes	2,020	0.5
PdC	Paxton very stony fine sandy loam, 8 to 15 percent slopes	2,010	0.5
PeC	Paxton extremely stony fine sandy loam, 3 to 15 percent slopes	1,100	0.3
PeD	Paxton extremely stony fine sandy loam, 15 to 35 percent slopes	2,610	0.6
Pr	Pits, gravel	1,160	0.3
Ps	Pootatuck fine sandy loam	830	0.2
Rb	Raypol silt loam	2,230	0.6
Rd	Ridgebury fine sandy loam	3,180	0.8
Rn	Ridgebury, Leicester, and Whitman extremely stony fine sandy loams	25,650	6.4
Ro	Rippowam fine sandy loam	2,530	0.6
Rp	Rock outcrop-Hollis complex	2,140	0.5
Sb	Saco silt loam	3,380	0.8
Sc	Scarboro mucky sandy loam	1,880	0.5
SnB	Stockbridge loam, 3 to 8 percent slopes	1,080	0.3
SnC	Stockbridge loam, 8 to 15 percent slopes	1,210	0.3
SnD	Stockbridge loam, 15 to 25 percent slopes	810	0.2
SpC	Stockbridge very stony loam, 8 to 15 percent slopes	340	0.1
SpD	Stockbridge very stony loam, 15 to 25 percent slopes	870	0.2
SvB	Sutton fine sandy loam, 3 to 8 percent slopes	5,440	1.3
SwB	Sutton very stony fine sandy loam, 3 to 8 percent slopes	2,090	0.5
SxB	Sutton extremely stony fine sandy loam, 3 to 8 percent slopes	1,950	0.5
UD	Udorthents, smoothed	18,260	4.5
Ur	Urban land	12,240	3.0
Wd	Walpole fine sandy loam	1,050	0.3
We	Westbrook mucky peat	870	0.2
Wh	Westbrook mucky peat, low salt	590	0.1
WxA	Woodbridge fine sandy loam, 0 to 3 percent slopes	3,760	0.9
WxB	Woodbridge fine sandy loam, 3 to 8 percent slopes	12,510	3.1
WxC	Woodbridge fine sandy loam, 8 to 15 percent slopes	3,290	0.8
WyB	Woodbridge very stony fine sandy loam, 3 to 8 percent slopes	3,050	0.8
WyC	Woodbridge very stony fine sandy loam, 8 to 15 percent slopes	1,450	0.4
WzB	Woodbridge extremely stony fine sandy loam, 3 to 15 percent slopes	2,440	0.6
W	Water	3,840	1.0
	Total	403,840	100.0

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Corn silage	Irish potatoes	Alfalfa hay	Grass-legume hay	Grass hay	Pasture
	Ton	Cwt	Ton	Ton	Ton	AUM*
Aa---------- Adrian	---	---	---	---	---	---
AfA---------- Agawam	24	330	5.0	4.0	3.5	8.5
AfB---------- Agawam	24	330	5.0	4.0	3.5	8.5
AfC---------- Agawam	22	300	4.5	3.5	3.5	7.5
Ba**. Beaches						
Ce---------- Carlisle	---	---	---	---	---	---
CfB---------- Charlton	24	330	5.0	4.5	4.0	8.5
CfC---------- Charlton	22	300	5.0	4.0	3.5	8.5
CfD---------- Charlton	18	---	4.5	3.5	3.0	7.5
ChB, ChC---------- Charlton	---	---	---	---	---	---
CnC, CnD---------- Charlton	---	---	---	---	---	---
CrC---------- Charlton-Hollis	---	---	---	---	---	---
CrE---------- Charlton-Hollis	---	---	---	---	---	---
Du**. Dumps						
GgB---------- Georgia	24	300	5.0	4.0	4.0	9.0
GgC---------- Georgia	22	300	5.0	4.0	4.0	9.0
GhB, GhC---------- Georgia	---	---	---	---	---	---
HcA---------- Haven	24	330	5.0	4.5	4.0	8.5
HcB---------- Haven	24	330	5.0	4.5	4.0	8.5
HkB---------- Hinckley	12	---	2.5	2.0	2.0	5.0
HkC---------- Hinckley	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Irish potatoes	Alfalfa hay	Grass-legume hay	Grass hay	Pasture
	Ton	Cwt	Ton	Ton	Ton	AUM*
HkD---- Hinckley	---	---	---	---	---	---
HpC---- Hollis-Charlton-Rock outcrop	---	---	---	---	---	---
HrE---- Hollis-Rock outcrop-Charlton	---	---	---	---	---	---
Lc---- Leicester	16	---	---	3.5	4.0	6.5
MyB---- Merrimac	18	270	4.0	3.0	2.5	5.5
NeB---- Nellis	25	300	5.5	4.5	4.0	8.5
NfC---- Nellis-Farmington	---	---	---	3.5	---	7.0
NfD---- Nellis-Farmington	---	---	---	---	---	6.4
Nn---- Ninigret	22	330	4.0	3.5	4.0	7.5
PbB---- Paxton	24	330	4.5	4.0	4.0	8.5
PbC---- Paxton	22	300	4.5	4.0	4.0	8.5
PbD---- Paxton	20	---	4.0	3.5	3.5	7.5
PdB, PdC---- Paxton	---	---	---	---	---	---
PeC, PeD---- Paxton	---	---	---	---	---	---
Pr**. Pits						
Ps---- Pootatuck	24	300	4.0	4.5	4.5	8.5
Rb---- Raypol	20	---	---	3.5	3.5	6.0
Rd---- Ridgebury	16	---	---	3.5	4.0	6.5
Rn---- Ridgebury, Leicester, and Whitman	---	---	---	---	---	---
Ro---- Rippowam	20	---	---	3.5	4.0	6.5
Rp---- Rock outcrop-Hollis	---	---	---	---	---	---
Sb---- Saco	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Irish potatoes	Alfalfa hay	Grass-legume hay	Grass hay	Pasture
	Ton	Cwt	Ton	Ton	Ton	AUM*
Sc---------- Scarboro	---	---	---	---	---	---
SnB---------- Stockbridge	24	300	5.0	4.5	4.5	9.5
SnC---------- Stockbridge	22	270	5.0	4.5	4.5	9.5
SnD---------- Stockbridge	---	---	4.5	4.0	4.0	8.5
SpC, SpD---------- Stockbridge	---	---	---	---	---	---
SvB---------- Sutton	22	270	4.0	4.0	4.0	7.5
SwB---------- Sutton	---	---	---	---	---	---
SxB---------- Sutton	---	---	---	---	---	---
UD**. Udorthents						
Ur**. Urban land						
Wd---------- Walpole	18	---	---	3.0	3.0	5.5
We, Wh---------- Westbrook	---	---	---	---	---	---
WxA---------- Woodbridge	24	270	4.0	4.0	4.0	8.0
WxB---------- Woodbridge	24	270	4.0	4.0	4.0	8.0
WxC---------- Woodbridge	22	240	4.0	4.0	4.0	8.0
WyB, WyC---------- Woodbridge	---	---	---	---	---	---
WzB---------- Woodbridge	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I	4,230	---	---	---
II	83,320	54,910	28,050	360
III	37,120	22,120	10,970	4,030
IV	13,880	9,350	---	4,530
V	---	---	---	---
VI	121,480	---	16,450	105,030
VII	105,840	---	---	105,840
VIII	1,460	---	1,460	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
Aa---------- Adrian	5w	Slight	Severe	Severe	Severe	Red maple----------	55	
						Silver maple--------	82	
						White ash----------	55	
						Yellow birch--------	---	
AfA, AfB, AfC------ Agawam	4o	Slight	Slight	Slight	Slight	Eastern white pine--	70	Eastern white pine, white spruce, Norway spruce, European larch.
						Northern red oak----	65	
						Sugar maple---------	---	
						White oak----------	---	
Ce---------- Carlisle	5w	Slight	Severe	Severe	Severe	Red maple----------	55	
						White ash----------	55	
CfB, CfC---------- Charlton	4o	Slight	Slight	Slight	Slight	Northern red oak----	65	Eastern white pine, white spruce, eastern hemlock, European larch.
						Eastern white pine--	65	
						Shagbark hickory----	---	
						Sugar maple---------	---	
						Eastern hemlock-----	---	
CfD---------- Charlton	4r	Slight	Moderate	Slight	Slight	Northern red oak----	65	Eastern white pine, white spruce, eastern hemlock, European larch.
						Eastern white pine--	65	
						Shagbark hickory----	---	
						Sugar maple---------	---	
						Eastern hemlock-----	---	
ChB, ChC---------- Charlton	4o	Slight	Slight	Slight	Slight	Northern red oak----	65	Eastern white pine, white spruce, eastern hemlock, European larch.
						Eastern white pine--	65	
						Shagbark hickory----	---	
						Sugar maple---------	---	
						Eastern hemlock-----	---	
CnC, CnD---------- Charlton	4x	Slight	Moderate	Slight	Slight	Northern red oak----	65	Eastern white pine, white spruce, eastern hemlock, European larch.
						Eastern white pine--	65	
						Shagbark hickory----	---	
						Sugar maple---------	---	
						Eastern hemlock-----	---	
CrC*: Charlton----------	4o	Slight	Slight	Slight	Slight	Northern red oak----	65	Eastern white pine, white spruce, eastern hemlock, European larch.
						Eastern white pine--	65	
						Sugar maple---------	---	
						Eastern hemlock-----	---	
						Shagbark hickory----	---	
Hollis----------	5d	Slight	Slight	Severe	Moderate	Northern red oak----	47	Eastern white pine, eastern hemlock.
						Eastern white pine--	55	
						Sugar maple---------	56	
						White spruce--------	60	
						White oak----------	---	

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	
CrE*:								
Charlton	4r	Slight	Moderate	Slight	Slight	Northern red oak	65	Eastern white pine, white spruce, eastern hemlock, European larch.
						Eastern white pine	65	
						Sugar maple	---	
						Eastern hemlock	---	
						Shagbark hickory	---	
Hollis	5d	Slight	Moderate	Severe	Moderate	Northern red oak	47	Eastern white pine, eastern hemlock.
						Eastern white pine	55	
						Sugar maple	56	
						White oak	---	
GgB, GgC	3o	Slight	Slight	Slight	Slight	Sugar maple	65	Eastern white pine, Norway spruce.
Georgia						Northern red oak	70	
						Shagbark hickory	---	
						Red maple	---	
						White ash	---	
GhB, GhC	3o	Slight	Slight	Slight	Slight	Sugar maple	65	Eastern white pine, Norway spruce.
Georgia						Northern red oak	70	
						Shagbark hickory	---	
						White ash	---	
						Red maple	---	
HcA, HcB	3o	Slight	Slight	Slight	Slight	Eastern white pine	75	Eastern white pine, Norway spruce, European larch.
Haven						Northern red oak	55	
						Sugar maple	65	
						Black birch	---	
HkB, HkC	5s	Slight	Slight	Severe	Slight	Northern red oak	49	Eastern white pine, European larch.
Hinckley						Eastern white pine	60	
						Sugar maple	57	
HkD	5s	Slight	Moderate	Severe	Slight	Northern red oak	49	Eastern white pine, European larch.
Hinckley						Eastern white pine	60	
						Sugar maple	57	
HpC*:								
Hollis	5d	Slight	Slight	Severe	Moderate	Northern red oak	47	Eastern white pine, eastern hemlock.
						Eastern white pine	55	
						Sugar maple	56	
						White spruce	60	
						White oak	---	
Charlton	4o	Slight	Slight	Slight	Slight	Northern red oak	65	Eastern white pine, white spruce, eastern hemlock, European larch.
						Eastern white pine	65	
						Shagbark hickory	---	
						Sugar maple	---	
						Eastern hemlock	---	
Rock outcrop.								
HrE*:								
Hollis	5d	Slight	Moderate	Severe	Moderate	Northern red oak	47	Eastern white pine, eastern hemlock.
						Eastern white pine	55	
						Sugar maple	56	
						White spruce	60	
						White oak	---	
Rock outcrop.								

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	
HrE*:								
Charlton	4r	Slight	Moderate	Slight	Slight	Northern red oak	65	Eastern white pine, white spruce, eastern hemlock, European larch.
						Eastern white pine	65	
						Sugar maple	---	
						Eastern hemlock	---	
						Shagbark hickory	---	
Lc	4w	Slight	Severe	Severe	Severe	Northern red oak	56	Eastern white pine, white spruce.
Leicester						Eastern white pine	69	
						Red maple	---	
						White ash	---	
MyB	4s	Slight	Slight	Moderate	Slight	Northern red oak	51	Eastern white pine, eastern hemlock.
Merrimac						Eastern white pine	64	
						Sugar maple	58	
						White oak	---	
NeB	2o	Slight	Slight	Slight	Slight	Sugar maple	70	Eastern white pine, Austrian pine, Norway spruce, European larch.
Nellis						Northern red oak	80	
						Eastern white pine	85	
						Shagbark hickory	---	
NfC*:								
Nellis	2o	Slight	Slight	Slight	Slight	Sugar maple	70	Eastern white pine, Austrian pine, Norway spruce, European larch.
						Northern red oak	80	
						Eastern white pine	85	
						Shagbark hickory	---	
Farmington	5d	Slight	Slight	Severe	Moderate	Sugar maple	50	Eastern white pine, European larch, eastern hemlock.
						Northern red oak	50	
						Eastern white pine	55	
NfD*:								
Nellis	2r	Slight	Moderate	Slight	Slight	Sugar maple	70	Eastern white pine, Austrian pine, Norway spruce, European larch.
						Northern red oak	80	
						Eastern white pine	85	
						Shagbark hickory	---	
Farmington	5d	Moderate	Moderate	Severe	Moderate	Sugar maple	50	Eastern white pine, European larch, eastern hemlock.
						Northern red oak	50	
						Eastern white pine	55	
Nn	3o	Slight	Slight	Slight	Slight	Eastern white pine	75	Eastern white pine, white spruce, European larch.
Ninigret						Sugar maple	---	
						Red maple	---	
PbB, PbC	3o	Slight	Slight	Slight	Slight	Northern red oak	65	Eastern white pine, Norway spruce, European larch.
Paxton						Eastern white pine	66	
						Sugar maple	75	
PbD	3r	Slight	Moderate	Slight	Slight	Northern red oak	65	Eastern white pine, Norway spruce, European larch.
Paxton						Eastern white pine	66	
						Sugar maple	75	
PdB, PdC	3o	Slight	Slight	Slight	Slight	Northern red oak	65	Eastern white pine, Norway spruce, European larch.
Paxton						Eastern white pine	66	
						Sugar maple	75	
PeC	3x	Slight	Moderate	Slight	Slight	Northern red oak	65	Eastern white pine, Norway spruce, European larch.
Paxton						Eastern white pine	66	
						Sugar maple	75	

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	
PeD---------- Paxton	3x	Slight	Moderate	Slight	Slight	Northern red oak----	65	Eastern white pine, Norway spruce, European larch.
						Eastern white pine--	66	
						Sugar maple---------	75	
Ps---------- Pootatuck	3o	Slight	Slight	Slight	Slight	Eastern white pine--	75	Eastern white pine, white spruce.
						Red maple----------	---	
						White ash----------	---	
Rb---------- Raypol	4w	Slight	Severe	Severe	Severe	Eastern white pine--	68	Eastern white pine, eastern hemlock, white spruce.
						Red maple----------	75	
						White ash----------	---	
Rd---------- Ridgebury	4w	Slight	Severe	Severe	Severe	Northern red oak----	57	Eastern white pine, white spruce.
						Eastern white pine--	63	
						Sugar maple---------	52	
						Red maple----------	---	
						White ash----------	---	
Rn*:								
Ridgebury---------	4x	Slight	Severe	Severe	Severe	Northern red oak----	57	Eastern white pine, white spruce.
						Eastern white pine--	63	
						Sugar maple---------	52	
						Red maple----------	---	
						White ash----------	---	
Leicester---------	4x	Slight	Severe	Severe	Severe	Northern red oak----	56	Eastern white pine, white spruce.
						Eastern white pine--	69	
						Red maple----------	---	
						White ash----------	---	
Whitman----------	5x	Slight	Severe	Severe	Severe	Eastern white pine--	56	
						White ash----------	---	
						Red maple----------	55	
Ro---------- Rippowam	4w	Slight	Severe	Severe	Severe	Eastern white pine--	59	Eastern white pine, white spruce.
						Red maple----------	65	
						White ash----------	---	
Rp*:								
Rock outcrop.								
Hollis----------	5d	Slight	Moderate	Severe	Moderate	Northern red oak----	47	Eastern white pine, eastern hemlock.
						Eastern white pine--	55	
						Sugar maple---------	56	
						White spruce--------	60	
						White oak----------	---	
Sc---------- Scarboro	5w	Slight	Severe	Severe	Severe	Eastern white pine--	55	
						Red maple----------	55	
SnB, SnC---------- Stockbridge	3o	Slight	Slight	Slight	Slight	Northern red oak----	70	Eastern white pine, white spruce, Norway spruce, European
						Sugar maple---------	60	
						Eastern white pine--	75	
						Shagbark hickory----	---	
						Eastern hemlock-----	---	
SnD---------- Stockbridge	3r	Slight	Moderate	Slight	Slight	Northern red oak----	70	Eastern white pine, white spruce, Norway spruce, European larch.
						Sugar maple---------	60	
						Eastern white pine--	75	
						Shagbark hickory----	---	
						Eastern hemlock-----	---	

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	
SpC---------- Stockbridge	3o	Slight	Slight	Slight	Slight	Northern red oak----	70	Eastern white pine, white spruce, Norway spruce, European larch.
						Sugar maple----------	60	
						Eastern white pine--	75	
						Shagbark hickory----	---	
						Eastern hemlock-----	---	
SpD---------- Stockbridge	3r	Slight	Moderate	Slight	Slight	Northern red oak----	70	Eastern white pine, white spruce, Norway spruce, European larch.
						Sugar maple----------	60	
						Eastern white pine--	75	
						Shagbark hickory----	---	
						Eastern hemlock-----	---	
SvB, SwB---------- Sutton	4o	Slight	Slight	Slight	Slight	Red maple----------	---	Eastern white pine, white spruce, European larch, Norway spruce.
						Sugar maple----------	54	
						Northern red oak----	62	
						Eastern white pine--	62	
						White ash----------	---	
SxB---------- Sutton	4x	Slight	Moderate	Slight	Slight	Sugar maple----------	54	Eastern white pine, white spruce, European larch, Norway spruce.
						Northern red oak----	62	
						Eastern white pine--	62	
						Red maple----------	---	
						White ash----------	---	
Wd---------- Walpole	4w	Slight	Severe	Severe	Severe	Eastern white pine--	68	Eastern white pine, white spruce, Norway spruce.
						Red maple----------	75	
						White ash----------	---	
						Yellow birch--------	---	
WxA, WxB, WxC, WyB, WyC---------- Woodbridge	3o	Slight	Slight	Slight	Slight	Eastern white pine--	67	Eastern white pine, European larch.
						Northern red oak----	72	
						Sugar maple----------	65	
						Red maple----------	---	
						White ash----------	---	
WzB---------- Woodbridge	3x	Moderate	Moderate	Slight	Slight	Eastern white pine--	67	Eastern white pine, European larch.
						Northern red oak----	72	
						Sugar maple----------	65	
						Red maple----------	---	
						White ash----------	---	

* 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
Aa Adrian	Severe: wetness, floods, excess humus.	Severe: wetness, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, excess humus.	Severe: excess humus, floods, wetness.
AfA Agawam	Slight	Slight	Slight	Slight	Slight.
AfB Agawam	Slight	Slight	Moderate: slope.	Slight	Slight.
AfC Agawam	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Ba*. Beaches					
Ce Carlisle	Severe: floods, ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding, floods.	Severe: ponding, excess humus.	Severe: excess humus, ponding, floods.
CfB Charlton	Slight	Slight	Moderate: slope.	Slight	Slight.
CfC Charlton	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
CfD Charlton	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
ChB Charlton	Moderate: large stones.	Slight	Moderate: slope, large stones.	Moderate: large stones.	Moderate: large stones.
ChC Charlton	Moderate: slope, large stones.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: slope, large stones.
CnC Charlton	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: large stones.
CnD Charlton	Severe: large stones, slope.	Severe: slope.	Severe: slope, large stones.	Severe: large stones.	Severe: slope, large stones.
CrC*: Charlton	Moderate: slope, large stones.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: slope, large stones.
Hollis	Moderate: slope, large stones.	Moderate: slope.	Severe: slope, depth to rock.	Moderate: large stones.	Severe: depth to rock.
CrE*: Charlton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: 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
CrE*: Hollis	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Du*. Dumps					
GgB Georgia	Moderate: wetness, percs slowly.	Slight	Moderate: slope, percs slowly.	Slight	Slight.
GgC Georgia	Moderate: slope, wetness, percs slowly.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
GhB Georgia	Moderate: large stones, wetness, percs slowly.	Slight	Moderate: slope, large stones, percs slowly.	Moderate: large stones.	Moderate: large stones.
GhC Georgia	Moderate: slope, large stones, percs slowly.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: large stones, slope.
HcA Haven	Slight	Slight	Slight	Slight	Slight.
HcB Haven	Slight	Slight	Moderate: slope.	Slight	Slight.
HkB Hinckley	Moderate: too sandy, small stones.	Moderate: too sandy, small stones.	Severe: small stones.	Moderate: too sandy, small stones.	Moderate: small stones, too sandy.
HkC Hinckley	Moderate: too sandy, small stones.	Moderate: too sandy, small stones.	Severe: slope, small stones.	Moderate: too sandy, small stones.	Moderate: slope, small stones, too sandy.
HkD Hinckley	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: too sandy, small stones.	Severe: slope.
HpC*: Hollis	Moderate: slope, large stones.	Moderate: slope.	Severe: slope, depth to rock.	Moderate: large stones.	Severe: depth to rock.
Charlton	Moderate: slope, large stones.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: slope, large stones.
Rock outcrop.					
HrE*: Hollis	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Rock outcrop.					
Charlton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lc Leicester	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

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
MyB---------- Merrimac	Slight	Slight	Moderate: slope.	Slight	Slight.
NeB---------- Nellis	Slight	Slight	Moderate: slope.	Slight	Slight.
NfC*:					
Nellis----------	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Farmington----------	Moderate: slope.	Moderate: slope.	Severe: slope, depth to rock.	Slight	Severe: depth to rock.
NfD*:					
Nellis----------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Farmington----------	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Moderate: slope.	Severe: slope, depth to rock.
Nn---------- Ninigret	Slight	Slight	Moderate: wetness.	Slight	Slight.
PbB---------- Paxton	Moderate: percs slowly.	Slight	Moderate: slope, percs slowly.	Slight	Slight.
PbC---------- Paxton	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
PbD---------- Paxton	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
PdB---------- Paxton	Moderate: percs slowly, large stones.	Slight	Moderate: slope, large stones, percs slowly.	Moderate: large stones.	Moderate: large stones.
PdC---------- Paxton	Moderate: slope, large stones, percs slowly.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: slope, large stones.
PeC---------- Paxton	Severe: large stones.	Moderate: large stones, slope.	Severe: slope, large stones.	Severe: large stones.	Severe: large stones.
PeD---------- Paxton	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: large stones.	Severe: slope, large stones.
Pr*. Pits					
Ps---------- Pootatuck	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.	Severe: floods.
Rb---------- Raypol	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Rd---------- Ridgebury	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Rn*:					
Ridgebury----------	Severe: wetness, large stones.	Severe: wetness.	Severe: large stones, wetness.	Severe: wetness, large stones.	Severe: large stones, wetness.

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
Rn*:					
Leicester	Severe: large stones, wetness.	Severe: wetness.	Severe: large stones, wetness.	Severe: large stones, wetness.	Severe: large stones, wetness.
Whitman	Severe: wetness, large stones.	Severe: wetness.	Severe: wetness, large stones.	Severe: wetness, large stones.	Severe: large stones, wetness.
Ro	Severe: floods, wetness.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.	Severe: floods, wetness.
Rp*:					
Rock outcrop.					
Hollis	Severe: slope, large stones.	Severe: slope.	Severe: slope, depth to rock, large stones.	Severe: slope, large stones.	Severe: slope, depth to rock, large stones.
Sb	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.
Sc	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
SnB	Moderate: percs slowly.	Slight	Moderate: slope, percs slowly.	Slight	Slight.
SnC	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
SnD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
SpC	Moderate: slope, large stones, percs slowly.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: slope, large stones.
SpD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: large stones, slope.	Severe: slope.
SvB	Slight	Slight	Moderate: slope, wetness.	Slight	Slight.
SwB	Moderate: large stones.	Slight	Moderate: slope, large stones, wetness.	Moderate: large stones.	Moderate: large stones.
SxB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.
UD*.					
Udorthents					
Ur*.					
Urban land					
Wd	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

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
We, Wh---------- Westbrook	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess salt.
WxA---------- Woodbridge	Moderate: percs slowly.	Slight----------	Moderate: percs slowly, wetness.	Slight----------	Slight.
WxB---------- Woodbridge	Moderate: percs slowly.	Slight----------	Moderate: slope, percs slowly, wetness.	Slight----------	Slight.
WxC---------- Woodbridge	Moderate: percs slowly.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
WyB---------- Woodbridge	Moderate: percs slowly, large stones.	Slight----------	Moderate: slope, percs slowly, large stones.	Moderate: large stones.	Moderate: large stones.
WyC---------- Woodbridge	Moderate: slope, percs slowly, large stones.	Moderate: slope.	Severe: slope.	Moderate: large stones.	Moderate: slope, large stones.
WzB---------- Woodbridge	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: large stones.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Aa---- Adrian	Very poor.	Very poor.	Very poor.	Poor	Poor	Good	Good	Very poor.	Poor	Good.
AfA---- Agawam	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AfB---- Agawam	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AfC---- Agawam	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Ba*. Beaches										
Ce---- Carlisle	Very poor.	Very poor.	Very poor.	Poor	Poor	Good	Good	Very poor.	Poor	Good.
CfB---- Charlton	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CfC---- Charlton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CfD---- Charlton	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
ChB---- Charlton	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
ChC---- Charlton	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
CnC, CnD---- Charlton	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
CrC*, CrE*: Charlton----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Hollis----	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Du*. Dumps										
GgB---- Georgia	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
GgC---- Georgia	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GhB---- Georgia	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
GhC---- Georgia	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
HcA---- Haven	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
HcB---------- Haven	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HkB, HkC, HkD------ Hinckley	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
HpC*:										
Hollis----------	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Charlton----------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Rock outcrop.										
HrE*:										
Hollis----------	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop.										
Charlton----------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Lc---------- Leicester	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
MyB---------- Merrimac	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
NeB---------- Nellis	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NfC*:										
Nellis----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Farmington--------	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
NfD*:										
Nellis----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Farmington--------	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Nn---------- Ninigret	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
PbB---------- Paxton	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
PbC---------- Paxton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
PbD---------- Paxton	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
PdB---------- Paxton	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
PdC---------- Paxton	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
PeC, PeD---------- Paxton	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Pr*. Pits										
Ps---------- Pootatuck	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
Rb---------- Raypol	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair.
Rd---------- Ridgebury	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair.
Rn*: Ridgebury---------	Very poor.	Very poor.	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
Leicester---------	Very poor.	Very poor.	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
Whitman----------	Very poor.	Very poor.	Poor	Poor	Poor	Good	Fair	Very poor.	Poor	Fair.
Ro---------- Rippowam	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Rp*: Rock outcrop.										
Hollis----------	Very poor.	Very poor.	Fair	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Sb---------- Saco	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Sc---------- Scarboro	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
SnB---------- Stockbridge	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SnC---------- Stockbridge	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SnD---------- Stockbridge	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SpC, SpD---------- Stockbridge	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
SvB---------- Sutton	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SwB---------- Sutton	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
SxB---------- Sutton	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
UD*. Udorthents										
Ur*. Urban land										

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Wd---------- Walpole	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
We, Wh---------- Westbrook	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
WxA---------- Woodbridge	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
WxB---------- Woodbridge	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WxC---------- Woodbridge	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WyB---------- Woodbridge	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
WyC---------- Woodbridge	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
WzB---------- Woodbridge	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.

* 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]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Aa Adrian	Severe: wetness, cutbanks cave, excess humus.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: excess humus, floods, wetness.
AfA Agawam	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Slight.
AfB Agawam	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Slight.
AfC Agawam	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Ba*. Beaches						
Ce Carlisle	Severe: excess humus, ponding, wetness.	Severe: ponding, low strength, floods.	Severe: ponding, low strength, floods.	Severe: ponding, low strength, floods.	Severe: low strength, ponding, floods.	Severe: excess humus, ponding, floods.
CfB Charlton	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
CfC Charlton	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
CfD Charlton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
ChB Charlton	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Slight	Moderate: large stones.
ChC Charlton	Moderate: slope, large stones.	Moderate: slope, large stones.	Moderate: large stones, slope.	Severe: slope.	Moderate: slope.	Moderate: slope, large stones.
CnC Charlton	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: large stones.	Severe: large stones.
CnD Charlton	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.
CrC*: Charlton	Moderate: slope, large stones.	Moderate: slope, large stones.	Moderate: large stones, slope.	Severe: slope.	Moderate: slope.	Moderate: slope, large stones.
Hollis	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
CrE*: Charlton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hollis	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Du*. Dumps						

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
GgB---------- Georgia	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: frost action.	Slight.
GgC---------- Georgia	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: slope, frost action.	Severe: frost action.	Moderate: slope.
GhB---------- Georgia	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: frost action.	Moderate: large stones.
GhC---------- Georgia	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: slope, wetness, frost action.	Severe: frost action.	Moderate: large stones.
HcA---------- Haven	Severe: cutbanks cave.	Moderate: frost action.	Slight---------	Moderate: frost action.	Moderate: frost action.	Slight.
HcB---------- Haven	Severe: cutbanks cave.	Moderate: frost action.	Slight---------	Moderate: slope, frost action.	Moderate: frost action.	Slight.
HkB---------- Hinckley	Severe: small stones, cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Severe: small stones, droughty.
HkC---------- Hinckley	Severe: small stones, cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: small stones, droughty.
HkD---------- Hinckley	Severe: slope, small stones, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, small stones, droughty.
HpC*: Hollis----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Charlton---------	Moderate: slope, large stones.	Moderate: slope, large stones.	Moderate: large stones, slope.	Severe: slope.	Moderate: slope.	Moderate: slope, large stones.
Rock outcrop.						
HrE*: Hollis----------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Rock outcrop.						
Charlton---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lc---------- Leicester	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, frost action.	Severe: wetness.
MyB---------- Merrimac	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
NeB---------- Nellis	Slight---------	Moderate: frost action.	Slight---------	Moderate: slope, frost action.	Moderate: frost action.	Slight.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
NfC*:						
Nellis	Moderate: slope.	Moderate: slope, frost action.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
Farmington	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.
NfD*:						
Nellis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Farmington	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.
Nn	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Slight.
PbB Paxton	Slight	Moderate: frost action.	Slight	Moderate: slope, frost action.	Moderate: frost action.	Slight.
PbC Paxton	Moderate: slope.	Moderate: slope, frost action.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
PbD Paxton	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
PdB Paxton	Moderate: large stones.	Moderate: frost action, large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: frost action.	Moderate: large stones.
PdC Paxton	Moderate: slope, large stones.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope, large stones.
PeC Paxton	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: slope, large stones, frost action.	Severe: large stones.
PeD Paxton	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.
Pr*. Pits						
Ps Pootatuck	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.	Severe: floods.
Rb Raypol	Severe: wetness, cutbanks cave.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, frost action.	Severe: wetness.
Rd Ridgebury	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, frost action.	Severe: wetness.
Rn*:						
Ridgebury	Severe: large stones, wetness.	Severe: large stones, wetness, frost action.	Severe: large stones, wetness.	Severe: large stones, wetness, frost action.	Severe: wetness, frost action.	Severe: large stones, 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
Rn*: Leicester	Severe: large stones, wetness.	Severe: large stones, wetness, frost action.	Severe: large stones, wetness.	Severe: large stones, wetness, frost action.	Severe: wetness, frost action.	Severe: large stones, wetness.
Whitman	Severe: wetness, large stones.	Severe: wetness, frost action, large stones.	Severe: wetness, large stones.	Severe: large stones, wetness, frost action.	Severe: wetness, frost action.	Severe: large stones, wetness.
Ro Rippowam	Severe: floods, wetness, cutbanks cave.	Severe: floods, wetness, frost action.	Severe: floods, wetness.	Severe: floods, wetness, frost action.	Severe: floods, wetness, frost action.	Severe: floods, wetness.
Rp*: Rock outcrop.						
Hollis	Severe: slope, depth to rock, large stones.	Severe: slope, depth to rock, large stones.	Severe: slope, depth to rock, large stones.	Severe: slope, depth to rock, large stones.	Severe: slope, depth to rock.	Severe: slope, depth to rock, large stones.
Sb Saco	Severe: floods, wetness, cutbanks cave.	Severe: floods, wetness, frost action.	Severe: floods, wetness.	Severe: floods, wetness, frost action.	Severe: floods, wetness, frost action.	Severe: floods, wetness.
Sc Scarboro	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
SnB Stockbridge	Slight	Moderate: frost action.	Slight	Moderate: slope, frost action.	Moderate: frost action.	Slight.
SnC Stockbridge	Moderate: slope.	Moderate: slope, frost action.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
SnD Stockbridge	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SpC Stockbridge	Moderate: large stones, slope.	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope, large stones.
SpD Stockbridge	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SvB Sutton	Severe: wetness.	Moderate: wetness, frost action.	Severe: wetness.	Moderate: slope, wetness, frost action.	Moderate: frost action.	Slight.
SwB Sutton	Severe: wetness.	Moderate: large stones, wetness, frost action.	Severe: wetness.	Moderate: slope, large stones, wetness.	Moderate: frost action.	Moderate: large stones.
SxB Sutton	Severe: wetness, large stones.	Severe: large stones.	Severe: large stones, wetness.	Severe: large stones.	Moderate: frost action, large stones.	Severe: large stones.
UD*. Udorthents						
Ur*. Urban land						

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
Wd---------- Walpole	Severe: wetness, cutbanks cave.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, frost action.	Severe: wetness.
We, Wh---------- Westbrook	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: floods, corrosive, excess humus.	Severe: wetness, low strength, floods.	Severe: wetness, floods, excess salt.
WxA, WxB---------- Woodbridge	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: frost action.	Slight.
WxC---------- Woodbridge	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: slope, frost action.	Severe: frost action.	Moderate: slope.
WyB---------- Woodbridge	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: frost action.	Moderate: large stones.
WyC---------- Woodbridge	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: slope, frost action.	Severe: frost action.	Moderate: slope, large stones.
WzB---------- Woodbridge	Severe: wetness, large stones.	Severe: large stones, frost action.	Severe: large stones, wetness.	Severe: slope, large stones, frost action.	Severe: frost action.	Severe: large stones.

* 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," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Aa Adrian	Severe: wetness, floods.	Severe: seepage, floods, excess humus.	Severe: wetness, floods, seepage.	Severe: wetness, floods, seepage.	Poor: wetness, excess humus.
AfA, AfB Agawam	Slight*	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: thin layer, area reclaim.
AfC Agawam	Moderate: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Fair: slope, thin layer, area reclaim.
Ba**. Beaches					
Ce Carlisle	Severe: floods, wetness.	Severe: excess humus, seepage, floods.	Severe: floods, ponding, excess humus.	Severe: floods, ponding, seepage.	Poor: excess humus, wetness.
CfB Charlton	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
CfC Charlton	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope.
CfD Charlton	Severe: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage, slope.	Poor: slope.
ChB Charlton	Moderate: large stones.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: large stones.
ChC Charlton	Moderate: slope, large stones.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope, large stones.
CnC Charlton	Severe: large stones.	Severe: seepage, slope.	Severe: seepage, large stones.	Severe: seepage.	Poor: large stones.
CnD Charlton	Severe: slope, large stones.	Severe: seepage, slope.	Severe: seepage, large stones.	Severe: seepage, slope.	Poor: slope, large stones.
CrC**: Charlton	Moderate: slope, large stones.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope, large stones.
Hollis	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
CrE**: Charlton	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, 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
CrE**: Hollis	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
Du**. Dumps					
GgB Georgia	Severe: percs slowly, wetness.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Good.
GgC Georgia	Severe: percs slowly, wetness.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: slope.
GhB Georgia	Severe: percs slowly, wetness.	Moderate: slope, large stones.	Severe: wetness.	Severe: wetness.	Fair: large stones.
GhC Georgia	Severe: percs slowly, wetness.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: slope, large stones.
HcA, HcB Haven	Slight*	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: thin layer, small stones.
HkB Hinckley	Slight*	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: too sandy, area reclaim.
HkC Hinckley	Moderate*: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Poor: too sandy, area reclaim.
HkD Hinckley	Severe*: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: slope, seepage.	Poor: slope, too sandy, area reclaim.
HpC**: Hollis	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
Charlton	Moderate: slope, large stones.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope, large stones.
Rock outcrop.					
HrE**: Hollis	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
Rock outcrop.					
Charlton	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Lc Leicester	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Poor: 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
MyB---------- Merrimac	Slight*----------	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: thin layer, area reclaim.
NeB---------- Nellis	Severe: percs slowly.	Moderate: slope, seepage.	Slight----------	Slight----------	Good.
NfC**: Nellis----------	Severe: percs slowly.	Severe: slope.	Slight----------	Moderate: slope.	Fair: slope.
Farmington---------	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: thin layer, area reclaim.
NfD**: Nellis----------	Severe: slope, percs slowly.	Severe: slope.	Moderate: slope.	Severe: slope.	Poor: slope.
Farmington---------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Poor: slope, thin layer, area reclaim.
Nn---------- Ninigret	Severe*: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Fair: thin layer, area reclaim.
PbB---------- Paxton	Severe: percs slowly.	Moderate: slope.	Slight----------	Slight----------	Good.
PbC---------- Paxton	Severe: percs slowly.	Severe: slope.	Slight----------	Moderate: slope.	Fair: slope.
PbD---------- Paxton	Severe: slope, percs slowly.	Severe: slope.	Moderate: slope.	Severe: slope.	Poor: slope.
PdB---------- Paxton	Severe: percs slowly.	Moderate: slope.	Moderate: large stones.	Slight----------	Fair: large stones.
PdC---------- Paxton	Severe: percs slowly.	Severe: slope.	Moderate: large stones.	Moderate: slope.	Fair: slope, large stones.
PeC---------- Paxton	Severe: percs slowly, large stones.	Severe: slope.	Severe: large stones.	Moderate: slope.	Poor: large stones.
PeD---------- Paxton	Severe: slope, percs slowly, large stones.	Severe: slope.	Severe: large stones.	Severe: slope.	Poor: slope, large stones.
Pr**. Pits					
Ps---------- Pootatuck	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Slight.
Rb---------- Raypol	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage, too sandy.	Severe: wetness, seepage.	Poor: 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
Rd Ridgebury	Severe: percs slowly, wetness.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.
Rn**: Ridgebury	Severe: large stones, percs slowly, wetness.	Moderate: large stones.	Severe: wetness, large stones.	Severe: wetness.	Poor: wetness, large stones.
Leicester	Severe: large stones, wetness.	Severe: wetness, seepage.	Severe: large stones, wetness, seepage.	Severe: wetness, seepage.	Poor: large stones, wetness.
Whitman	Severe: percs slowly, wetness, large stones.	Severe: large stones.	Severe: large stones, wetness.	Severe: wetness.	Poor: large stones, wetness.
Ro Rippowam	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Poor: wetness.
Rp**: Rock outcrop.					
Hollis	Severe: slope, depth to rock, large stones.	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, large stones.
Sb Saco	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Poor: wetness.
Sc Scarboro	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Poor: wetness.
SnB Stockbridge	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
SnC Stockbridge	Severe: percs slowly.	Severe: slope.	Slight	Moderate: slope.	Fair: slope.
SnD Stockbridge	Severe: slope, percs slowly.	Severe: slope.	Moderate: slope.	Severe: slope.	Poor: slope.
SpC Stockbridge	Severe: percs slowly.	Severe: slope.	Moderate: large stones.	Moderate: slope.	Fair: large stones, slope.
SpD Stockbridge	Severe: slope, percs slowly.	Severe: slope.	Moderate: slope, large stones.	Severe: slope.	Poor: slope.
SvB Sutton	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Good.
SwB Sutton	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Fair: large stones.

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
SxB---------- Sutton	Severe: wetness, large stones.	Severe: wetness, seepage.	Severe: wetness, seepage, large stones.	Severe: wetness, seepage.	Poor: large stones.
UD**. Udorthents					
Ur**. Urban land					
Wd---------- Walpole	Severe: wetness.	Severe: wetness, seepage.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: wetness.
We, Wh---------- Westbrook	Severe: wetness, floods.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods.	Poor: excess humus, wetness.
WxA---------- Woodbridge	Severe: percs slowly, wetness.	Slight----------	Severe: wetness.	Severe: wetness.	Good.
WxB---------- Woodbridge	Severe: percs slowly, wetness.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Good.
WxC---------- Woodbridge	Severe: percs slowly, wetness.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: slope.
WyB---------- Woodbridge	Severe: percs slowly, wetness.	Moderate: slope, large stones.	Severe: wetness.	Severe: wetness.	Fair: large stones.
WyC---------- Woodbridge	Severe: percs slowly, wetness.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: slope, large stones.
WzB---------- Woodbridge	Severe: percs slowly, wetness.	Severe: slope, large stones.	Severe: wetness, large stones.	Severe: wetness.	Poor: large stones.

*Excessive permeability may cause ground-water pollution.
** 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," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Aa Adrian	Poor: wetness, low strength.	Probable	Improbable: too sandy.	Poor: wetness, excess humus.
AfA, AfB Agawam	Good	Probable	Probable	Fair: thin layer, area reclaim.
AfC Agawam	Good	Probable	Probable	Fair: slope, thin layer, area reclaim.
Ba*. Beaches				
Ce Carlisle	Poor: low strength, wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: wetness, excess humus.
CfB Charlton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
CfC Charlton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
CfD Charlton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
ChB, ChC Charlton	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
CnC Charlton	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
CnD Charlton	Fair: slope, large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, large stones.
CrC*: Charlton	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
Hollis	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, large stones, area reclaim.
CrE*: Charlton	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, large stones.
Hollis	Poor: slope, thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer, large stones.
Du*. Dumps				
GgB Georgia	Poor: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
GgC---------- Georgia	Poor: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones.
GhB, GhC---------- Georgia	Poor: frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
HcA, HcB---------- Haven	Fair: frost action.	Probable----------	Probable----------	Good.
HkB, HkC---------- Hinckley	Good----------	Probable----------	Probable----------	Poor: too sandy, area reclaim, small stones.
HkD---------- Hinckley	Fair: slope.	Probable----------	Probable----------	Poor: slope, too sandy, area reclaim.
HpC*: Hollis----------	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, large stones, area reclaim.
Charlton----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
Rock outcrop.				
HrE*: Hollis----------	Poor: slope, thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer, large stones.
Rock outcrop.				
Charlton----------	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, large stones.
Lc---------- Leicester	Poor: wetness, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
MyB---------- Merrimac	Good----------	Probable----------	Probable----------	Fair: thin layer, area reclaim.
NeB---------- Nellis	Fair: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
NfC*: Nellis----------	Fair: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: large stones, slope.
Farmington----------	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
NfD*: Nellis----------	Fair: slope, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
NfD*: Farmington	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, area reclaim.
Nn Ninigret	Fair: frost action.	Probable	Probable	Good.
PbB Paxton	Fair: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
PbC Paxton	Fair: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones.
PbD Paxton	Fair: slope, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
PdB, PdC Paxton	Fair: frost action.	Improbable: excess fines.	Improbable: excess fines	Poor: large stones.
PeC Paxton	Fair: frost action, large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
PeD Paxton	Fair: slope, large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, large stones.
Pr*. Pits				
Ps Pootatuck	Good	Probable	Probable	Good.
Rb Raypol	Poor: wetness, frost action.	Probable	Probable	Poor: wetness.
Rd Ridgebury	Poor: wetness, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, small stones.
Rn*: Ridgebury	Poor: wetness, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, large stones.
Leicester	Poor: wetness, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, large stones.
Whitman	Poor: wetness, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, large stones.
Ro Rippowam	Poor: wetness.	Probable	Probable	Poor: wetness.
Rp*: Rock outcrop.				
Hollis	Poor: slope, thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer, large stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Sb---------- Saco	Poor: wetness, frost action.	Probable----------	Improbable: too sandy.	Poor: wetness.
Sc---------- Scarboro	Poor: wetness.	Probable----------	Improbable: too sandy.	Poor: wetness, too sandy.
SnB---------- Stockbridge	Fair: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
SnC---------- Stockbridge	Fair: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones.
SnD---------- Stockbridge	Fair: slope, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
SpC---------- Stockbridge	Fair: frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
SpD---------- Stockbridge	Fair: slope, frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, large stones.
SvB---------- Sutton	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
SwB---------- Sutton	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
SxB---------- Sutton	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
UD*. Udorthents				
Ur*. Urban land				
Wd---------- Walpole	Poor: wetness.	Probable----------	Probable----------	Poor: wetness.
We, Wh---------- Westbrook	Poor: excess humus, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess salt.
WxA, WxB---------- Woodbridge	Poor: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
WxC---------- Woodbridge	Poor: frost action.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones.
WyB, WyC, WzB--------- Woodbridge	Poor: frost action.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 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]

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
Aa---------- Adrian	Severe: seepage.	Severe: seepage, wetness, excess humus.	Severe: slow refill, cutbanks cave.	Floods, subsides.	Not needed-----	Wetness.
AfA, AfB---------- Agawam	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed-----	Slope, erodes easily.	Slope, erodes easily.
AfC---------- Agawam	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Not needed-----	Slope, erodes easily.	Slope, erodes easily.
Ba*. Beaches						
Ce---------- Carlisle	Severe: seepage.	Severe: excess humus, seepage.	Severe: slow refill.	Subsides, floods.	Not needed-----	Wetness.
CfB---------- Charlton	Severe: seepage.	Moderate: seepage.	Severe: no water.	Not needed-----	Slope, erodes easily.	Slope, erodes easily.
CfC, CfD---------- Charlton	Severe: seepage. slope.	Moderate: seepage.	Severe: no water.	Not needed-----	Slope, erodes easily.	Slope, erodes easily.
ChB---------- Charlton	Severe: seepage.	Moderate: seepage, large stones.	Severe: no water.	Not needed-----	Large stones, slope, erodes easily.	Large stones, slope, erodes easily.
ChC, CnC, CnD----- Charlton	Severe: seepage, slope.	Moderate: seepage, large stones.	Severe: no water.	Not needed-----	Large stones, slope, erodes easily.	Large stones, slope, erodes easily.
CrC*, CrE*: Charlton---------	Severe: seepage, slope.	Moderate: seepage, large stones.	Severe: no water.	Not needed-----	Large stones, slope, erodes easily.	Large stones, slope, erodes easily.
Hollis----------	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Not needed-----	Large stones, depth to rock, rooting depth.	Large stones, rooting depth, droughty.
Du*. Dumps						
GgB---------- Georgia	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Percs slowly, slope.	Slope, percs slowly, erodes easily.	Slope, percs slowly, erodes easily.
GgC---------- Georgia	Severe: slope.	Severe: piping.	Severe: no water.	Percs slowly, slope.	Slope, percs slowly, erodes easily.	Slope, percs slowly, erodes easily.
GhB---------- Georgia	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Percs slowly, slope, large stones.	Large stones, slope, percs slowly.	Slope, large stones, percs slowly.
GhC---------- Georgia	Severe: slope.	Severe: piping.	Severe: no water.	Percs slowly, slope, large stones.	Large stones, slope, percs slowly.	Slope, large stones, percs slowly.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

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
HcA---------- Haven	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed-----	Not needed-----	Erodes easily.
HcB---------- Haven	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed-----	Erodes easily	Erodes easily.
HkB---------- Hinckley	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed-----	Slope, too sandy.	Slope, droughty.
HkC, HkD---------- Hinckley	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Not needed-----	Slope, too sandy.	Slope, droughty.
HpC*: Hollis----------	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Not needed-----	Large stones, depth to rock, rooting depth.	Large stones, rooting depth, droughty.
Charlton---------	Severe: seepage, slope.	Moderate: seepage, large stones.	Severe: no water.	Not needed-----	Large stones, slope, erodes easily.	Large stones, slope, erodes easily.
Rock outcrop.						
HrE*: Hollis----------	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Not needed-----	Large stones, depth to rock, rooting depth.	Large stones, rooting depth, droughty.
Rock outcrop.						
Charlton---------	Severe: seepage, slope.	Moderate: seepage, large stones.	Severe: no water.	Not needed-----	Large stones, slope, erodes easily.	Large stones, slope, erodes easily.
Lc---------- Leicester	Severe: seepage.	Severe: wetness, seepage.	Moderate: slow refill.	Wetness--------	Wetness--------	Wetness.
MyB---------- Merrimac	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed-----	Slope, too sandy.	Slope, droughty.
NeB---------- Nellis	Moderate: seepage, slope.	Severe: seepage.	Severe: no water.	Not needed-----	Percs slowly---	Percs slowly.
NfC*: Nellis----------	Severe: slope.	Severe: seepage.	Severe: no water.	Not needed-----	Percs slowly---	Slope, percs slowly.
Farmington-------	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Not needed-----	Depth to rock	Slope, rooting depth.
NfD*: Nellis----------	Severe: slope.	Severe: seepage.	Severe: no water.	Not needed-----	Slope, percs slowly.	Slope, percs slowly.
Farmington-------	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Not needed-----	Slope, depth to rock.	Slope, rooting depth.
Nn---------- Ninigret	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Wetness, slope.	Slope, wetness.	Slope, wetness.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

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
PbB---------- Paxton	Severe: seepage.	Severe: piping.	Severe: no water.	Not needed-----	Percs slowly, erodes easily, slope.	Percs slowly, slope, erodes easily.
PbC, PbD---------- Paxton	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Not needed-----	Percs slowly, erodes easily, slope.	Percs slowly, slope, erodes easily.
PdB---------- Paxton	Severe: seepage.	Severe: piping.	Severe: no water.	Not needed-----	Large stones, percs slowly, erodes easily.	Large stones, percs slowly, erodes easily.
PdC, PeC, PeD----- Paxton	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Not needed-----	Large stones, percs slowly, erodes easily.	Large stones, percs slowly, erodes easily.
Pr*. Pits						
Ps---------- Pootatuck	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Poor outlets, floods.	Not needed-----	Not needed.
Rb---------- Raypol	Severe: seepage.	Severe: seepage, wetness.	Severe: cutbanks cave.	Frost action, wetness.	Wetness, erodes easily.	Wetness, erodes easily.
Rd---------- Ridgebury	Slight---------	Severe: piping, wetness.	Severe: no water.	Wetness, percs slowly, poor outlets.	Wetness, percs slowly.	Wetness, percs slowly.
Rn*: Ridgebury--------	Slight---------	Severe: piping, wetness.	Severe: no water.	Wetness, percs slowly.	Wetness, large stones, percs slowly.	Wetness, large stones, percs slowly.
Leicester--------	Severe: seepage.	Severe: wetness, seepage.	Moderate: slow refill.	Wetness--------	Wetness, large stones.	Wetness, large stones.
Whitman----------	Slight---------	Severe: piping, wetness.	Severe: no water.	Wetness, percs slowly, poor outlets.	Large stones, wetness, percs slowly.	Large stones, wetness, percs slowly.
Ro---------- Rippowam	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Wetness, floods, poor outlets.	Not needed-----	Not needed.
Rp*: Rock outcrop.						
Hollis----------	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Not needed-----	Large stones, depth to rock, rooting depth.	Large stones, rooting depth, droughty.
Sb---------- Saco	Moderate: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Floods, frost action.	Not needed-----	Wetness, erodes easily.
Sc---------- Scarboro	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave, wetness.	Wetness--------	Wetness.
SnB---------- Stockbridge	Severe: seepage.	Severe: piping.	Severe: no water.	Not needed-----	Slope, erodes easily, percs slowly.	Slope, erodes easily, percs slowly.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

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
SnC, SnD---------- Stockbridge	Severe: slope.	Severe: piping.	Severe: no water.	Not needed-----	Slope, erodes easily.	Slope, erodes easily.
SpC, SpD---------- Stockbridge	Severe: slope.	Severe: piping.	Severe: no water.	Not needed-----	Large stones, slope, erodes easily.	Large stones, slope, erodes easily.
SvB---------- Sutton	Severe: seepage.	Severe: wetness.	Moderate: slow refill.	Wetness--------	Slope, wetness.	Slope, wetness.
SwB, SxB---------- Sutton	Severe: seepage.	Severe: wetness.	Moderate: slow refill.	Wetness--------	Slope, large stones, wetness.	Slope, wetness, large stones.
UD*. Udorthents						
Ur*. Urban land						
Wd---------- Walpole	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Wetness--------	Wetness, piping.	Wetness.
We, Wh---------- Westbrook	Severe: seepage.	Severe: excess humus, ponding, excess salt.	Severe: salty water.	Floods, wetness, excess salt.	Not needed-----	Not needed.
WxA, WxB---------- Woodbridge	Severe: seepage.	Severe: piping.	Severe: no water.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
WxC---------- Woodbridge	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
WyB---------- Woodbridge	Severe: seepage.	Severe: piping.	Severe: no water.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.
WyC, WzB---------- Woodbridge	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.

* 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. NP=nonplastic]

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Aa	0-24	Muck	Pt	A-8	---	---	---	---	---	---	---
Adrian	24-60	Sand, loamy sand, fine sand.	SP, SM	A-2, A-3, A-1	0	80-100	60-100	35-75	0-30	---	NP
AfA, AfB, AfC	0-9	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	85-100	40-65	<25	NP-3
Agawam	9-29	Fine sandy loam, very fine sandy loam, loam.	SM, ML	A-4	0	95-100	85-100	80-100	40-65	<25	NP-3
	29-35	Fine sand, loamy fine sand, loamy sand.	SM, SP-SM	A-2, A-4	0	90-100	85-100	70-90	5-35	---	NP
	35-60	Stratified fine sand to very gravelly loamy sand.	SM, SP-SM	A-1, A-2, A-3	0-5	70-100	30-100	15-80	5-35	---	NP
Ba*.											
Beaches											
Ce	0-66	Muck	Pt	A-8	---	---	---	---	---	---	---
Carlisle											
CfB, CfC, CfD	0-6	Fine sandy loam	SM, ML	A-2, A-4	5-10	75-95	70-90	60-85	30-70	<25	NP-5
Charlton	6-29	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, ML	A-2, A-4	5-15	65-90	60-90	50-80	20-65	<25	NP-3
	29-60	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam.	SM	A-2, A-4	5-15	60-90	60-85	50-70	20-45	---	NP
ChB, ChC	0-6	Very stony fine sandy loam.	SM, ML	A-2, A-4	10-30	75-95	70-90	60-85	30-70	<25	NP-5
Charlton	6-29	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, ML	A-2, A-4	5-15	65-90	60-90	50-80	20-65	<25	NP-3
	29-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-15	60-90	60-85	50-70	20-45	---	NP
CnC, CnD	0-6	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	15-35	75-95	70-90	60-85	30-70	<25	NP-5
Charlton	6-29	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, ML	A-2, A-4	5-15	65-90	60-90	50-80	20-65	<25	NP-3
	29-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-15	60-90	60-85	50-70	20-45	---	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	
CrC*, CrE*:											
Charlton	0-6	Very stony fine sandy loam.	SM, ML	A-2, A-4	10-30	75-95	70-90	60-85	30-70	<25	NP-5
	6-29	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, ML	A-2, A-4	5-15	65-90	60-90	50-80	20-65	<25	NP-3
	29-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-15	60-90	60-85	50-70	20-45	---	NP
Hollis	0-3	Very stony fine sandy loam.	SM, ML	A-2, A-4	5-15	75-100	65-95	40-85	25-70	<20	NP-3
	3-17	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Du* Dumps											
GgB, GgC	0-8	Silt loam	ML, CL-ML	A-4	5-20	85-95	80-95	75-90	65-80	15-30	NP-10
Georgia	8-24	Loam, silt loam, gravelly loam.	ML, SM, CL-ML, SM-SC	A-4	5-20	60-95	50-90	40-85	35-80	15-25	NP-10
	24-60	Loam, gravelly fine sandy loam, silt loam.	ML, SM, CL-ML, SM-SC	A-4, A-2	5-20	60-95	50-90	40-80	30-70	15-25	NP-10
GhB, GhC	0-8	Very stony silt loam.	ML, CL-ML	A-4	5-25	85-95	80-90	75-90	65-80	15-30	NP-10
Georgia	8-24	Loam, silt loam, gravelly loam.	ML, SM, CL-ML, SM-SC	A-4	5-20	60-95	50-90	40-85	35-80	15-25	NP-10
	24-60	Loam, gravelly fine sandy loam, silt loam.	ML, SM, CL-ML, SM-SC	A-4, A-2	5-20	60-95	50-90	40-80	30-70	15-25	NP-10
HcA, HcB	0-24	Silt loam	ML, SM	A-4	0	80-100	75-100	65-100	40-90	<25	NP-4
Haven	24-60	Stratified loamy fine sand to gravel.	SP, SW, GP, SM	A-1, A-3	0	30-90	25-85	10-60	1-25	<10	NP
HkB, HkC, HkD	0-9	Gravelly sandy loam.	SM, ML	A-1, A-2, A-4	0-20	60-95	40-75	20-70	6-55	<20	NP
Hinckley	9-15	Gravelly loamy sand, loamy fine sand, very gravelly loamy coarse sand.	SM, GM, GP-GM	A-1, A-2	0-20	50-95	30-85	15-70	2-30	<20	NP
	15-60	Stratified gravelly loamy fine sand to very cobbly coarse sand.	SP, SP-SM, GP, GP-GM	A-1	0-45	40-75	20-50	10-40	0-20	<10	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
HpC*:											
Hollis	0-3	Very stony fine sandy loam.	SM, ML	A-2, A-4	5-15	75-100	65-95	40-85	25-70	<20	NP-3
	3-17	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Charlton	0-6	Very stony fine sandy loam.	SM, ML	A-2, A-4	10-30	75-95	70-90	60-85	30-70	<25	NP-5
	6-29	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, ML	A-2, A-4	5-15	65-90	60-90	50-80	20-65	<25	NP-3
	29-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-15	60-90	60-85	50-70	20-45	---	NP
Rock outcrop.											
HrE*:											
Hollis	0-3	Very stony fine sandy loam.	SM, ML	A-2, A-4	5-15	75-100	65-95	40-85	25-70	<20	NP-3
	3-17	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
Charlton	0-6	Very stony fine sandy loam.	SM, ML	A-2, A-4	10-30	75-95	70-90	60-85	30-70	<25	NP-5
	6-29	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, ML	A-2, A-4	5-15	65-90	60-90	50-80	20-65	<25	NP-3
	29-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM	A-2, A-4	5-15	60-90	60-85	50-70	20-45	---	NP
Lc	0-7	Fine sandy loam	SM, ML	A-2, A-4	0-10	70-95	70-90	45-85	25-70	<25	NP-5
Leicester	7-29	Fine sandy loam, loam, gravelly sandy loam.	SM	A-2, A-4	5-10	70-90	60-85	40-75	25-55	---	NP
	29-60	Fine sandy loam, sandy loam, gravelly sandy loam.	SM, GM	A-2, A-4	5-15	65-90	55-85	35-70	20-45	---	NP
MyB	0-16	Sandy loam------	SM, ML	A-2, A-4	0	85-95	70-90	40-85	20-55	<20	NP
Merrimac	16-24	Sandy loam------	SM	A-2	0	75-95	70-90	40-60	20-35	<25	NP
	24-60	Stratified sand to very gravelly sand.	GP, SP, SP-SM, GP-GM	A-1	5-25	40-65	30-60	15-40	0-10	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
NeB----------	0-8	Fine sandy loam	ML, SM	A-4	0-5	80-100	75-95	50-95	35-85	35-40	NP-5
Nellis	8-27	Loam, silt loam, gravelly fine sandy loam.	ML, GM, SM, SM-SC	A-2, A-4	0-5	55-90	50-85	40-85	25-70	15-20	NP-5
	27-60	Gravelly fine sandy loam, gravelly loam, fine sandy loam.	GM, SM, SM-SC	A-2, A-4, A-1	0-5	40-75	35-70	25-65	15-50	15-20	NP-5
NfC*, NfD*:											
Nellis----------	0-8	Fine sandy loam	ML, SM	A-4	0-5	80-100	75-95	50-95	35-85	35-40	NP-5
	8-27	Loam, silt loam, gravelly fine sandy loam.	ML, GM, SM, SM-SC	A-2, A-4	0-5	55-90	50-85	40-85	25-70	15-20	NP-5
	27-60	Gravelly fine sandy loam, gravelly loam, fine sandy loam.	GM, SM, SM-SC	A-2, A-4, A-1	0-5	40-75	35-70	25-65	15-50	15-20	NP-5
Farmington--------	0-10	Fine sandy loam	ML, CL, SM, SC	A-2, A-4, A-6	0-5	80-95	75-90	50-85	30-80	20-35	NP-15
	10-16	Silt loam, loam, gravelly fine sandy loam.	ML, CL, GM, GC	A-2, A-4, A-6, A-1	0-5	60-95	55-90	35-85	20-80	20-35	NP-15
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Nn----------	0-10	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	70-95	40-65	<25	NP-3
Ninigret	10-26	Fine sandy loam, sandy loam, loamy sand.	SM	A-2, A-4	0	95-100	90-100	65-85	20-50	---	NP
	26-60	Loamy sand, sand, gravelly sand.	SP, SM	A-1, A-2, A-3	0-10	60-100	45-100	25-75	0-30	---	NP
PbB, PbC, PbD------	0-9	Fine sandy loam	SM, ML, SM-SC	A-2, A-4	0-10	80-95	75-90	60-85	30-65	<30	NP-10
Paxton	9-31	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	65-90	50-85	25-65	<30	NP-10
	31-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	60-85	50-75	20-60	<30	NP-10
PdB, PdC----------	0-9	Very stony fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-20	80-95	75-90	60-85	30-65	<30	NP-10
Paxton	9-31	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-20	70-90	65-90	50-85	25-65	<30	NP-10
	31-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-85	50-75	20-60	<30	NP-10
PeC, PeD----------	0-9	Extremely stony fine sandy loam.	SM, ML, SM-SC	A-2, A-4	10-25	80-90	70-85	60-80	30-65	<30	NP-10
Paxton	9-31	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-20	70-90	65-90	50-85	25-65	<30	NP-10
	31-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-85	50-75	20-60	<30	NP-10

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	
Pr*. Pits											
Ps---------- Pootatuck	0-4	Fine sandy loam	SM, ML	A-2, A-4	0	100	95-100	60-100	30-75	---	NP
	4-28	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	100	95-100	60-85	30-50	---	NP
	28-60	Loamy fine sand, loamy sand, gravelly coarse sand.	SP-SM, SM	A-2, A-1	0	65-100	55-100	35-85	5-25	---	NP
Rb---------- Raypol	0-6	Silt loam-------	ML	A-4	0	90-100	85-100	75-100	65-90	<30	NP-7
	6-19	Silt loam, very fine sandy loam, loam.	ML	A-4	0	90-100	85-100	75-100	65-90	<25	NP-5
	19-60	Gravelly sand, sand, very gravelly sand.	SP, GP	A-1, A-3, A-2	0-20	45-90	35-85	15-60	0-10	---	NP
Rd---------- Ridgebury	0-8	Fine sandy loam	SM, ML	A-1, A-2, A-4	0-15	80-100	75-95	40-90	20-70	---	NP
	8-18	Sandy loam, gravelly loam.	SM, GM, ML	A-1, A-2, A-4	0-15	65-95	55-90	40-80	20-60	---	NP
	18-60	Sandy loam, gravelly loam.	SM, GM, ML	A-1, A-2, A-4	0-15	65-95	55-90	35-80	20-60	---	NP
Rn*: Ridgebury----------	0-8	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	10-30	70-100	60-95	45-85	25-65	---	NP
	8-18	Sandy loam, gravelly loam.	SM, GM, ML	A-1, A-2, A-4	10-30	65-95	55-90	40-80	20-60	---	NP
	18-60	Sandy loam, gravelly loam.	SM, GM, ML	A-1, A-2, A-4	10-30	65-95	55-90	35-80	20-60	---	NP
Leicester----------	0-7	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	5-25	70-95	70-90	45-85	25-70	<25	NP-5
	7-29	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-10	70-90	60-85	40-75	20-55	---	NP
	29-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, GM	A-2, A-4	5-15	65-90	55-85	35-70	20-45	---	NP
Whitman----------	0-8	Extremely stony fine sandy loam.	ML, CL, SM, GM	A-1, A-2, A-4	10-40	65-100	60-95	35-90	20-85	16-35	NP-10
	8-24	Sandy loam, gravelly fine sandy loam, gravelly silt loam.	ML, CL-ML, SM, GM	A-1, A-2, A-4	0-10	65-95	60-90	35-85	20-60	16-35	NP-10
	24-60	Sandy loam, gravelly fine sandy loam, loam.	ML, CL-ML, SM, GM	A-1, A-2, A-4	0-10	65-95	60-90	35-85	20-60	16-32	NP-8

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Ro---------- Rippowam	0-5	Fine sandy loam	SM, ML	A-2, A-4	0	100	85-100	50-85	25-55	<40	NP
	5-27	Fine sandy loam, sandy loam, loam.	SM, ML	A-2, A-4	0	100	85-100	50-95	25-75	<40	NP
	27-60	Stratified loamy sand to gravelly sand.	SP, SM	A-1, A-2, A-3	0	80-100	55-95	25-70	5-30	<40	NP
Rp*: Rock outcrop.											
Hollis----------	0-3	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	5-25	75-100	65-95	40-85	25-70	<20	NP-3
	3-17	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sb---------- Saco	0-14	Silt loam-------	ML, OL	A-4	0	100	100	95-100	70-95	<40	NP-10
	14-34	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	55-95	<40	NP-10
	34-41	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	90-100	50-95	<25	NP-5
	41-60	Coarse sand, gravelly sand.	SP, SM	A-1, A-2	0	80-100	50-85	35-70	0-15	---	NP
Sc---------- Scarboro	0-9	Mucky sandy loam.	SM, SP-SM	A-1, A-2 A-4	0	95-100	85-100	40-100	5-50	---	NP
	9-40	Loamy fine sand, fine sand, sand.	SM, SP-SM	A-1, A-2	0	95-100	85-100	40-100	5-35	---	NP
	40-60	Loamy sand, sand, fine sand.	SM, SP-SM	A-1, A-2	0	95-100	85-100	40-100	5-35	---	NP
SnB, SnC, SnD------ Stockbridge	0-8	Loam----------	ML, CL-ML	A-4	0-10	75-95	70-90	65-85	50-75	20-40	3-12
	8-24	Loam, silt loam, gravelly silt loam.	ML, CL-ML	A-4	0-10	70-95	65-90	60-85	50-75	20-40	3-12
	24-60	Loam, silt loam, gravelly loam.	ML, CL-ML	A-4	0-10	65-95	60-85	55-80	50-75	20-40	3-12
SpC, SpD---------- Stockbridge	0-8	Very stony loam	ML, CL-ML, SM	A-4, A-2	5-25	70-95	55-90	45-85	35-75	20-40	3-12
	8-24	Loam, silt loam, gravelly silt loam.	ML, CL-ML	A-4	0-10	70-95	65-90	60-85	50-75	20-40	3-12
	24-60	Loam, silt loam, gravelly loam.	ML, CL-ML	A-4	0-10	60-95	60-85	60-80	50-75	20-40	3-12
SvB---------- Sutton	0-8	Fine sandy loam	SM, ML	A-2, A-4	0-10	75-95	65-90	60-80	30-70	<25	NP-3
	8-24	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	0-10	75-95	65-90	50-80	25-65	<25	NP-3
	24-60	Fine sandy loam, gravelly sandy loam, sandy loam.	SM	A-2, A-4	5-15	60-90	55-85	45-70	20-45	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
SwB---------- Sutton	0-8	Very stony fine sandy loam.	SM, ML	A-2, A-4	5-20	75-95	65-90	60-80	30-70	<25	NP-3
	8-24	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	5-15	75-95	65-90	50-80	25-65	<25	NP-3
	24-60	Fine sandy loam, gravelly sandy loam, sandy loam.	SM	A-2, A-4	5-15	60-90	55-85	45-70	20-45	---	NP
SxB---------- Sutton	0-8	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	5-20	75-95	65-90	60-80	30-70	<25	NP-3
	8-24	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	5-15	75-95	65-90	50-80	25-65	<25	NP-3
	24-60	Fine sandy loam, gravelly sandy loam, sandy loam.	SM	A-2, A-4	5-15	60-90	55-85	45-70	20-45	---	NP
UD*. Udorthents											
Ur*. Urban land											
Wd---------- Walpole	0-13	Fine sandy loam	SM	A-2, A-4	0-5	90-100	85-100	70-100	30-50	<25	NP-3
	13-20	Fine sandy loam, sandy loam, gravelly sandy loam.	SM	A-2, A-4	0-5	85-100	60-100	40-95	25-50	---	NP
	20-60	Gravelly loamy sand, gravelly sand, sand.	SP, SM, GP	A-1, A-2	0-20	55-100	50-100	25-90	0-25	---	NP
We, Wh---------- Westbrook	0-32	Mucky peat------	Pt	---	0	---	---	---	---	---	NP
	32-99	Silt loam, very fine sandy loam.	ML, CL-ML, OL	A-4	0	95-100	95-100	95-100	85-100	<25	NP-5
WxA, WxB, WxC------ Woodbridge	0-8	Fine sandy loam	SM, ML, SM-SC	A-2, A-4	0-10	85-95	70-90	60-85	30-65	<30	NP-10
	8-32	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	75-90	65-90	50-85	25-65	<30	NP-10
	32-60	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-85	50-75	20-60	<30	NP-10
WyB, WyC---------- Woodbridge	0-8	Very stony fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-20	85-95	70-90	60-85	30-65	<30	NP-10
	8-32	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	75-95	65-90	50-85	25-60	<30	NP-10
	32-60	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-90	50-75	25-60	<30	NP-10

See 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	
WzB---------- Woodbridge	0-8	Extremely stony fine sandy loam.	SM, ML, SM-SC	A-2, A-4	10-25	85-95	70-90	60-85	30-65	<30	NP-10
	8-32	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	75-95	65-90	50-85	25-60	<30	NP-10
	32-60	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-90	50-75	25-60	<30	NP-10

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
Aa----------	0-24	6.0-20	0.35-0.45	5.1-7.3	----------	----	---
Adrian	24-60	6.0-20	0.03-0.08	5.6-7.3	Low----------	----	
AfA, AfB, AfC----	0-9	2.0-6.0	0.13-0.25	4.5-6.5	Low----------	0.28	3
Agawam	9-29	2.0-6.0	0.11-0.21	4.5-6.5	Low----------	0.43	
	29-35	6.0-20	0.01-0.09	4.5-6.5	Low----------	0.17	
	35-60	6.0-20	0.01-0.09	4.5-6.5	Low----------	0.17	
Ba*							
Beaches							
Ce----------	0-66	0.6-6.0	0.35-0.45	4.5-7.3	----------	----	---
Carlisle							
CfB, CfC, CfD----	0-6	0.6-6.0	0.08-0.23	4.5-6.0	Low----------	0.20	3
Charlton	6-29	0.6-6.0	0.05-0.20	4.5-6.0	Low----------	0.43	
	29-60	0.6-6.0	0.05-0.16	4.5-6.0	Low----------	0.43	
ChB, ChC---------	0-6	0.6-6.0	0.08-0.23	4.5-6.0	Low----------	0.17	3
Charlton	6-29	0.6-6.0	0.05-0.20	4.5-6.0	Low----------	0.43	
	29-60	0.6-6.0	0.05-0.16	4.5-6.0	Low----------	0.43	
CnC, CnD---------	0-6	0.6-6.0	0.05-0.15	4.5-6.0	Low----------	0.17	3
Charlton	6-29	0.6-6.0	0.05-0.20	4.5-6.0	Low----------	0.43	
	29-60	0.6-6.0	0.05-0.16	4.5-6.0	Low----------	0.43	
CrC*, CrE*:							
Charlton--------	0-6	0.6-6.0	0.08-0.23	4.5-6.0	Low----------	0.17	3
	6-29	0.6-6.0	0.05-0.20	4.5-6.0	Low----------	0.43	
	29-60	0.6-6.0	0.05-0.16	4.5-6.0	Low----------	0.43	
Hollis----------	0-3	0.6-6.0	0.10-0.21	4.5-6.0	Low----------	0.20	2
	3-17	0.6-6.0	0.06-0.18	4.5-6.0	Low----------	0.43	
	17	---	---	---	----------	----	
Du*.							
Dumps							
GgB, GgC---------	0-8	0.6-2.0	0.13-0.20	5.1-7.3	Low----------	0.43	3
Georgia	8-24	0.6-2.0	0.08-0.19	5.1-7.3	Low----------	0.32	
	24-60	0.06-0.2	0.08-0.19	5.6-7.3	Low----------	0.32	
GhB, GhC---------	0-8	0.6-2.0	0.10-0.16	5.1-7.3	Low----------	0.32	3
Georgia	8-24	0.6-2.0	0.08-0.19	5.1-7.3	Low----------	0.32	
	24-60	0.06-0.2	0.08-0.19	5.6-7.3	Low----------	0.32	
HcA, HcB---------	0-24	0.6-2.0	0.15-0.25	4.5-6.0	Low----------	0.43	3
Haven	24-60	>20	0.01-0.03	4.5-6.0	Low----------	0.17	
HkB, HkC, HkD----	0-9	6.0-20	0.03-0.23	4.5-6.0	Low----------	0.17	3
Hinckley	9-15	6.0-20	0.01-0.11	4.5-6.0	Low----------	0.17	
	15-60	>20	0.01-0.06	4.5-6.0	Low----------	0.15	
HpC*:							
Hollis----------	0-3	0.6-6.0	0.10-0.21	4.5-6.0	Low----------	0.20	2
	3-17	0.6-6.0	0.06-0.18	4.5-6.0	Low----------	0.43	
	17	---	---	---	----------	----	
Charlton--------	0-6	0.6-6.0	0.08-0.23	4.5-6.0	Low----------	0.17	3
	6-29	0.6-6.0	0.05-0.20	4.5-6.0	Low----------	0.43	
	29-60	0.6-6.0	0.05-0.16	4.5-6.0	Low----------	0.43	
Rock outcrop.							

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
HrE*:							
Hollis----------	0-3	0.6-6.0	0.10-0.21	4.5-6.0	Low----------	0.20	2
	3-17	0.6-6.0	0.06-0.18	4.5-6.0	Low----------	0.43	
	17	---	---	---	----------	----	
Rock outcrop.							
Charlton--------	0-6	0.6-6.0	0.08-0.23	4.5-6.0	Low----------	0.17	3
	6-29	0.6-6.0	0.05-0.20	4.5-6.0	Low----------	0.43	
	29-60	0.6-6.0	0.05-0.16	4.5-6.0	Low----------	0.43	
Lc----------	0-7	0.6-6.0	0.06-0.24	4.5-6.0	Low----------	0.17	3
Leicester	7-29	0.6-6.0	0.05-0.20	4.5-6.0	Low----------	0.43	
	29-60	0.6-6.0	0.04-0.16	4.5-6.0	Low----------	0.43	
MyB----------	0-16	2.0-6.0	0.18-0.19	4.5-6.0	Low----------	0.17	3
Merrimac	16-24	2.0-6.0	0.15-0.17	4.5-6.0	Low----------	0.24	
	24-60	6.0-20	0.01-0.06	4.5-6.0	Low----------	0.17	
NeB----------	0-8	0.6-2.0	0.13-0.20	5.6-7.3	Low----------	0.32	3
Nellis	8-27	0.6-2.0	0.08-0.19	5.6-7.3	Low----------	0.28	
	27-60	0.6-2.0	0.07-0.11	6.6-7.8	Low----------	0.24	
NfC*, NfD*:							
Nellis----------	0-8	0.6-2.0	0.13-0.20	5.6-7.3	Low----------	0.32	3
	8-27	0.6-2.0	0.08-0.19	5.6-7.3	Low----------	0.28	
	27-60	0.06-2.0	0.07-0.11	6.6-7.8	Low----------	0.24	
Farmington------	0-10	0.6-2.0	0.11-0.19	5.1-6.5	Low----------	0.32	2
	10-16	0.6-2.0	0.07-0.18	5.6-7.8	Low----------	0.28	
	16	---	---	---	----------	----	
Nn----------	0-10	2.0-6.0	0.13-0.25	4.5-6.0	Low----------	0.28	3
Ninigret	10-26	2.0-6.0	0.06-0.18	4.5-6.0	Low----------	0.43	
	26-60	6.0-20	0.01-0.13	4.5-6.0	Low----------	0.17	
PbB, PbC, PbD, PdB, PdC--------	0-9	0.6-2.0	0.08-0.23	4.5-6.5	Low----------	0.24	3
Paxton	9-31	0.6-2.0	0.06-0.20	4.5-6.5	Low----------	0.43	
	31-60	<0.2	0.05-0.12	4.5-6.5	Low----------	0.17	
PeC, PeD---------	0-9	0.6-2.0	0.05-0.15	4.5-6.5	Low----------	0.24	3
Paxton	9-31	0.6-2.0	0.06-0.20	4.5-6.5	Low----------	0.43	
	31-60	<0.2	0.05-0.12	4.5-6.5	Low----------	0.17	
Pr*.							
Pits							
Ps----------	0-4	0.6-6.0	0.11-0.24	4.5-6.5	Low----------	----	---
Pootatuck	4-28	0.6-6.0	0.09-0.18	4.5-6.5	Low----------	----	
	28-60	>6.0	0.01-0.13	4.5-6.5	Low----------	----	
Rb----------	0-6	0.6-2.0	0.15-0.28	4.5-5.5	Low----------	0.49	3
Raypol	6-19	0.6-2.0	0.15-0.26	4.5-5.5	Low----------	0.49	
	19-60	>6.0	0.06-0.10	5.1-6.5	Low----------	0.17	
Rd----------	0-8	0.6-6.0	0.06-0.24	4.5-6.0	Low----------	0.24	3
Ridgebury	8-18	0.6-6.0	0.04-0.20	4.5-6.0	Low----------	0.32	
	18-60	<0.2	---	4.5-6.0	Low----------	0.24	
Rn*:							
Ridgebury-------	0-8	0.6-6.0	0.06-0.24	4.5-6.0	Low----------	0.24	3
	8-18	0.6-6.0	0.04-0.20	4.5-6.0	Low----------	0.24	
	18-60	<0.2	---	4.5-6.0	Low----------	0.24	
Leicester-------	0-7	0.6-6.0	0.06-0.28	4.5-6.0	Low----------	0.17	3
	7-29	0.6-6.0	0.05-0.16	4.5-6.0	Low----------	0.43	
	29-60	0.6-6.0	0.04-0.16	4.5-6.0	Low----------	0.43	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
Rn*:							
Whitman	0-8	0.6-6.0	0.12-0.26	4.5-6.5	Low	0.24	3
	8-24	0.6-6.0	0.10-0.17	4.5-6.5	Low	0.24	
	24-60	<0.2	0.03-0.04	4.5-6.5	Low	0.24	
Ro	0-5	0.6-6.0	0.11-0.20	4.5-6.5	Low	----	---
Rippowam	5-27	0.6-6.0	0.11-0.19	4.5-6.5	Low	----	
	27-60	>6.0	0.01-0.13	4.5-6.5	Low	----	
Rp*:							
Rock outcrop.							
Hollis	0-3	0.6-6.0	0.10-0.21	4.5-6.0	Low	0.20	2
	3-17	0.6-6.0	0.06-0.18	4.5-6.0	Low	0.43	
	17	---	---	---	---	----	
Sb	0-14	0.6-2.0	0.17-0.30	5.1-6.5	Low	----	---
Saco	14-34	0.6-2.0	0.15-0.26	5.1-6.5	Low	0.64	
	34-41	0.6-2.0	0.10-0.26	5.6-7.3	Low	0.64	
	41-60	>6.0	0.01-0.13	5.6-7.3	Low	0.17	
Sc	0-9	6.0-20	0.10-0.23	4.5-6.0	Low	0.17	3
Scarboro	9-40	>6.0	0.01-0.13	4.5-6.0	Low	0.10	
	40-60	>6.0	0.01-0.13	4.5-6.0	Low	0.10	
SnB, SnC, SnD	0-8	0.6-2.0	0.11-0.28	5.1-6.5	Low	0.28	3
Stockbridge	8-24	0.6-2.0	0.08-0.24	5.6-7.3	Low	0.43	
	24-60	0.06-0.2	0.10-0.22	5.6-7.3	Low	0.17	
SpC, SpD	0-8	0.6-2.0	0.11-0.25	5.1-6.5	Low	0.17	3
Stockbridge	8-24	0.6-2.0	0.08-0.24	5.6-7.3	Low	0.43	
	24-60	0.06-2.0	0.10-0.22	5.6-7.3	Low	0.17	
SvB	0-8	0.6-6.0	0.09-0.25	4.5-6.0	Low	0.20	3
Sutton	8-24	0.6-6.0	0.07-0.20	4.5-6.0	Low	0.43	
	24-60	0.6-6.0	0.04-0.16	4.5-6.5	Low	0.43	
SwB	0-8	0.6-6.0	0.09-0.23	4.5-6.0	Low	0.20	3
Sutton	8-24	0.6-6.0	0.04-0.16	4.5-6.0	Low	0.43	
	24-60	0.6-6.0	0.04-0.16	4.5-6.5	Low	0.43	
SxB	0-8	0.6-6.0	0.09-0.23	4.5-6.0	Low	0.20	3
Sutton	8-24	0.6-6.0	0.04-0.16	4.5-6.0	Low	0.43	
	24-60	0.6-6.0	0.04-0.16	4.5-6.5	Low	0.43	
UD*.							
Udorthents							
Ur*.							
Urban land							
Wd	0-13	2.0-6.0	0.10-0.23	4.5-6.0	Low	0.20	3
Walpole	13-20	2.0-6.0	0.07-0.18	4.5-6.0	Low	0.28	
	20-60	>6.0	0.01-0.13	4.5-6.0	Low	0.17	
We, Wh	0-32	0.6-20	0.18-0.35	4.5-7.3	Low	----	---
Westbrook	32-99	0.6-2.0	0.16-0.26	5.6-7.3	Low	0.64	
WxA, WxB, WxC, WyB, WyC, WzB	0-8	0.6-6.0	0.08-0.23	4.5-6.0	Low	0.24	3
Woodbridge	8-32	0.6-6.0	0.06-0.20	4.5-6.0	Low	0.43	
	32-60	<0.2	0.05-0.12	4.5-6.5	Low	0.17	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

[The definition of "water table" in the text explains terms such as "apparent" and "perched." See the text for definitions of terms used to describe flooding. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock	Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth		Uncoated steel	Concrete
					Ft			In			
Aa---------- Adrian	A/D	Frequent----	Long------	Nov-May	0-1.0	Apparent	Sep-Jun	>60	High--------	High-----	Moderate.
AfA, AfB, AfC----- Agawam	B	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.
Ba*. Beaches											
Ce---------- Carlisle	A/D	Frequent----	Long------	Nov-May	.5-1.0	Apparent	Sep-Jun	>60	High--------	High-----	Low.
CfB, CfC, CfD, ChB, ChC, CnC, CnD---------- Charlton	B	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.
CrC*, CrE*: Charlton---------	B	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.
Hollis-----------	C/D	None--------	---	---	>6.0	---	---	10-20	Moderate----	Low------	High.
Du*. Dumps											
GgB, GgC, GhB, GhC---------- Georgia	C	None--------	---	---	1.5-3.0	Perched	Nov-May	>60	High--------	Moderate	Low.
HcA, HcB---------- Haven	B	None--------	---	---	>6.0	---	---	>60	Moderate----	Low------	High.
HkB, HkC, HkD----- Hinckley	A	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.
HpC*: Hollis-----------	C/D	None--------	---	---	>6.0	---	---	10-20	Moderate----	Low------	High.
Charlton---------	B	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.
Rock outcrop.											
HrE*: Hollis-----------	C/D	None--------	---	---	>6.0	---	---	10-20	Moderate----	Low------	High.
Rock outcrop.											
Charlton---------	B	None--------	---	---	>6.0	---	---	>60	Low---------	Low------	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock	Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth		Uncoated steel	Concrete
					Ft			In			
Lc---- Leicester	C	None----	---	---	0-1.5	Apparent	Nov-May	>60	High----	Low----	High.
MyB---- Merrimac	A	None----	---	---	>6.0	---	---	>60	Low----	Low----	High.
NeB---- Nellis	B	None----	---	---	>6.0	---	---	>60	Moderate----	Low----	Low.
NfC*, NfD*:											
Nellis----	B	None----	---	---	>6.0	---	---	>60	Moderate----	Low----	Low.
Farmington----	C	None----	---	---	>6.0	---	---	10-20	Moderate----	Low----	Moderate.
Nn---- Ninigret	B	None----	---	---	1.5-3.5	Apparent	Nov-Apr	>60	Moderate----	Low----	High.
PbB, PbC, PbD, PdB, PdC, PeC, PeD---- Paxton	C	None----	---	---	>6.0	---	---	>60	Moderate----	Low----	Moderate.
Pr*. Pits											
Ps---- Pootatuck	B	Frequent----	Brief----	Nov-May	1.5-3.0	Apparent	Nov-May	>60	Moderate----	Moderate	Moderate.
Rb---- Raypol	C	None----	---	---	0-1.0	Apparent	Nov-May	>60	High----	High----	Moderate.
Rd---- Ridgebury	C	None----	---	---	0-1.5	Perched	Nov-May	>60	High----	High----	High.
Rn*:											
Ridgebury----	C	None----	---	---	0-1.5	Perched	Nov-May	>60	High----	High----	High.
Leicester----	C	None----	---	---	0-1.5	Apparent	Nov-May	>60	High----	Low----	High.
Whitman----	D	None----	---	---	0.0-0.5	Perched	Sep-Jun	>60	High----	High----	High.
Ro---- Rippowam	C	Frequent----	Brief----	Oct-May	0-1.5	Apparent	Nov-Jun	>60	High----	High----	High.
Rp*: Rock outcrop.											
Hollis----	C/D	None----	---	---	>6.0	---	---	10-20	Moderate----	Low----	High.
Sb---- Saco	D	Frequent----	Brief----	Nov-May	0-0.5	Apparent	Sep-Jun	>60	High----	Low----	Moderate.
Sc---- Scarboro	D	Rare----	---	---	0-1.0	Apparent	Jan-Dec	>60	High----	High----	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock	Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth		Uncoated steel	Concrete
					Ft			In			
SnB, SnC, SnD, SpC, SpD--------- Stockbridge	C	None---------	---	---	>6.0	---	---	>60	Moderate----	Moderate	Low.
SvB, SwB, SxB----- Sutton	B	None---------	---	---	1.5-3.5	Apparent	Nov-Apr	>60	Moderate----	Low------	High.
UD*. Udorthents											
Ur*. Urban land											
Wd---------- Walpole	C	None---------	---	---	0-1.0	Apparent	Nov-May	>60	High--------	Low------	High.
We, Wh---------- Westbrook	D	Frequent----	Very brief	Jan-Dec	1-0.0	Apparent	Jan-Dec	>60	---	High-----	High.
WxA, WxB, WxC, WyB, WyC, WzB---- Woodbridge	C	None---------	---	---	1.5-3.0	Perched	Nov-May	>60	High--------	Low------	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series]

Soil name	Family or higher taxonomic class
Adrian	Sandy or sandy-skeletal, mixed, euic, mesic Terric Medisaprists
Agawam	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Typic Dystrochrepts
Carlisle	Euic, mesic Typic Medisaprists
Charlton	Coarse-loamy, mixed, mesic Typic Dystrochrepts
*Farmington	Loamy, mixed, mesic Lithic Eutrochrepts
Georgia	Coarse-loamy, mixed, mesic Aquic Dystric Eutrochrepts
Haven	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Typic Dystrochrepts
Hinckley	Sandy-skeletal, mixed, mesic Typic Udorthents
Hollis	Loamy, mixed, mesic Lithic Dystrochrepts
Leicester	Coarse-loamy, mixed, acid, mesic Aeric Haplaquepts
Merrimac	Sandy, mixed, mesic Typic Dystrochrepts
Nellis	Coarse-loamy, mixed, mesic Typic Eutrochrepts
Ninigret	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Aquic Dystrochrepts
Paxton	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Pootatuck	Coarse-loamy, mixed, mesic Fluvaquentic Dystrochrepts
*Raypol	Coarse-loamy over sandy or sandy-skeletal, mixed, acid, mesic Aeric Haplaquepts
Ridgebury	Coarse-loamy, mixed, mesic Aeric Fragiaquepts
Rippowam	Coarse-loamy, mixed, nonacid, mesic Aeric Fluvaquents
Saco	Coarse-silty, mixed, nonacid, mesic Fluvaquentic Humaquepts
Scarboro	Sandy, mixed, mesic Histic Humaquepts
Stockbridge	Coarse-loamy, mixed, mesic Dystric Eutrochrepts
Sutton	Coarse-loamy, mixed, mesic Aquic Dystrochrepts
Udorthents	Udorthents
Walpole	Sandy, mixed, mesic Aeric Haplaquepts
Westbrook	Euic, mesic Typic Sulfihemists
Whitman	Coarse-loamy, mixed, mesic Humic Fragiaquepts
Woodbridge	Coarse-loamy, mixed, mesic Typic Fragiochrepts

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