United States
Department of
Agriculture

Natural
Resources
Conservation
Service

United States
Department of
the Interior

National Park
Service

In cooperation with
Regents of the University
of California (Agricultural
Experiment Station)

Soil Survey of Channel Islands National Park, California

How To Use This Soil Survey

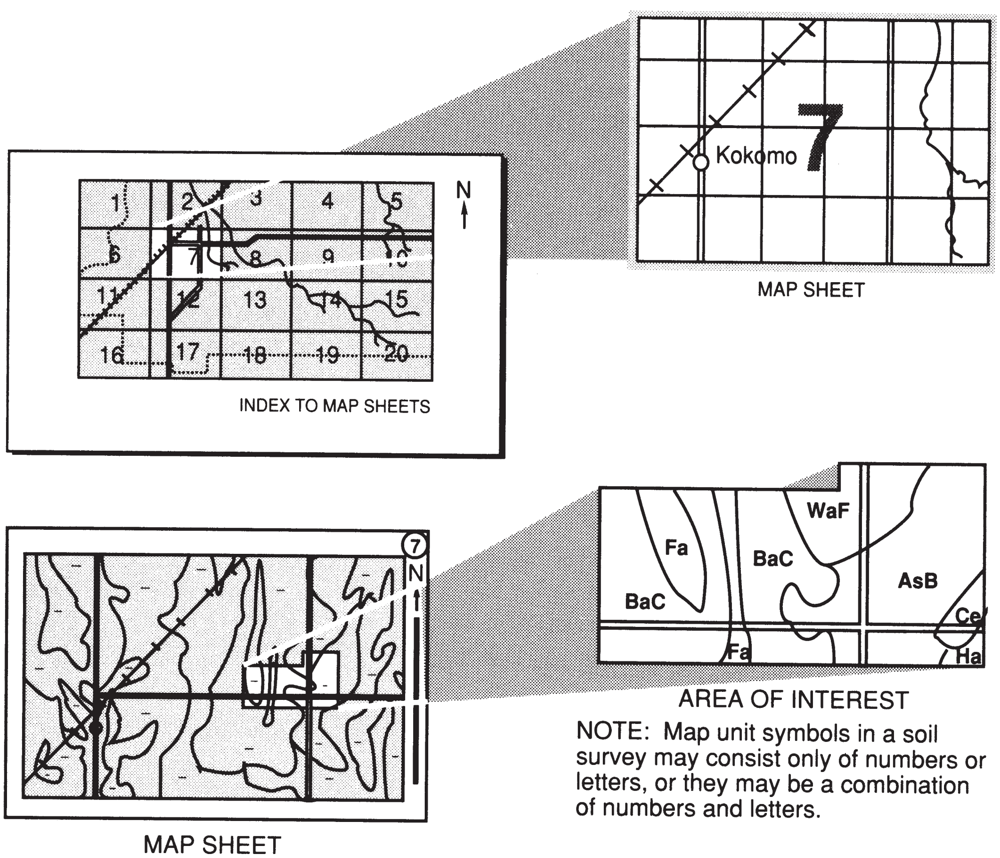
Detailed Soil Maps

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

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

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

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



National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service; the United States Department of the Interior, National Park Service; and the Regents of the University of California (Agricultural Experiment Station).

Major fieldwork for this soil survey was completed in 2005. Soil names and descriptions were approved in 2006. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2005. The most current official data are available on the Internet.

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. The soil maps are in digital form. The digitizing of the maps was completed in accordance with the Soil Survey Geographic (SSURGO) database standards. The digital SSURGO-certified maps are considered the official maps for the survey area and are part of the FOTG at the local field office of the Natural Resources Conservation Service.

Nondiscrimination Statement

Citation

The correct citation for this survey is as follows:

United States Department of Agriculture, Natural Resources Conservation Service. 2007. Soil survey of Channel Islands National Park, California. Accessible online at: http://soils.usda.gov/survey/printed_surveys/.

Cover Caption

An area of Abaft soils on stabilized dunes on Santa Rosa Island. This area supports the silver lupine plant community.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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Issued 2007

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, 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. Natural resource users and professionals can use it to evaluate the potential of the soil and the management needed for land use planning and resource conservation. Planners, community officials, engineers, and builders can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

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. 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 Natural Resources Conservation Service or the National Park Service.

Lincoln E. Burton
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Channel Islands National Park, California

By Alan Wasner, United States Department of Agriculture, Natural Resources Conservation Service

Fieldwork by Matthew Ballmer, Daniel Johnson, and Alan Wasner, United States Department of Agriculture, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with United States Department of the Interior, National Park Service, and Regents of the University of California (Agricultural Experiment Station)

The Channel Islands National Park is off the coast of southern California (fig. 1). It has an area of 124,102 acres, or about 194 square miles. The park consists of five main islands. Santa Cruz Island, Santa Rosa Island, San Miguel Island, and Santa Barbara Island are all in Santa Barbara County. Anacapa Island is in Ventura County. The Nature Conservancy owns 76 percent of Santa Cruz Island, and the National Park Service owns the eastern 24 percent. Other than a few National Park Service personnel, Navy personnel, Nature Conservancy staff, University of California researchers, and visitors to the park, the islands are generally uninhabited.

Recreation and scientific study are the main enterprises in the park.

The soils in the park range widely in texture, natural drainage, and other characteristics. These variations are related to the complex, highly faulted geology as well as variations in climate over short distances.

General Nature of the Survey Area

This section provides general information about the Channel Islands National Park. It describes history and development; physiography, relief, and drainage; water supply; and climate.

History and Development

The Channel Islands National Park has a history of continuous human occupation dating back more than 10,000 years. It was home to the Chumash people, who lived along the California coast from San Luis Obispo to Malibu. More than 2,000 recorded archeological sites on the islands provide evidence of the villages, temporary camps, industrial sites, and other vestiges of ancient human use and occupation of the islands. The most significant impacts on soils occurred in the areas of large villages where anthropic epipedons formed. Anthropic epipedons are dark surface layers in soils that formed during long-continued use by humans. The disposal of bones and shells has generally supplied calcium and phosphorus that occur in higher levels in

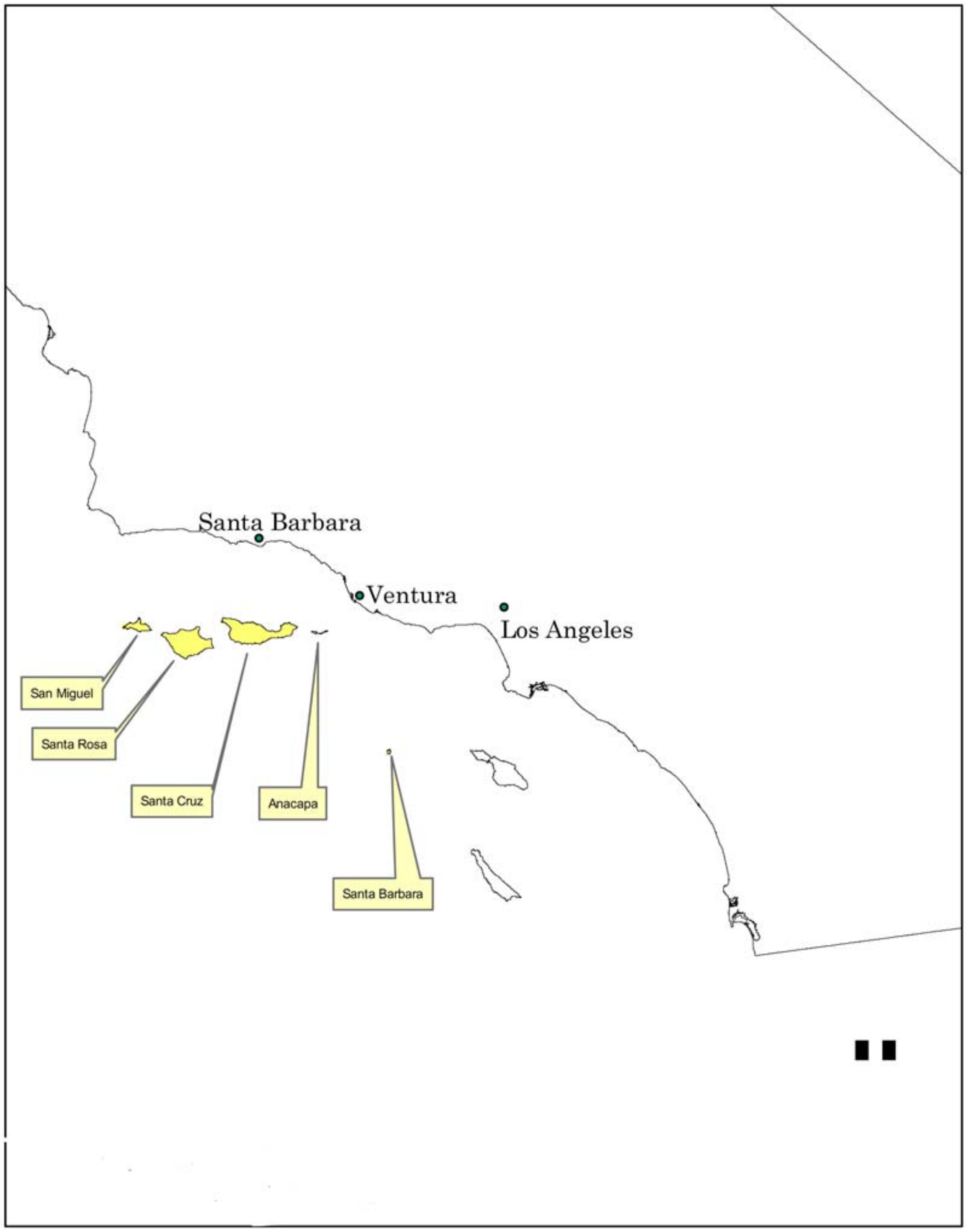

Figure 1.—Location of the Channel Islands National Park, California.

these areas than in the adjacent soils. These areas were not mapped because they are too small to be delineated on the soil maps of this survey area.

In 1542, Cabrillo was the first European explorer to visit the islands. Over the next two centuries, Spanish, French, English, and other navigators traveled through the Santa Barbara channel and noted their impressions of the islands in letters and diaries. Spanish colonization in the 1700s and early 1800s established towns, army garrisons, and Catholic missions along the California coast. By 1820, all of the Chumash had left or been removed from the islands and were living on the mainland in missions or other communities. In 1821, California became Mexican territory. The

Mexican Government granted Santa Cruz and Santa Rosa Islands to settlers, who established livestock ranches on the islands.

In 1850, California became part of the United States. Ranching continued on the largest islands, and the three smaller islands were leased out for sheep grazing. In 1938, the Channel Islands National Monument, consisting of Anacapa and Santa Barbara Islands, was established. In 1963, the Navy and the Department of the Interior entered an agreement authorizing the National Park Service to manage San Miguel Island. The Nature Conservancy acquired the western 90 percent of Santa Cruz Island in 1978. In 1980, the Channel Islands National Park was established, consisting of the five northern Channel Islands, namely, Anacapa, Santa Barbara, Santa Cruz, Santa Rosa, and San Miguel Islands.

Currently, the Channel Islands National Park protects one of the largest expanses of the Mediterranean ecosystem in the National Park System.

Physiography, Relief and Drainage

The Channel Islands National Park consists of five large islands and two smaller islands off the coast of southern California in Ventura and Santa Barbara Counties. These islands form a partially submerged east-west trending mountain range and mark the southwest border of the Transverse Range geomorphic province.

Santa Cruz Island is the largest island. It is about 19 miles (30 kilometers) off the coast of Ventura. It is about 24 miles (39 kilometers) long. It consists of several mountain ranges and one intervening valley. The highest peak in the islands, 2,460 feet (750 meters), occurs on this island.

Santa Rosa Island is second largest island. It has a high point of 1,589 feet (484 meters). It is about 27 miles (44 kilometers) off the coast of Santa Barbara.

San Miguel Island is third largest island. It has a high point of 830 feet (253 meters). It is about 26 miles (42 kilometers) off the coast of Santa Barbara.

The closest island to the mainland is Anacapa, which is 14 miles (22 kilometers) off the coast of Ventura. Anacapa consists of three small islets. Santa Barbara Island is farthest out to sea at 38 miles (61 kilometers). There are two smaller islands. Sutil Island is less than a mile off the south end of Santa Barbara Island. Prince Island is about 1 mile offshore from the east end of San Miguel Island. When this soil survey was made, Sutil Island was not mapped because it is a protected wildlife area and is inaccessible.

The dominant landforms in the survey area are steep, rugged mountains and hills, marine terraces, and the one intervening valley on Santa Cruz Island. The marine terraces are dissected by streams originating in the adjacent hills and mountains. Local flooding can occur at the mouths of streams during periods of heavy rainfall.

Water Supply

The water supply for Santa Cruz, Santa Rosa, and San Miguel Islands comes from ground-water sources. Some drainage areas, such as Trap Canyon on Santa Rosa Island, have altered drainage because of a deeply incised drainage channel.

Climate

Prepared by the National Water and Climate Center, Natural Resources Conservation Service, Portland, Oregon, and amended by Alan Wasner, Soil Scientist, Natural Resources Conservation Service.

Table 1 gives data on temperature and precipitation for the survey area as recorded on Santa Rosa Island, Bechers Bay, in the period 1988 to 2000; on San Miguel Island in the period 1981 to 2004; and on Anacapa Island in the period 2004 to 2006.

The islands have a Mediterranean climate that is characterized by warm, dry summers and cool, moist winters. Fog is common throughout the year. The climate is largely controlled by the ocean currents, which are driven by the prevailing northwesterly winds. As the ocean currents flow south around Point Conception, where the coast of California turns eastward, the full force of the winds and the current strikes San Miguel Island.

Because of orographic lifting, the highest precipitation of any of the islands occurs on San Miguel Island. The average annual precipitation on this island ranges from 24 to 34 inches (610 to 884 millimeters). The island has a mean annual temperature of about 61 to 66 degrees F (16 to 19 degrees C). It is the foggiest and windiest of the islands. Frost occurs on San Miguel Island only very rarely and for short periods, usually on the north sides of the higher hills.

To the east, the northwesterly winds next strike Santa Rosa Island, which has the second highest precipitation of the islands. The average annual precipitation is 21 to 31 inches (533 to 787 millimeters). The mean annual temperature is about 61 to 66 degrees F (16 to 19 degrees C). Frost occurs on the higher peaks of Santa Rosa Island but does not occur often because the temperatures generally are moderated by the close proximity to the ocean.

Santa Cruz Island has a central valley that tends to be warmer in summer and cooler in winter than the coastal areas (fig. 2). The valley is surrounded by mountains and thus is somewhat removed from the moderating effects of the ocean. Freezing temperatures commonly occur in the valley each winter. Fog is less common in the valley than along the coast. Frost-free periods range from 320 days in areas of the valley and on the higher peaks to 365 days in areas along the coast.

The west side of Santa Cruz Island has a mountain range that extends westward and ends at Frasier Point. Christy Beach and the Santa Cruz Island fault are south of

Figure 2.—An area in the warm central valley on Santa Cruz Island. Delphine soils are in the foreground.

the range. The fault forms a valley with mountains to the north and hills to the south. Fog often lingers in the valley (fig. 3) when many other areas of the island have no fog. These areas have mean summer and mean winter temperatures that vary less than 43 degrees F (6 degrees C) on north-facing slopes and classify as isomesic, as shown by data from soil temperature stations of the Natural Resources Conservation Service. Fog also lingers longer in China Pines and Pelican Bay than in most of the island, again because of topography. These areas occur in the pine woodlands of the island. The average annual temperature in these areas is 56 to 61 degrees F (13 to 16 degrees C).

On the less foggy north-facing slopes of hills and mountains, which receive less direct sunlight than the south-facing slopes, the mean annual temperature is 56 to 61 degrees F (13 to 16 degrees C) in areas where there is sufficient cover of oak woodland or chaparral to provide shade (fig. 4). Soil temperature stations of the Natural Resources Conservation Service indicate that these areas have a mesic temperature regime.

The rest of Santa Cruz Island has a thermic temperature regime. The average annual temperature is 61 to 73 degrees F (16 to 23 degrees C). The average annual precipitation ranges from 13 to 18 inches (330 to 457 millimeters) at the lower elevations along the coast to 18 to 24 inches (457 to 610 millimeters) at the higher elevations.

On Anacapa Island, the average annual temperature is 61 to 73 degrees F (16 to 23 degrees C) and average annual precipitation ranges from 13 to 24 inches (330 to 610 millimeters).

On Santa Barbara Island, which is farther south than the other islands, the average annual precipitation is 6 to 10 inches and the mean annual temperature is 61 to 73 degrees F (16 to 23 degrees C).

Figure 3.—Lingering fog in the Christy Pines area of western Santa Cruz Island. Frigate soils support the pine trees on the side slopes.

Figure 4.—Chaparral plant communities typical of the Miasotus-Yardarm association, 30 to 75 percent slopes, on the north-facing side slopes of hills on Santa Cruz Island. Miasotus soils are on convex slopes, and Yardarm soils are on concave slopes.

On all of the islands, almost all the rainfall occurs during the period November through April. Summer thunderstorms are extremely rare.

Wind is a dominant climatic factor in the island environment. Wind data are available for four of the islands.

Santa Barbara Island.—The prevailing wind is from the west. Winds from the west-northwest have exceeded 47 miles per hour. They average 16.2 miles per hour. Winds are from the west to the northwest the entire day.

Anacapa Island.—The prevailing wind is from the west. Winds from the west and the west-southwest have exceeded 47 miles per hour. Those from the west-southwest average 15.8 miles per hour. Wind direction varies during the day. Winds are from the northwest from about 11 p.m. to about 10 a.m. and, becoming stronger, transition to the west and southwest from noon to about 8 p.m.

Santa Rosa Island.—The prevailing wind is from the west-northwest. Winds from that direction have exceeded 40 miles per hour. Winds from the northwest average 19.9 miles per hour. The winds come primarily from the northwest the entire day.

Santa Cruz Island.—Two climate stations measure wind on this island. One is at Del Norte, near Prisoner's Harbor, in the northeast part of the island, and the second is in Central Valley.

The prevailing wind in Central Valley is from the west-northwest. Winds from the west have exceeded 20 miles per hour but are generally calm. Winds come from the west-northwest only 12 percent of the time. They average 7.1 miles per hour. Wind direction varies during the day. Winds are from the northwest most of the day but are from the east between 7:30 a.m. and noon.

The prevailing wind at Del Norte is from the northeast. Winds from the east and the northwest have exceeded 25 miles per hour. Winds come from the northwest only 7 percent of the time. They average 9 miles per hour. Wind direction varies during the day. Winds are from the southwest from 10 p.m. to 3 a.m., slowly switching to the east. They are from the east from 7 a.m. to noon, when they abruptly switch to the northwest.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of native plant communities; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

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

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

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

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists.

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

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

Access was limited in some areas on San Miguel Island.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, 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, slope, stoniness, salinity, 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, Lospinos loam, 8 to 30 percent slopes, is a phase of the Lospinos series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Beaches-Abaft complex, 0 to 5 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Fiale-Tongva-Topdeck association, 15 to 60 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Table 2 gives the acreage and proportionate extent of each map unit. Other 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 or miscellaneous areas.

All of the detailed soil map units in the survey area show evidence of both natural and accelerated erosion caused by both wind and water.

100—Fiale-Tongva-Topdeck association, 15 to 60 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 495 to 1,605 feet (152 to 490 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Fiale soil—60 percent
Tongva soil—15 percent
Topdeck soil—15 percent
Minor components—10 percent

Characteristics of Fiale and Similar Soils

Slope: 15 to 60 percent
Landform: Interfluves and side slopes on hills
Parent material: Slope alluvium derived from basalt, andesite, or volcanic breccia
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 35 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 5.0 inches (moderate)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 4 inches; clay loam
Bss1—4 to 15 inches; clay
Bss2—15 to 24 inches; clay
Bss3—24 to 28 inches; clay
BC—28 to 34 inches; sandy clay loam
Cr1—34 to 48 inches; bedrock
Cr2—48 to 60 inches; bedrock

Characteristics of Tongva and Similar Soils

Slope: 25 to 60 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.1 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
A—0 to 6 inches; loam
Bt1—6 to 18 inches; clay loam
Bt2—18 to 24 inches; clay loam

Crt—24 to 60 inches; bedrock

Characteristics of Topdeck and Similar Soils

Slope: 25 to 60 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 7 to 10 inches to paralithic bedrock; 10 to 20 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.3 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 3 inches; loam
Bt—3 to 7 inches; clay loam
Cr—7 to 11 inches; soft bedrock
R—11 to 21 inches; bedrock

Minor Components

Pachic Argixerolls and similar soils
Composition: About 3 percent
Slope: 25 to 60 percent
Landform: Side slopes and interfluves on hills

Rock outcrop
Composition: About 3 percent
Landform: Interfluves and side slopes on hills

Starboard and similar soils
Composition: About 2 percent
Slope: 25 to 60 percent
Landform: Interfluves and side slopes on hills

Halyard and similar soils
Composition: About 1 percent
Slope: 25 to 60 percent
Landform: Interfluves and side slopes on hills

Typic Argixerolls and similar soils
Composition: About 1 percent

Slope: 15 to 45 percent
Landform: Interfluves and side slopes on hills

101—Spinnaker-Tongva-Fiale association, 15 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 495 to 1,800 feet (152 to 550 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Spinnaker soil—35 percent
Tongva soil—35 percent
Fiale soil—15 percent
Minor components—15 percent

Characteristics of Spinnaker and Similar Soils

Slope: 15 to 60 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Dominantly scabby sites with Santa Cruz Island buckwheat and redflower buckwheat; also, scattered grasses and forbs
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 6 to 11 inches to paralithic bedrock; 6 to 18 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.8 inch (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI102CA, Shallow Uplands 13-24" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 3 inches; gravelly sandy loam
Bw—3 to 8 inches; gravelly sandy loam

Cr—8 to 11 inches; soft bedrock
R—11 to 21 inches; bedrock

Characteristics of Tongva and Similar Soils

Slope: 15 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.9 inches (low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
A1—0 to 7 inches; loam
A2—7 to 19 inches; loam
Bt—19 to 23 inches; gravelly loam
Crt—23 to 60 inches; bedrock

Characteristics of Fiale and Similar Soils

Slope: 15 to 45 percent
Landform: Side slopes and interfluves on hills
Parent material: Slope alluvium derived from basalt, andesite, or volcanic breccia
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: 0 to 7 percent
Depth to restrictive feature (paralithic bedrock): 20 to 35 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.0 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted

Natural drainage class: Moderately well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 8 inches; loam
AB—8 to 13 inches; sandy clay loam
Bss1—13 to 20 inches; clay
Bss2—20 to 25 inches; clay
Cr—25 to 60 inches; soft bedrock

Minor Components

Rock outcrop
Composition: About 4 percent
Landform: Interfluves and side slopes on hills

Halyard and similar soils
Composition: About 3 percent
Slope: 2 to 15 percent
Landform: Side slopes and interfluves on hills

Tongva, strongly sloping, and similar soils
Composition: About 3 percent
Slope: 2 to 15 percent
Landform: Side slopes and interfluves on hills

Lithic Mollic Haploxeralfs and similar soils
Composition: About 2 percent
Slope: 2 to 15 percent
Landform: Interfluves and side slopes on hills

Starboard and similar soils
Composition: About 2 percent
Slope: 25 to 60 percent
Landform: Side slopes and interfluves on hills

Spinnaker, strongly sloping, and similar soils
Composition: About 1 percent
Slope: 2 to 15 percent
Landform: Interfluves and crests on hills

102—Fiale-Topdeck association, 2 to 8 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 1,295 feet (15 to 396 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Fiale soil—65 percent
Topdeck soil—20 percent
Minor components—15 percent

Characteristics of Fiale and Similar Soils

Slope: 2 to 8 percent
Landform: Interfluves and crests on hills
Parent material: Slope alluvium derived from basalt, andesite, or volcanic breccia
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 35 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.4 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 3e-3
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; gravelly clay loam
Bt—4 to 24 inches; clay
Cr1—24 to 26 inches; bedrock
Cr2—26 to 60 inches; bedrock

Characteristics of Topdeck and Similar Soils

Slope: 2 to 8 percent
Landform: Crests and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.3 inches (very low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 2 inches; loam
Bt—2 to 10 inches; gravelly loam
R—10 to 18 inches; bedrock

Minor Components

Lithic Mollic Haploxeralfs and similar soils
Composition: About 5 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 5 percent
Landform: Side slopes and interfluves on hills

Fiale, moderately steep, and similar soils
Composition: About 4 percent
Slope: 15 to 30 percent
Landform: Interfluves and side slopes on hills

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Cliffs

103—Fiale-Topdeck-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 1,295 feet (15 to 396 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Fiale soil—35 percent
Topdeck soil—35 percent
Rock outcrop—15 percent
Minor components—15 percent

Characteristics of Fiale and Similar Soils

Slope: 30 to 60 percent
Landform: Interfluves and side slopes on hills
Parent material: Slope alluvium derived from basalt, andesite, or volcanic breccia
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.1
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 35 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.1 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; clay
Bss1—2 to 9 inches; clay
Bss2—9 to 17 inches; clay
Bss3—17 to 21 inches; clay
Crt—21 to 60 inches; bedrock

Characteristics of Topdeck and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: 10 to 20 percent coarse, subangular gravel, 0 to 2 percent subangular cobbles, and 0 to 2 percent subangular stones
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.0 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted

Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
A—0 to 2 inches; gravelly sandy loam
Bt1—2 to 17 inches; clay loam
Bt2—17 to 19 inches; clay loam
R—19 to 29 inches; bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Vertic Argixerolls and similar soils
Composition: About 5 percent
Slope: 5 to 15 percent
Landform: Interfluves and side slopes on hills

Aridic Haploxererts and similar soils
Composition: About 5 percent
Slope: 20 to 50 percent
Landform: Interfluves and side slopes on hills

Pachic Argixerolls and similar soils
Composition: About 5 percent
Slope: 15 to 50 percent
Landform: Interfluves and side slopes on hills

120—Miasotus-Yardarm association, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 695 to 1,295 feet (213 to 396 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 61 degrees F (13 to 16 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Miasotus soil—70 percent
Yardarm soil—15 percent
Minor components—15 percent

Characteristics of Miasotus and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from schist
Typical vegetation: Island manzanita and Channel Island scrub oak chaparral, with a sparse understory of grasses and forbs
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 11 to 39 inches to lithic bedrock
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.4 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI108CA, Convex Slopes 13-24" p.z.

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 3 inches; sandy loam
A2—3 to 6 inches; gravelly loam
Bt1—6 to 9 inches; very gravelly clay loam
Bt2—9 to 15 inches; very gravelly clay loam
Crt—15 to 21 inches; bedrock
R—21 to 31 inches; bedrock

Characteristics of Yardarm and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from schist
Typical vegetation: Diverse and dense chaparral dominated by Channel Island scrub oak and toyon
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.9 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI110CA, Concave Slopes 13-24" p.z.

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 8 inches; gravelly silt loam
Bt—8 to 22 inches; gravelly clay loam
Cr—22 to 28 inches; soft bedrock
R—28 to 37 inches; bedrock

Minor Components

Delphine and similar soils
Composition: About 10 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 3 percent
Landform: Interfluves and side slopes on hills

Frigate and similar soils
Composition: About 1 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

Typic Xerofluvents and similar soils
Composition: About 1 percent
Slope: 2 to 9 percent
Landform: Dissected drainageways

130—Frigate-Yardarm association, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 495 to 1,310 feet (152 to 400 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 61 degrees F (13 to 16 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Frigate soil—70 percent
Yardarm soil—20 percent
Minor components—10 percent

Characteristics of Frigate and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from schist
Typical vegetation: Bishop pine forest with Channel Islands scrub oak and several other chaparral species intermixed
pH in the surface layer: 4.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock; 35 to 79 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.8 inches (low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: F020XI200CA, Pinus muricata/Quercus pacifica

Typical profile
Oe—0 to 3 inches; moderately decomposed plant material
A—3 to 4 inches; silt loam
Bt1—4 to 8 inches; gravelly silt loam
Bt2—8 to 15 inches; gravelly silt loam
Bt3—15 to 28 inches; very gravelly silt loam
Bt4—28 to 31 inches; very gravelly silt loam
Cr—31 to 67 inches; soft bedrock
R—67 to 69 inches; bedrock

Characteristics of Yardarm and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from schist
Typical vegetation: Diverse and dense chaparral dominated by Channel Island scrub oak and toyon
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.3 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI110CA, Concave Slopes 13-24" p.z.

Typical profile
A1—0 to 2 inches; silt loam
A2—2 to 8 inches; silt loam
Bt1—8 to 13 inches; gravelly clay loam
Bt2—13 to 24 inches; very gravelly clay loam
Crt—24 to 28 inches; bedrock
R—28 to 38 inches; bedrock

Minor Components

Miasotus and similar soils
Composition: About 10 percent
Slope: 15 to 75 percent
Landform: Side slopes and interfluves on hills

150—Halyard-Topdeck-Tongva complex, 15 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 495 to 2,170 feet (152 to 662 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Halyard soil—45 percent
Topdeck soil—25 percent
Tongva soil—15 percent
Minor components—15 percent

Characteristics of Halyard and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Open chaparral with California sagebrush and grasses covering large areas
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow

Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.8 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI105CA, Deep Slopes 13-24" p.z.

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 13 inches; gravelly loam
Bt1—13 to 22 inches; gravelly clay
Bt2—22 to 37 inches; clay
Cr—37 to 60 inches; soft bedrock

Characteristics of Topdeck and Similar Soils

Slope: 15 to 60 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.1
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 16 inches to paralithic bedrock; 10 to 20 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.3 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A1—0 to 2 inches; loam
A2—2 to 4 inches; loam

Bt1—4 to 11 inches; loam
Bt2—11 to 14 inches; gravelly clay loam
Cr—14 to 16 inches; soft bedrock
R—16 to 26 inches; bedrock

Characteristics of Tongva and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock; 20 to 39 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.7 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
A1—0 to 2 inches; loam
A2—2 to 8 inches; loam
Bt1—8 to 13 inches; clay loam
Bt2—13 to 18 inches; gravelly clay loam
Bt3—18 to 24 inches; gravelly clay loam
Crt—24 to 29 inches; bedrock
R—29 to 39 inches; bedrock

Minor Components

Rock outcrop
Composition: About 8 percent
Landform: Interfluves and side slopes on hills

Spinnaker and similar soils
Composition: About 2 percent
Slope: 30 to 80 percent
Landform: Interfluves and side slopes on hills

Starboard and similar soils
Composition: About 2 percent
Slope: 25 to 60 percent
Landform: Interfluves and side slopes on hills

Fiale and similar soils
Composition: About 1 percent
Slope: 2 to 8 percent
Landform: Crests, side slopes, and interfluves on hills

Lithic Haploxeralfs and similar soils
Composition: About 1 percent
Slope: 8 to 30 percent
Landform: Side slopes and interfluves on hills

Typic Xerofluvents and similar soils
Composition: About 1 percent
Slope: 2 to 9 percent
Landform: Dissected drainageways

152—Halyard-Starboard association, 2 to 20 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 2,170 feet (15 to 662 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Halyard soil—60 percent
Starboard soil—25 percent
Minor components—15 percent

Characteristics of Halyard and Similar Soils

Slope: 2 to 20 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Open chaparral with California sagebrush and grasses covering large areas
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.5 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained

Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 3e-3
Ecological site: R020XI105CA, Deep Slopes 13-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; clay loam
Bt1—5 to 22 inches; clay
Bt2—22 to 34 inches; gravelly clay
Crt—34 to 60 inches; bedrock

Characteristics of Starboard and Similar Soils

Slope: 4 to 15 percent
Landform: Interfluves, side slopes, and crests on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Oak woodland consisting of arborescent Channel Islands scrub oak and California live oak; scattered grasses in the understory
pH in the surface layer: 5.3
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.5 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 4e-4
Ecological site: R020XI112CA, Moderately Deep Volcanic Slopes 13-31" p.z.

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 7 inches; loam
Bt—7 to 22 inches; gravelly clay loam
Cr—22 to 60 inches; soft bedrock

Minor Components

Halyard, very steep, and similar soils
Composition: About 5 percent
Slope: 20 to 65 percent
Landform: Interfluves and side slopes on hills

Lithic Argixerolls and similar soils
Composition: About 5 percent
Slope: 20 to 65 percent
Landform: Interfluves and side slopes on hills

Starboard, very steep, and similar soils
Composition: About 5 percent
Slope: 15 to 60 percent
Landform: Interfluves and side slopes on hills

153—Halyard-Topdeck association, 4 to 15 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 2,170 feet (15 to 662 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Halyard soil—45 percent
Topdeck soil—40 percent
Minor components—15 percent

Characteristics of Halyard and Similar Soils

Slope: 4 to 15 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 6.0 inches (moderate)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
- *Present annual flooding:* None
- *Present annual ponding:* None
- *Surface runoff class:* Very high
- *Current water table:* None noted
- *Natural drainage class:* Moderately well drained
- *Hydrologic soil group:* C

Interpretive groups
- *Land capability, nonirrigated:* 3e-3
- *Ecological site:* R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
- A—0 to 3 inches; loam
- Bt1—3 to 16 inches; clay
- Bt2—16 to 31 inches; clay
- Bt3—31 to 39 inches; clay
- Cr—39 to 60 inches; soft bedrock

Characteristics of Topdeck and Similar Soils

Slope: 4 to 15 percent
Landform: Interfluves and crests on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.5 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; silt loam
Bt—5 to 14 inches; silty clay loam
R—14 to 24 inches; bedrock

Minor Components

Typic Xerorthents and similar soils
Composition: About 5 percent
Slope: 50 to 100 percent
Landform: Cliffs

Spinnaker and similar soils
Composition: About 3 percent
Slope: 2 to 60 percent
Landform: Side slopes and interfluves on hills

Halyard, moderately steep, and similar soils
Composition: About 2 percent
Slope: 15 to 30 percent
Landform: Side slopes and interfluves on hills

Rock outcrop
Composition: About 2 percent
Landform: Side slopes and interfluves on hills

Topdeck, steep, and similar soils
Composition: About 2 percent
Slope: 15 to 45 percent
Landform: Side slopes and interfluves on hills

Starboard and similar soils
Composition: About 1 percent
Slope: 25 to 60 percent
Landform: Side slopes and interfluves on hills

155—Halyard-Fiale association, 2 to 9 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 1,295 feet (15 to 396 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Halyard soil—45 percent
Fiale soil—40 percent
Minor components—15 percent

Characteristics of Halyard and Similar Soils

Slope: 2 to 9 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.8 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 3e-3
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 13 inches; gravelly loam
Bt1—13 to 22 inches; gravelly clay
Bt2—22 to 37 inches; clay
Cr—37 to 60 inches; soft bedrock

Characteristics of Fiale and Similar Soils

Slope: 2 to 9 percent
Landform: Crests, side slopes, and interfluves on hills
Parent material: Slope alluvium derived from basalt, andesite, or volcanic breccia
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 35 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.0 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 3e-3
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; clay
Btss1—2 to 4 inches; clay
Btss2—4 to 14 inches; clay
Btss3—14 to 26 inches; clay
Crt—26 to 60 inches; bedrock

Minor Components

Aridic Haploxererts and similar soils
Composition: About 10 percent
Slope: 2 to 9 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 5 percent
Landform: Side slopes and interfluves on hills

160—Beaches-Abaft complex, 0 to 5 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Dune fields on the island
Elevation: 0 to 310 feet (1 to 95 meters)
Mean annual precipitation: 13 to 34 inches (330 to 864 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Beaches—75 percent
Abaft soil—15 percent
Minor components—10 percent

Characteristics of Beaches

Slope: 0 to 5 percent
Landform: Side slopes and interfluves on dunes
Kind of material: Sandy alluvium derived from sandstone
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8w
Ecological site: None assigned

Characteristics of Abaft and Similar Soils

Slope: 0 to 5 percent
Landform: Interfluves and side slopes on dunes
Parent material: Sandy eolian material derived from volcanic and sedimentary rocks
Typical vegetation: Beach and dune plant community in which red sand verbena, beach bur, and beach suncup are common; prostrate coastal goldenbush and silver lupine in the more stabilized areas
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.1 inches (low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Negligible
Current water table: None noted
Natural drainage class: Excessively drained
Hydrologic soil group: A

Interpretive groups
Land capability, nonirrigated: 4e-4
Ecological site: R020XI101CA, Sandy Dunes 13-34" p.z.

Typical profile
A1—0 to 5 inches; loamy sand
A2—5 to 13 inches; loamy sand
C—13 to 59 inches; loamy sand

Minor Components

Rock outcrop
Composition: About 10 percent
Landform: Eroded beaches

180—Typic Argixerolls, 0 to 8 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Fan piedmonts on the island
Elevation: 5 to 1,145 feet (3 to 350 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Typic Argixerolls, very deep—95 percent
Minor components—5 percent

Characteristics of Typic Argixerolls, Very Deep, and Similar Soils

Slope: 0 to 8 percent
Landform: Backslopes on dissected alluvial fans
Parent material: Alluvium derived from clayey shale
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.0 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Low
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 3e-1
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 15 inches; gravelly clay loam
Bt—15 to 60 inches; extremely gravelly clay loam

Minor Components

Pachic Argixerolls and similar soils
Composition: About 2 percent
Slope: 2 to 8 percent
Landform: Backslopes on dissected alluvial fans

Pachic Argixerolls, very deep, and similar soils
Composition: About 2 percent
Slope: 2 to 8 percent
Landform: Side slopes and interfluves on hills

Gullied land
Composition: About 1 percent
Slope: 2 to 8 percent
Landform: Backslopes in gullies

190—Typic Xerofluvents-Riverwash complex, 0 to 8 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: River valleys on the island
Elevation: 0 to 1,640 feet (1 to 500 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Typic Xerofluvents—70 percent
Riverwash—15 percent
Minor components—15 percent

Characteristics of Typic Xerofluvents and Similar Soils

Slope: 0 to 8 percent
Landform: Dissected flood plains and stream terraces
Parent material: Alluvium derived from metamorphic and sedimentary rocks
Typical vegetation: Mule fat, arroyo willow, and mixed grasses and forbs; evident in riparian areas
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 5.6 inches (moderate)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: Frequent
Present annual ponding: Occasional
Surface runoff class: Very low
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: A

Interpretive groups
Land capability, nonirrigated: 3e-11
Ecological site: R020XI103CA, Riparian Areas 13-31" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 24 inches; sandy loam
2C1—24 to 39 inches; extremely gravelly sand
3C2—39 to 72 inches; extremely cobbly sand

Characteristics of Riverwash

Landform: Dissected flood plains and stream terraces
Kind of material: Extremely stony alluvium derived from volcanic and sedimentary rocks
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8w
Ecological site: None assigned

Minor Components

Cumulic Haploxerolls and similar soils
Composition: About 7 percent
Slope: 4 to 15 percent
Landform: Dissected flood plains and stream terraces

Pachic Haploxerolls and similar soils
Composition: About 6 percent
Slope: 2 to 8 percent
Landform: Dissected flood plains and stream terraces

Rock outcrop
Composition: About 1 percent
Landform: Dissected flood plains and stream terraces

Typic Fluvaquents and similar soils
Composition: About 1 percent
Slope: 0 to 2 percent
Landform: Dissected flood plains and stream terraces

200—Fantail, thin surface-Forestay-Fantail association, 20 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 5 to 1,450 feet (3 to 443 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Fantail soil, thin surface—40 percent
Forestay soil—25 percent
Fantail soil—20 percent
Minor components—15 percent

Characteristics of Fantail, Thin Surface, and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 2 to 28 inches to an abrupt textural change; 20 to 39 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.2 inch (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 3 inches; gravelly loam
Bt1—3 to 7 inches; gravelly clay
Bt2—7 to 13 inches; very gravelly clay
Bt3—13 to 24 inches; very gravelly clay
Bt—24 to 29 inches; very gravelly clay
Crt—29 to 60 inches; bedrock

Characteristics of Forestay and Similar Soils

Slope: 20 to 60 percent
Landform: Backslopes and shoulders of interfluves and side slopes on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: Channel Island scrub oak woodland with some island manzanita and a moderate understory of nonnative grasses
pH in the surface layer: 5.3
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 6 to 28 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.3 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI109CA, Shaly Slopes 13-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A1—2 to 4 inches; gravelly loam
A2—4 to 15 inches; gravelly loam
2Bw—15 to 27 inches; very gravelly coarse sandy loam
3Bt1—27 to 35 inches; extremely gravelly clay
3Bt2—35 to 45 inches; gravelly clay
3Bt3—45 to 60 inches; extremely gravelly clay

Characteristics of Fantail and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 2 to 28 inches to an abrupt textural change; 20 to 39 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A1—2 to 4 inches; gravelly loam
A2—4 to 12 inches; gravelly loam
Bw—12 to 22 inches; very gravelly loam
Bt1—22 to 35 inches; very gravelly clay

Bt2—35 to 39 inches; very gravelly clay
Crt—39 to 60 inches; bedrock

Minor Components

Pachic Argixerolls and similar soils
Composition: About 4 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

Lospinos and similar soils
Composition: About 2 percent
Slope: 30 to 75 percent
Landform: Backslopes of interfluves and side slopes on hills

Pachic Palexerolls and similar soils
Composition: About 2 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 2 percent
Landform: Side slopes and interfluves on hills

Typic Haploxeralfs and similar soils
Composition: About 2 percent
Slope: 2 to 15 percent
Landform: Side slopes and interfluves on hills

Typic Palexerolls and similar soils
Composition: About 2 percent
Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Cliffs

210—Lospinos-Forestay complex, 2 to 20 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 15 to 1,495 feet (6 to 457 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Lospinos soil—55 percent
Forestay soil—15 percent
Forestay soil, strongly sloping—15 percent
Minor components—15 percent

Characteristics of Lospinos and Similar Soils

Slope: 2 to 8 percent
Landform: Shoulders and summits of interfluves on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 21 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.2 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A—0 to 6 inches; gravelly sandy loam
Bt1—6 to 15 inches; very gravelly loam
Bt2—15 to 20 inches; very gravelly clay loam
Bt3—20 to 24 inches; very gravelly loam
Crt—24 to 60 inches; bedrock

Characteristics of Forestay and Similar Soils

Slope: 2 to 8 percent
Landform: Backslopes and summits of interfluves on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: Channel Island scrub oak woodland with some island manzanita and a moderate understory of nonnative grasses
pH in the surface layer: 5.3
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 6 to 28 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.7 inch (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted

Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 3e-3
Ecological site: R020XI109CA, Shaly Slopes 13-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A1—2 to 3 inches; silt loam
A2—3 to 6 inches; loam
2Bt1—6 to 13 inches; gravelly clay
2Bt2—13 to 22 inches; extremely gravelly clay
2Bt3—22 to 60 inches; extremely gravelly clay

Characteristics of Forestay, Strongly Sloping, and Similar Soils

Slope: 8 to 20 percent
Landform: Side slopes and interfluves on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: Channel Island scrub oak woodland with some island manzanita and a moderate understory of nonnative grasses
pH in the surface layer: 5.3
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 6 to 28 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.7 inch (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI109CA, Shaly Slopes 13-24" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A1—2 to 3 inches; silt loam
A2—3 to 6 inches; loam
2Bt1—6 to 13 inches; gravelly clay
2Bt2—13 to 22 inches; very gravelly clay
2Bt3—22 to 60 inches; extremely gravelly clay

Minor Components

Pachic Argixerolls, very deep, and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Landform: Interfluves and side slopes on hills

Typic Argixerolls and similar soils
Composition: About 5 percent
Slope: 4 to 15 percent
Landform: Interfluves and side slopes on hills

Fantail and similar soils
Composition: About 3 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

Pachic Palexerolls and similar soils
Composition: About 2 percent
Slope: 0 to 8 percent
Landform: Interfluves and side slopes on hills

211—Lospinos loam, 8 to 30 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 15 to 1,495 feet (6 to 457 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Lospinos soil—90 percent
Minor components—10 percent

Characteristics of Lospinos and Similar Soils

Slope: 8 to 30 percent
Landform: Backslopes and shoulders of side slopes and interfluves on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 5.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 21 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.5 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A1—0 to 2 inches; gravelly loam
A2—2 to 8 inches; gravelly loam
Bt1—8 to 14 inches; very gravelly loam
Bt2—14 to 23 inches; very gravelly clay loam
Bt3—23 to 28 inches; extremely gravelly loam
Crt—28 to 60 inches; bedrock

Minor Components

Fantail and similar soils
Composition: About 9 percent
Slope: 2 to 8 percent
Landform: Interfluves and side slopes on hills

Pachic Palexerolls and similar soils
Composition: About 1 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

212—Lospinos-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 15 to 1,495 feet (6 to 457 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Lospinos soil—70 percent
Rock outcrop—25 percent
Minor components—5 percent

Characteristics of Lospinos and Similar Soils

Slope: 30 to 75 percent
Landform: Backslopes of interfluves and side slopes on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 21 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.0 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)

Potential for soil slippage: High

Hydrologic properties
- *Present annual flooding:* None
- *Present annual ponding:* None
- *Surface runoff class:* Very high
- *Current water table:* None noted
- *Natural drainage class:* Moderately well drained
- *Hydrologic soil group:* B

Interpretive groups
- *Land capability, nonirrigated:* 7e
- *Ecological site:* R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
- A—0 to 2 inches; gravelly clay loam
- Bt1—2 to 9 inches; very gravelly clay loam
- Bt2—9 to 19 inches; very gravelly clay loam
- Bt3—19 to 22 inches; very gravelly clay loam
- Crt—22 to 60 inches; bedrock

Characteristics of Rock Outcrop

Landform: Interfluves and side slopes on hills
Kind of rock: Clayey shale
Typical vegetation: None

Interpretive groups
- *Land capability, nonirrigated:* 8
- *Ecological site:* None assigned

Minor Components

Lospinos, moderately steep, and similar soils
Composition: About 3 percent
Slope: 8 to 30 percent
Landform: Summits and shoulders of side slopes and interfluves on hills

Forestay and similar soils
Composition: About 1 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Cliffs

230—Fantail gravelly loam, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 5 to 1,450 feet (3 to 443 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Fantail soil—85 percent
Minor components—15 percent

Characteristics of Fantail and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 2 to 28 inches to an abrupt textural change; 20 to 39 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.2 inch (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 3 inches; gravelly loam
Bt1—3 to 7 inches; gravelly clay
Bt2—7 to 13 inches; very gravelly clay
Bt3—13 to 24 inches; very gravelly clay
Bt4—24 to 29 inches; very gravelly clay
Crt—29 to 60 inches; bedrock

Minor Components

Pachic Palexerolls and similar soils
Composition: About 10 percent
Slope: 30 to 60 percent
Landform: Side slopes and interfluves on hills

Pachic Argixerolls and similar soils
Composition: About 4 percent
Slope: 15 to 50 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 1 percent
Landform: Interfluves and side slopes on hills

240—Delphine-Miasotus-Yardarm association, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 695 to 1,295 feet (213 to 396 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Delphine soil—50 percent
Miasotus soil—20 percent
Yardarm soil—15 percent
Minor components—15 percent

Characteristics of Delphine and Similar Soils

Slope: 30 to 75 percent
Landform: Backslopes of interfluves and side slopes on hills
Parent material: Material weathered from schist
Typical vegetation: Scabby sites dominated by Santa Cruz Island buckwheat and redflower buckwheat; also, scattered grasses and forbs
pH in the surface layer: 6.4
Percentage of the surface covered by rock fragments: 40 to 60 percent coarse, subangular gravel
Depth to restrictive feature: 11 to 19 inches to paralithic bedrock; 17 to 22 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.0 inch (very low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI102CA, Shallow Uplands 13-24" p.z.

Typical profile
A—0 to 1 inch; very gravelly silt loam
Bt1—1 to 9 inches; extremely gravelly silt loam
Bt2—9 to 14 inches; extremely gravelly loam
Cr—14 to 21 inches; soft bedrock
R—21 to 31 inches; bedrock

Characteristics of Miasotus and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from schist
Typical vegetation: Island manzanita and Channel Island scrub oak chaparral, with a sparse understory of grasses and forbs
pH in the surface layer: 6.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 21 to 39 inches to lithic bedrock
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.8 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI108CA, Convex Slopes 13-24" p.z.

Typical profile
A1—0 to 1 inch; gravelly silt loam
A2—1 to 2 inches; very gravelly silt loam
Bt1—2 to 8 inches; extremely gravelly silt loam
Bt2—8 to 13 inches; extremely gravelly silty clay loam
Bt3—13 to 19 inches; very gravelly silty clay loam
Cr—19 to 26 inches; soft bedrock
R—26 to 36 inches; bedrock

Characteristics of Yardarm and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from schist
Typical vegetation: Diverse and dense chaparral dominated by Channel Island scrub oak and toyon
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 5.1 inches (moderate)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI110CA, Concave Slopes 13-24" p.z.

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 19 inches; clay loam
Bt—19 to 35 inches; gravelly clay loam
Cr—35 to 39 inches; soft bedrock
R—39 to 49 inches; bedrock

Minor Components

Badland
Composition: About 10 percent
Landform: Interfluves and side slopes on hills

Delphine, moderately steep, and similar soils
Composition: About 4 percent
Slope: 8 to 30 percent
Landform: Shoulders and summits of side slopes and interfluves on hills

Typic Haploxerepts and similar soils
Composition: About 1 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

241—Delphine-Badland-Miasotus complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 600 to 1,495 feet (183 to 457 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Delphine soil—50 percent
Badland—20 percent
Miasotus soil—15 percent
Minor components—15 percent

Characteristics of Delphine and Similar Soils

Slope: 30 to 75 percent
Landform: Backslopes of interfluves and side slopes on hills

Parent material: Material weathered from schist
Typical vegetation: Scabby sites dominated by Santa Cruz Island buckwheat and redflower buckwheat; also, scattered grasses and forbs
pH in the surface layer: 6.5
Percentage of the surface covered by rock fragments: 40 to 60 percent coarse, subangular gravel
Depth to restrictive feature: 11 to 19 inches to paralithic bedrock; 17 to 22 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.5 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI102CA, Shallow Uplands 13-24" p.z.

Typical profile
A—0 to 7 inches; extremely gravelly silty clay loam
Bt—7 to 15 inches; extremely gravelly silty clay loam
Cr—15 to 22 inches; soft bedrock
R—22 to 31 inches; bedrock

Characteristics of Badland

Landform: Interfluves and side slopes on hills
Kind of material: Material weathered from schist
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: None assigned

Characteristics of Miasotus and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from schist
Typical vegetation: Island manzanita and Channel Island scrub oak chaparral, with a sparse understory of grasses and forbs
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 21 to 39 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.7 inches (very low)

Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI108CA, Convex Slopes 13-24" p.z.

Typical profile
A1—0 to 3 inches; sandy loam
A2—3 to 6 inches; gravelly loam
Bt1—6 to 13 inches; very gravelly clay loam
Bt2—13 to 17 inches; very gravelly clay loam
Cr—17 to 23 inches; soft bedrock
R—23 to 33 inches; bedrock

Minor Components

Delphine, moderately steep, and similar soils
Composition: About 7 percent
Slope: 8 to 30 percent
Landform: Shoulders and summits of interfluves and side slopes on hills

Yardarm and similar soils
Composition: About 7 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

Typic Haploxerepts and similar soils
Composition: About 1 percent
Slope: 8 to 30 percent
Landform: Side slopes and interfluves on hills

250—Spinnaker-Starboard-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and mountains on the island
Elevation: 45 to 2,440 feet (15 to 744 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Spinnaker soil—50 percent
Starboard soil—20 percent
Rock outcrop—20 percent

Minor components—10 percent

Characteristics of Spinnaker and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills and mountains
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Scabby sites dominated by Santa Cruz Island buckwheat and redflower buckwheat; also, scattered grasses and forbs
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 8 to 14 inches to paralithic bedrock; 6 to 18 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.3 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI102CA, Shallow Uplands 13-24" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 1 inch; gravelly sandy loam
Bw—1 to 14 inches; gravelly sandy loam
Cr—14 to 18 inches; soft bedrock
R—18 to 28 inches; bedrock

Characteristics of Starboard and Similar Soils

Slope: 30 to 60 percent
Landform: Side slopes and interfluves on hills; mountain flanks
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Oak woodland consisting of arborescent Channel Islands scrub oak and California live oak; scattered grasses in the understory
pH in the surface layer: 5.3
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.7 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None

Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI112CA, Moderately Deep Volcanic Slopes 13-31" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
Oe—1 to 4 inches; moderately decomposed plant material
A1—4 to 7 inches; loamy sand
A2—7 to 12 inches; loam
Bt1—12 to 30 inches; clay loam
Bt2—30 to 35 inches; gravelly loam
Cr—35 to 60 inches; soft bedrock

Characteristics of Rock Outcrop

Landform: Interfluves and side slopes on hills; mountain flanks
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Fiale and similar soils
Composition: About 4 percent
Slope: 8 to 30 percent
Landform: Side slopes and interfluves on hills; mountain flanks

Typic Argixerolls and similar soils
Composition: About 4 percent
Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills; mountain flanks

Typic Xerofluvents and similar soils
Composition: About 1 percent
Slope: 2 to 9 percent
Landform: Dissected drainageways

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Side slopes and interfluves on cliffs

251—Spinnaker-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and mountains on the island

Elevation: 45 to 2,440 feet (15 to 744 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Spinnaker soil—60 percent
Rock outcrop—25 percent
Minor components—15 percent

Characteristics of Spinnaker and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills and on mountains
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Scabby sites dominated by Santa Cruz Island buckwheat and redflower buckwheat; also, scattered grasses and forbs
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 6 to 18 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.6 inch (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI102CA, Shallow Uplands 13-24" p.z.

Typical profile
A—0 to 1 inch; gravelly sandy loam
Bw—1 to 6 inches; gravelly sandy loam
R—6 to 16 inches; bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills; mountain flanks
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Starboard and similar soils
Composition: About 7 percent
Slope: 25 to 60 percent

Landform: Side slopes and interfluves on hills; mountain flanks

Topdeck and similar soils
Composition: About 3 percent
Slope: 2 to 8 percent
Landform: Interfluves and crests on hills; mountain flanks

Fiale and similar soils
Composition: About 2 percent
Slope: 15 to 50 percent
Landform: Interfluves and side slopes on hills

Rudder and similar soils
Composition: About 1 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills; mountain flanks

Typic Xerofluvents and similar soils
Composition: About 1 percent
Slope: 2 to 9 percent
Landform: Dissected drainageways

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Side slopes and interfluves on cliffs

260—Starboard-Spinnaker-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and mountains on the island
Elevation: 45 to 2,440 feet (15 to 744 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Starboard soil—40 percent
Spinnaker soil—30 percent
Rock outcrop—15 percent
Minor components—15 percent

Characteristics of Starboard and Similar Soils

Slope: 30 to 60 percent
Landform: Interfluves and side slopes on hills; mountain flanks
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Oak woodland consisting of arborescent Channel Islands scrub oak and California live oak; scattered grasses in the understory
pH in the surface layer: 5.3
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderately slow above the bedrock

Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.4 inches (low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI112CA, Moderately Deep Volcanic Slopes 13-31" p.z.

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 2 inches; gravelly loam
Bt1—2 to 12 inches; gravelly loam
Bt2—12 to 30 inches; gravelly loam
Cr—30 to 60 inches; soft bedrock

Characteristics of Spinnaker and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills on mountains
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Scabby sites dominated by Santa Cruz Island buckwheat and redflower buckwheat; also, scattered grasses and forbs
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 6 to 18 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.7 inches (very low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI102CA, Shallow Uplands 13-24" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 2 inches; gravelly loam

Bw1—2 to 7 inches; gravelly loam
Bw2—7 to 14 inches; gravelly loam
R—14 to 24 inches; bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills; mountain flanks
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Topdeck and similar soils
Composition: About 5 percent
Slope: 15 to 50 percent
Landform: Interfluves and side slopes on hills; mountain flanks

Fiale and similar soils
Composition: About 4 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

Halyard and similar soils
Composition: About 4 percent
Slope: 15 to 50 percent
Landform: Interfluves and side slopes on hills; mountain flanks

Typic Haploxerepts and similar soils
Composition: About 1 percent
Slope: 15 to 50 percent
Landform: Side slopes and interfluves on hills; mountain flanks

Typic Xerofluvents and similar soils
Composition: About 1 percent
Slope: 2 to 9 percent
Landform: Dissected drainageways

262—Halyard-Fantail association, 30 to 85 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and mountains on the island
Elevation: 45 to 1,450 feet (15 to 443 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Halyard—55 percent
Fantail—30 percent
Minor components—15 percent

Characteristics of Halyard and Similar Soils

Slope: 30 to 85 percent
Landform: Interfluves and side slopes on hills; mountain flanks
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Oak woodland consisting of arborescent Channel Islands scrub oak and California live oak; scattered grasses in the understory
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.1 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI112CA, Moderately Deep Volcanic Slopes 13-31" p.z.

Typical profile
A—0 to 6 inches; gravelly clay loam
Bt1—6 to 20 inches; gravelly clay
Bt2—20 to 29 inches; very gravelly clay
Bt3—29 to 35 inches; clay
Cr—35 to 60 inches; soft bedrock

Characteristics of Fantail and Similar Soils

Slope: 30 to 60 percent
Landform: Interfluves and side slopes on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 2 to 28 inches to an abrupt textural change; 20 to 39 inches to paralithic bedrock
Slowest permeability class: Very slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.8 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None

Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oe—0 to 3 inches; moderately decomposed plant material
A1—3 to 8 inches; clay loam
A2—8 to 14 inches; clay loam
Bt1—14 to 20 inches; gravelly clay
Bt2—20 to 30 inches; very gravelly clay
Crt—30 to 60 inches; bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Landform: Side slopes and interfluves on hills; mountain flanks

Tongva and similar soils
Composition: About 3 percent
Slope: 2 to 60 percent
Landform: Side slopes and interfluves on hills; mountain flanks

Topdeck and similar soils
Composition: About 3 percent
Slope: 2 to 50 percent
Landform: Interfluves and side slopes on hills; mountain flanks

Forestay and similar soils
Composition: About 2 percent
Slope: 15 to 30 percent
Landform: Backslopes and shoulders of side slopes and interfluves on hills; mountain flanks

Typic Argixerolls and similar soils
Composition: About 2 percent
Slope: 30 to 85 percent
Landform: Interfluves and side slopes on hills; mountain flanks

263—Starboard-Pachic Argixerolls-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and mountains on the island
Elevation: 45 to 2,460 feet (15 to 750 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Starboard soil—35 percent
Pachic Argixerolls—35 percent
Rock outcrop—15 percent
Minor components—15 percent

Characteristics of Starboard and Similar Soils

Slope: 30 to 60 percent
Landform: Side slopes and interfluves on hills; mountain flanks
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Oak woodland consisting of arborescent Channel Islands scrub oak and California live oak; scattered grasses in the understory
pH in the surface layer: 5.3
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 6.9 inches (moderate)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI112CA, Moderately Deep Volcanic Slopes 13-31" p.z.

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 3 inches; loam
Bt1—3 to 18 inches; loam
Bt2—18 to 39 inches; loam
Cr—39 to 60 inches; soft bedrock

Characteristics of Pachic Argixerolls and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills; mountain flanks
Parent material: Material weathered from andesite, basalt, or volcanic breccia
Typical vegetation: Channel Island scrub oak woodland with some island manzanita and a moderate understory of nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 39 to 59 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.3 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)

Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI109CA, Shaly Slopes 13-24" p.z.

Typical profile
Oi—0 to 4 inches; slightly decomposed plant material
A1—4 to 12 inches; gravelly loam
A2—12 to 20 inches; loam
Bt—20 to 41 inches; very gravelly clay loam
Cr—41 to 60 inches; soft bedrock

Characteristics of Rock Outcrop

Landform: Interfluves and side slopes on hills; mountain flanks
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Spinnaker and similar soils
Composition: About 10 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills; side slopes and interfluves on mountains

Halyard and similar soils
Composition: About 5 percent
Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills; mountain flanks

270—Topdeck-Rock outcrop-Spinnaker complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and mountains on the island
Elevation: 45 to 2,440 feet (15 to 744 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Topdeck soil—35 percent
Rock outcrop—35 percent
Spinnaker soil—15 percent
Minor components—15 percent

Characteristics of Topdeck and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills; mountain flanks
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
- *Present annual flooding:* None
- *Present annual ponding:* None
- *Surface runoff class:* Very high
- *Current water table:* None noted
- *Natural drainage class:* Well drained
- *Hydrologic soil group:* D

Interpretive groups
- *Land capability, nonirrigated:* 7e
- *Ecological site:* R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
- A1—0 to less than 1 inch; gravelly loam
- A2—less than 1 inch to 6 inches; gravelly loam
- Bt—6 to 10 inches; gravelly loam
- R—10 to 20 inches; bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills; mountain flanks
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
- *Land capability, nonirrigated:* 8
- *Ecological site:* None assigned

Characteristics of Spinnaker and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills and on mountains
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Scabby sites dominated by Santa Cruz Island buckwheat and redflower buckwheat; also, scattered grasses and forbs
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None

Depth to restrictive feature (lithic bedrock): 6 to 18 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.1 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI102CA, Shallow Uplands 13-24" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; gravelly sandy loam
Bw—2 to 12 inches; gravelly sandy loam
R—12 to 22 inches; bedrock

Minor Components

Fiale and similar soils
Composition: About 10 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

Halyard and similar soils
Composition: About 5 percent
Slope: 8 to 30 percent
Landform: Side slopes and interfluves on hills; mountain flanks

271—Topdeck-Spinnaker-Tongva complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and mountains on the island
Elevation: 495 to 2,440 feet (152 to 744 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Topdeck soil—45 percent
Spinnaker soil—20 percent
Tongva soil—20 percent
Minor components—15 percent

Characteristics of Topdeck and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills; mountain flanks
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 6 inches; gravelly loam
Bt1—6 to 12 inches; gravelly loam
Bt2—12 to 18 inches; gravelly clay loam
R—18 to 31 inches; bedrock

Characteristics of Spinnaker and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills and on mountains
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Scabby sites dominated by Santa Cruz Island buckwheat and redflower buckwheat; also, scattered grasses and forbs
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 8 to 14 inches to paralithic bedrock; 6 to 18 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.0 inch (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None

Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI102CA, Shallow Uplands 13-24" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 2 inches; gravelly sandy loam
Bw—2 to 10 inches; gravelly sandy loam
Cr—10 to 18 inches; soft bedrock
R—18 to 28 inches; bedrock

Characteristics of Tongva and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills; mountain flanks
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.9 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A1—less than 1 inch to 3 inches; gravelly loam
A2—3 to 16 inches; gravelly loam
Bt1—16 to 22 inches; gravelly clay loam
Bt2—22 to 31 inches; gravelly clay loam
Cr—31 to 60 inches; soft bedrock

Minor Components

Rock outcrop
Composition: About 8 percent
Landform: Side slopes and interfluves on hills; mountain flanks

Starboard and similar soils
Composition: About 3 percent
Slope: 25 to 60 percent
Landform: Interfluves and side slopes on hills; mountain flanks

Fiale and similar soils
Composition: About 1 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills

Halyard and similar soils
Composition: About 1 percent
Slope: 15 to 45 percent
Landform: Interfluves and side slopes on hills; mountain flanks

Tongva, strongly sloping, and similar soils
Composition: About 1 percent
Slope: 2 to 30 percent
Landform: Interfluves and side slopes on hills; mountain flanks

Topdeck, strongly sloping, and similar soils
Composition: About 1 percent
Slope: 2 to 30 percent
Landform: Interfluves and side slopes on hills; mountain flanks

272—Topdeck-Starboard-Rock outcrop complex, 15 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 2,460 feet (15 to 750 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Topdeck soil—35 percent
Starboard soil—35 percent
Rock outcrop—15 percent
Minor components—15 percent

Characteristics of Topdeck and Similar Soils

Slope: 20 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 16 inches to paralithic bedrock; 10 to 20 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 1.6 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
A1—0 to 2 inches; gravelly sandy loam
A2—2 to 8 inches; gravelly loam
Bt—8 to 12 inches; clay loam
Cr—12 to 16 inches; soft bedrock
R—16 to 26 inches; bedrock

Characteristics of Starboard and Similar Soils

Slope: 15 to 60 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Oak woodland consisting of arborescent Channel Islands scrub oak and California live oak; scattered grasses in the understory
pH in the surface layer: 5.3
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.7 inches (low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI112CA, Moderately Deep Volcanic Slopes 13-31" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 16 inches; loam
Bt1—16 to 26 inches; loam
Bt2—26 to 28 inches; clay loam
Cr—28 to 60 inches; soft bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Halyard and similar soils
Composition: About 5 percent
Slope: 15 to 60 percent
Landform: Interfluves and side slopes on hills

Spinnaker and similar soils
Composition: About 5 percent
Slope: 2 to 15 percent
Landform: Interfluves and side slopes on hills

Typic Haploxeralfs and similar soils
Composition: About 5 percent
Slope: 20 to 75 percent
Landform: Interfluves and side slopes on hills

273—Topdeck, overblown-Typic Durixerolls, loamy subsoil, complex, 9 to 30 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 785 feet (15 to 240 meters)
Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Topdeck soil, overblown—45 percent
Typic Durixerolls, loamy subsoil—40 percent
Minor components—15 percent

Characteristics of Topdeck, Overblown, and Similar Soils

Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Scrubland characterized by prostrate coastal goldenbush, silver lupine, and San Miguel milkvetch
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock

Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.2 inches (very low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI119CA, Gentle Calcareous Slopes 21-34" p.z.

Typical profile
A—0 to 7 inches; gravelly sandy loam
Bt—7 to 19 inches; gravelly clay loam
R—19 to 28 inches; bedrock

Characteristics of Typic Durixerolls, Loamy Subsoil, and Similar Soils

Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from calcareous sandstone
Typical vegetation: Scrubland characterized by prostrate coastal goldenbush, silver lupine, and San Miguel milkvetch
pH in the surface layer: 7.4
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 20 inches to a duripan; 10 to 20 inches to paralithic bedrock
Slowest permeability class: Impermeable
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.2 inches (low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI119CA, Gentle Calcareous Slopes 21-34" p.z.

Typical profile
A—0 to 2 inches; sandy loam
2Bt1—2 to 13 inches; loam
2Bt2—13 to 18 inches; loam

3Bkqm—18 to 19 inches; duripan
3Cr—19 to 60 inches; bedrock

Minor Components

Ahoy and similar soils
Composition: About 10 percent
Slope: 2 to 9 percent
Landform: Dissected fluviomarine terraces

Typic Xeropsamments and similar soils
Composition: About 5 percent
Slope: 9 to 30 percent
Landform: Interfluves and side slopes on dunes

290—Rock outcrop-Topdeck-Starboard complex, 30 to 80 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 2,460 feet (15 to 750 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Rock outcrop—50 percent
Topdeck soil—20 percent
Starboard soil—15 percent
Minor components—15 percent

Characteristics of Rock Outcrop

Landform: Interfluves and side slopes on hills
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Characteristics of Topdeck and Similar Soils

Slope: 30 to 80 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 7 to 18 inches to paralithic bedrock; 10 to 20 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline

Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.7 inch (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 4 inches; cobbly sandy loam
Bt—4 to 7 inches; gravelly sandy loam
Cr—7 to 18 inches; soft bedrock
R—18 to 28 inches; bedrock

Characteristics of Starboard and Similar Soils

Slope: 30 to 60 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Oak woodland consisting of arborescent Channel Islands scrub oak and California live oak; scattered grasses in the understory
pH in the surface layer: 5.3
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.7 inches (low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI112CA, Moderately Deep Volcanic Slopes 13-31" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 16 inches; loam
Bt1—16 to 26 inches; loam

Bt2—26 to 28 inches; clay loam
Cr—28 to 60 inches; soft bedrock

Minor Components

Pachic Argixerolls and similar soils
Composition: About 5 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

Spinnaker and similar soils
Composition: About 5 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

Tongva and similar soils
Composition: About 3 percent
Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills

Fiale and similar soils
Composition: About 1 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

Typic Xerofluvents and similar soils
Composition: About 1 percent
Slope: 2 to 9 percent
Landform: Side slopes and interfluves on hills

291—Rock outcrop-Spinnaker-Topdeck complex, 30 to 80 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 2,460 feet (15 to 750 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Rock outcrop—40 percent
Spinnaker soil—30 percent
Topdeck soil—15 percent
Minor components—15 percent

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Characteristics of Spinnaker and Similar Soils

Slope: 30 to 80 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Scabby sites dominated by Santa Cruz Island buckwheat and redflower buckwheat; also, scattered grasses and forbs
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 8 to 14 inches to paralithic bedrock; 6 to 18 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.0 inch (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI102CA, Shallow Uplands 13-24" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 2 inches; gravelly sandy loam
Bw—2 to 10 inches; gravelly sandy loam
Cr—10 to 18 inches; soft bedrock
R—18 to 28 inches; bedrock

Characteristics of Topdeck and Similar Soils

Slope: 30 to 80 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.2 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted

Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 2 inches; gravelly loam
Bt1—2 to 4 inches; gravelly loam
Bt2—4 to 19 inches; gravelly clay loam
R—19 to 29 inches; bedrock

Minor Components

Starboard and similar soils
Composition: About 6 percent
Slope: 25 to 60 percent
Landform: Side slopes and interfluves on hills

Halyard and similar soils
Composition: About 5 percent
Landform: Side slopes and interfluves on hills

Tongva and similar soils
Composition: About 3 percent
Slope: 45 to 100 percent
Landform: Interfluves and side slopes on hills

Lithic Argixerolls and similar soils
Composition: About 1 percent
Landform: Side slopes and interfluves on hills

292—Rock outcrop-Buoy-Bereme-Typic Palexerolls complex, 15 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and fluviomarine terraces on the island
Elevation: 600 to 1,400 feet (183 to 427 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Rock outcrop—25 percent
Buoy soil—25 percent
Bereme soil—20 percent
Typic Palexerolls—15 percent
Minor components—15 percent

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Sandstone

Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Characteristics of Buoy and Similar Soils

Slope: 15 to 50 percent
Landform: Side slopes and interfluves on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.9 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 12 inches; fine sandy loam
Bt—12 to 18 inches; loam
2Bt—18 to 33 inches; clay
2Btk—33 to 41 inches; clay
2BCk—41 to 45 inches; fine sandy loam
2Cr—45 to 60 inches; bedrock

Characteristics of Bereme and Similar Soils

Slope: 15 to 35 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from sandstone
Typical vegetation: Low-growing chaparral dominated by chamise and/or Channel Island scrub oak
pH in the surface layer: 6.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI106CA, Shallow Slopes 13-31" p.z.

Typical profile
A—0 to 6 inches; loam
Bt1—6 to 10 inches; sandy loam
Bt2—10 to 18 inches; very cobbly sandy loam
R1—18 to 24 inches; bedrock
R2—24 to 33 inches; bedrock

Characteristics of Typic Palexerolls and Similar Soils

Slope: 50 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from shale
Typical vegetation: Channel Island scrub oak woodland with some island manzanita and a moderate understory of nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 4 to 12 inches to an abrupt textural change; 20 to 39 inches to paralithic bedrock
Slowest permeability class: Very slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.0 inch (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI109CA, Shaly Slopes 13-24" p.z.

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 5 inches; loam
A2—5 to 9 inches; gravelly loam

Bt1—9 to 19 inches; gravelly clay
Bt2—19 to 24 inches; very cobbly clay
Cr—24 to 60 inches; soft bedrock

Minor Components

Mollic Haploxeralfs and similar soils
Composition: About 10 percent
Slope: 30 to 65 percent
Landform: Side slopes and interfluves on hills

Typic Argixerolls and similar soils
Composition: About 5 percent
Slope: 30 to 65 percent
Landform: Interfluves and side slopes on hills

300—Cumulic Haploxerolls, 2 to 8 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: River valleys on the island
Elevation: 5 to 1,965 feet (3 to 600 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Cumulic Haploxerolls—85 percent
Minor components—15 percent

Characteristics of Cumulic Haploxerolls and Similar Soils

Slope: 2 to 8 percent
Landform: Dissected flood plains and stream terraces
Parent material: Mixed alluvium derived from volcanic and sedimentary rocks
Typical vegetation: Mule fat, arroyo willow, and mixed grasses and forbs; evident in riparian areas
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 51 inches
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 10.7 inches (very high)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: Very rare
Present annual ponding: None
Surface runoff class: Very low
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 3e-11
Ecological site: R020XI103CA, Riparian Areas 13-31" p.z.

Typical profile
A1—0 to 9 inches; silt loam
A2—9 to 35 inches; silt loam
2Bw—35 to 51 inches; fine sandy loam
3C—51 to 67 inches; extremely gravelly loamy sand

Minor Components

Fiale and similar soils
Composition: About 5 percent
Slope: 2 to 8 percent
Landform: Crests, side slopes, and interfluves on hills

Pachic Argixerolls and similar soils
Composition: About 4 percent
Slope: 2 to 8 percent
Landform: Dissected flood plains and stream terraces

Fluventic Haploxerolls and similar soils
Composition: About 3 percent
Slope: 2 to 8 percent
Landform: Dissected flood plains and stream terraces

Riverwash
Composition: About 2 percent
Slope: 2 to 8 percent
Landform: Dissected flood plains and stream terraces

Typic Fluvaquents and similar soils
Composition: About 1 percent
Slope: 0 to 2 percent
Landform: Dissected flood plains and stream terraces

310—Livigne-Macool-Badland complex, 30 to 70 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 400 to 1,495 feet (122 to 457 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Livigne soil—40 percent
Macool soil—30 percent
Badland—15 percent
Minor components—15 percent

Characteristics of Livigne and Similar Soils

Slope: 30 to 70 percent
Landform: Backslopes and footslopes of interfluves and side slopes on hills
Parent material: Material weathered from gabbro and/or diorite
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.7
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 10 to 20 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.0 inches (low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; loam
Bt—2 to 6 inches; clay
BC—6 to 18 inches; loam
Crt—18 to 60 inches; bedrock

Characteristics of Macool and Similar Soils

Slope: 30 to 70 percent
Landform: Backslopes and footslopes of interfluves and side slopes on hills
Parent material: Material weathered from diorite and gabbro
Typical vegetation: Open chaparral with California sagebrush and grasses covering large areas
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 40 to 50 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.0 inches (high)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted

Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI105CA, Deep Slopes 13-24" p.z.

Typical profile
Oe—0 to 1 inch; moderately decomposed plant material
A1—1 to 2 inches; loam
A2—2 to 6 inches; loam
A3—6 to 12 inches; loam
A4—12 to 17 inches; clay loam
Bt1—17 to 28 inches; clay
Bt2—28 to 30 inches; clay
Bt3—30 to 38 inches; clay
BC—38 to 50 inches; clay loam
Crt—50 to 60 inches; bedrock

Characteristics of Badland

Landform: Interfluves and side slopes on hills
Kind of material: Material weathered from gabbro and/or diorite
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Aridic Haploxererts and similar soils
Composition: About 6 percent
Slope: 8 to 30 percent
Landform: Side slopes and interfluves on hills

Lithic Mollic Haploxeralfs and similar soils
Composition: About 6 percent
Slope: 40 to 80 percent
Landform: Interfluves and side slopes on hills

Macool, moderately steep, and similar soils
Composition: About 2 percent
Slope: 8 to 30 percent
Landform: Shoulders and summits of interfluves, crests, and side slopes on hills

Livigne, moderately steep, and similar soils
Composition: About 1 percent
Slope: 8 to 30 percent
Landform: Summits and shoulders of interfluves and side slopes on hills

311—Livigne-Gunwale association, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and mountains on the island

Elevation: 495 to 1,310 feet (152 to 400 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Livigne soil—45 percent
Gunwale soil—40 percent
Minor components—15 percent

Characteristics of Livigne and Similar Soils

Slope: 30 to 75 percent
Landform: Footslopes and backslopes of interfluves and side slopes on hills
Parent material: Material weathered from gabbro and/or diorite
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.7
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.8 inches (low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; clay loam
Bt—2 to 17 inches; clay loam
Cr—17 to 60 inches; soft bedrock

Characteristics of Gunwale and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills; mountain flanks
Parent material: Material weathered from diorite and gabbro
Typical vegetation: Bishop pine forest with Channel Islands scrub oak and several other chaparral species intermixed
pH in the surface layer: 4.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.1 inches (low)

Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: F020XI200CA, Pinus muricata/Quercus pacifica

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
Oe—1 to 2 inches; moderately decomposed plant material
A—2 to 4 inches; loam
Bw—4 to 11 inches; sandy loam
Bt—11 to 22 inches; sandy clay loam
Cr—22 to 60 inches; soft bedrock

Minor Components

Rock outcrop
Composition: About 10 percent
Landform: Interfluves and side slopes on hills

Pachic Argixerolls and similar soils
Composition: About 5 percent
Slope: 30 to 70 percent
Landform: Interfluves and side slopes on hills

321—Rudder-Spinnaker, moist-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 695 to 1,600 feet (213 to 488 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 55 to 73 degrees F (13 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Rudder soil—40 percent
Spinnaker soil, moist—30 percent
Rock outcrop—15 percent
Minor components—15 percent

Characteristics of Rudder and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, and/or basalt

Typical vegetation: Bishop pine forest with Channel Islands scrub oak and several other chaparral species intermixed
pH in the surface layer: 4.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock; 21 to 41 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.5 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: F020XI200CA, Pinus muricata/Quercus pacifica

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
Oe—2 to 4 inches; moderately decomposed plant material
A1—4 to 8 inches; gravelly sandy loam
A2—8 to 22 inches; gravelly sandy loam
Bw—22 to 28 inches; gravelly sandy loam
Cr—28 to 32 inches; soft bedrock
R—32 to 42 inches; bedrock

Characteristics of Spinnaker, Moist, and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Low-growing chaparral dominated by chamise and/or Channel Island scrub oak
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 8 to 14 inches to paralithic bedrock; 6 to 18 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.0 inch (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted

Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI106CA, Shallow Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 2 inches; gravelly sandy loam
Bw—2 to 10 inches; gravelly sandy loam
Cr—10 to 18 inches; soft bedrock
R—18 to 28 inches; bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Fiale and similar soils
Composition: About 5 percent
Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills

Halyard and similar soils
Composition: About 5 percent
Slope: 15 to 50 percent
Landform: Interfluves and side slopes on hills

Starboard and similar soils
Composition: About 3 percent
Slope: 25 to 60 percent
Landform: Interfluves and side slopes on hills

Topdeck and similar soils
Composition: About 2 percent
Slope: 8 to 30 percent
Landform: Side slopes and interfluves on hills

650—Abaft loamy sand, 2 to 9 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Dune fields on the island
Elevation: 0 to 310 feet (1 to 95 meters)
Mean annual precipitation: 13 to 34 inches (330 to 864 millimeters)
Mean annual air temperature: 59 to 64 degrees F (15 to 18 degrees C)
Frost-free period: 365 days

Map Unit Composition

Abaft soil—85 percent
Minor components—15 percent

Characteristics of Abaft and Similar Soils

Slope: 2 to 9 percent
Landform: Side slopes and interfluves on dunes
Parent material: Sandy eolian material derived from volcanic and sedimentary rocks
Typical vegetation: Beach and dune plant community in which red sand verbena, beach bur, and beach suncup are common; prostrate coastal goldenbush and silver lupine in the more stabilized areas
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.1 inches (low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Negligible
Current water table: None noted
Natural drainage class: Excessively drained
Hydrologic soil group: A

Interpretive groups
Land capability, nonirrigated: 4e-4
Ecological site: R020XI101CA, Sandy Dunes 13-34" p.z.

Typical profile
A1—0 to 5 inches; loamy sand
A2—5 to 13 inches; loamy sand
C—13 to 59 inches; loamy sand

Minor Components

Abaft, moderately steep, and similar soils
Composition: About 5 percent
Slope: 9 to 30 percent
Landform: Side slopes and interfluves on dunes

Ironshot and similar soils
Composition: About 5 percent
Slope: 2 to 5 percent
Landform: Dissected fluviomarine terraces

Ahoy and similar soils
Composition: About 4 percent
Slope: 2 to 5 percent
Landform: Dissected fluviomarine terraces

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Cliffs

651—Abaft association, 2 to 25 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Dune fields on the island
Elevation: 0 to 310 feet (1 to 95 meters)
Mean annual precipitation: 13 to 34 inches (330 to 864 millimeters)
Mean annual air temperature: 59 to 64 degrees F (15 to 18 degrees C)
Frost-free period: 365 days

Map Unit Composition

Abaft soil—45 percent
Abaft soil, moderately steep—40 percent
Minor components—15 percent

Characteristics of Abaft and Similar Soils

Slope: 2 to 9 percent
Landform: Interfluves and side slopes on dunes
Parent material: Sandy eolian material derived from volcanic and sedimentary rocks
Typical vegetation: Beach and dune plant community in which red sand verbena, beach bur, and beach suncup are common; prostrate coastal goldenbush and silver lupine in the more stabilized areas
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.1 inches (low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Negligible
Current water table: None noted
Natural drainage class: Excessively drained
Hydrologic soil group: A

Interpretive groups
Land capability, nonirrigated: 4e-4
Ecological site: R020XI101CA, Sandy Dunes 13-34" p.z.

Typical profile
A1—0 to 5 inches; loamy sand
A2—5 to 13 inches; loamy sand
C—13 to 59 inches; loamy sand

Characteristics of Abaft, Moderately Steep, and Similar Soils

Slope: 9 to 25 percent
Landform: Side slopes and interfluves on dunes
Parent material: Sandy eolian material derived from volcanic and sedimentary rocks
Typical vegetation: Beach and dune plant community in which red sand verbena, beach bur, and beach suncup are common; prostrate coastal goldenbush and silver lupine in the more stabilized areas
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.1 inches (low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
- *Present annual flooding:* None
- *Present annual ponding:* None
- *Surface runoff class:* Negligible
- *Current water table:* None noted
- *Natural drainage class:* Excessively drained
- *Hydrologic soil group:* A

Interpretive groups
- *Land capability, nonirrigated:* 4e-4
- *Ecological site:* R020XI101CA, Sandy Dunes 13-34" p.z.

Typical profile
- A1—0 to 5 inches; loamy sand
- A2—5 to 13 inches; loamy sand
- C—13 to 59 inches; loamy sand

Minor Components

Ironshot and similar soils
Composition: About 10 percent
Slope: 2 to 5 percent
Landform: Dissected fluviomarine terraces

Ahoy and similar soils
Composition: About 4 percent
Slope: 2 to 5 percent
Landform: Dissected fluviomarine terraces

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Cliffs

660—Pachic Haploxerolls, 2 to 9 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains

Landscape of the map unit: Fluviomarine terraces on the island
Elevation: 5 to 655 feet (2 to 200 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Pachic Haploxerolls—85 percent
Minor components—15 percent

Characteristics of Pachic Haploxerolls and Similar Soils

Slope: 2 to 9 percent
Landform: Dissected fluviomarine terraces
Parent material: Alluvium derived from sandstone
Typical vegetation: Coastal grassland dominated by inland saltgrass
pH in the surface layer: 6.6
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (strongly contrasting textural stratification): Typically, 41 inches
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 5.9 inches (moderate)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very low
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 4e-4
Ecological site: R020XI118CA, Marine Terraces 21-34" p.z.

Typical profile
A1—0 to 2 inches; loam
A2—2 to 20 inches; loam
C1—20 to 33 inches; loamy sand
2C2—33 to 41 inches; loam
3C3—41 to 63 inches; gravelly sand

Minor Components

Ahoy and similar soils
Composition: About 7 percent
Slope: 2 to 15 percent
Landform: Dissected fluviomarine terraces

Abaft and similar soils
Composition: About 6 percent
Slope: 2 to 9 percent
Landform: Interfluves and side slopes on dunes

Gullied land
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Interfluves and side slopes on hills

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Cliffs

670—Ironshot-Ahoy association, 2 to 15 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Fluviomarine terraces on the island
Elevation: 200 to 600 feet (61 to 183 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Ironshot soil—60 percent
Ahoy soil—25 percent
Minor components—15 percent

Characteristics of Ironshot and Similar Soils

Slope: 5 to 15 percent
Landform: Dissected fluviomarine terraces
Parent material: Sandy eolian material derived from sandstone over other material derived from sandstone
Typical vegetation: Coastal grassland dominated by inland saltgrass
pH in the surface layer: 6.5
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 6.9 inches (moderate)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Low
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: A

Interpretive groups
Land capability, nonirrigated: 4e-1
Ecological site: R020XI118CA, Marine Terraces 21-34" p.z.

Typical profile

A—0 to 7 inches; loam
Bw—7 to 14 inches; fine sandy loam
C1—14 to 20 inches; fine sandy loam
C2—20 to 31 inches; loamy fine sand
C3—31 to 66 inches; loamy fine sand

Characteristics of Ahoy and Similar Soils

Slope: 2 to 9 percent
Landform: Dissected fluviomarine terraces
Parent material: Material weathered from sandstone
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.1
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 16 to 28 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.5 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties

Present annual flooding: None
Present annual ponding: None
Surface runoff class: Low
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups

Land capability, nonirrigated: 3e-3
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile

A1—0 to 2 inches; loam
A2—2 to 16 inches; loam
A3—16 to 20 inches; fine sandy loam
2Bss—20 to 60 inches; clay

Minor Components

Ironshot, moderately steep, and similar soils
Composition: About 5 percent
Slope: 15 to 30 percent
Landform: Dissected fluviomarine terraces

Vertic Haploxerolls and similar soils
Composition: About 5 percent
Slope: 2 to 15 percent
Landform: Dissected fluviomarine terraces

Abaft and similar soils
Composition: About 2 percent
Slope: 2 to 9 percent
Landform: Interfluves and side slopes on dunes

Rock outcrop
Composition: About 1 percent
Landform: Cliffs

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Cliffs

Fluventic Haploxerolls and similar soils
Composition: About 1 percent
Slope: 0 to 2 percent
Landform: Dissected drainageways

680—Bereme-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 600 to 1,495 feet (183 to 457 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Bereme soil—65 percent
Rock outcrop—20 percent
Minor components—15 percent

Characteristics of Bereme and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes in canyons and on hills
Parent material: Material weathered from sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.9 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A—0 to 1 inch; sandy loam
Bt1—1 to 12 inches; sandy loam
Bt2—12 to 15 inches; sandy loam
R—15 to 24 inches; bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Sandstone
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Typic Argixerolls and similar soils
Composition: About 10 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

Pachic Argixerolls and similar soils
Composition: About 5 percent
Slope: 15 to 50 percent
Landform: Side slopes and interfluves on hills

681—Bereme-Rock outcrop complex, 15 to 50 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 600 to 1,495 feet (183 to 457 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Bereme soil—65 percent
Rock outcrop—20 percent
Minor components—15 percent

Characteristics of Bereme and Similar Soils

Slope: 15 to 50 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.8

Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 14 to 16 inches to paralithic bedrock; 10 to 20 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.5 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; gravelly sandy loam
Bt—2 to 15 inches; gravelly sandy loam
Cr—15 to 19 inches; soft bedrock
R—19 to 29 inches; bedrock

Characteristics of Rock Outcrop

Landform: Interfluves and side slopes on hills
Kind of rock: Sandstone
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Typic Argixerolls and similar soils
Composition: About 5 percent
Slope: 15 to 50 percent
Landform: Side slopes and interfluves on hills

Pachic Argixerolls and similar soils
Composition: About 5 percent
Slope: 15 to 50 percent
Landform: Side slopes and interfluves on hills

Buoy and similar soils
Composition: About 3 percent
Slope: 10 to 30 percent
Landform: Side slopes and interfluves on hills

Hawser and similar soils
Composition: About 1 percent
Slope: 10 to 30 percent
Landform: Backslopes and summits on dissected and uplifted fluviomarine terraces

Typic Haploxerolls and similar soils
Composition: About 1 percent
Slope: 15 to 50 percent
Landform: Side slopes and interfluves on hills

690—Typic Xerorthents-Ultic Haploxeralfs-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 325 to 1475 feet (100 to 450 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Typic Xerorthents—40 percent
Ultic Haploxeralfs—35 percent
Rock outcrop—15 percent
Minor components—10 percent

Characteristics of Typic Xerorthents and Similar Soils

Slope: 30 to 50 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from sandstone
Typical vegetation: Santa Cruz Island Torrey pine woodland with a very sparse understory
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: F020XI201CA, Pinus torreyana var. insularis/Nassella pulchra

Typical profile
A1—0 to 5 inches; gravelly loam

A2—5 to 10 inches; very gravelly fine sandy loam
Cr—10 to 60 inches; soft bedrock

Characteristics of Ultic Haploxeralfs and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from sandstone
Typical vegetation: Santa Cruz Island Torrey pine woodland with a very sparse understory
pH in the surface layer: 4.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 4 to 16 inches to an abrupt textural change; 20 to 39 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.4 inch (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: F020XI201CA, Pinus torreyana var. insularis/Nassella pulchra

Typical profile
Oi—0 to 4 inches; slightly decomposed plant material
A—4 to 10 inches; loamy sand
2Bt1—10 to 31 inches; sandy clay
2Bt2—31 to 39 inches; sandy clay
2R—39 to 48 inches; bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Sandstone
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Typic Palexerolls and similar soils
Composition: About 10 percent
Slope: 5 to 30 percent
Landform: Interfluves and side slopes on hills

700—Ahoy-Hawser complex, 2 to 30 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Fluviomarine terraces on the island
Elevation: 45 to 1,000 feet (15 to 305 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Ahoy soil—30 percent
Hawser soil, moderately steep—30 percent
Ahoy soil, moderately steep—15 percent
Hawser soil—15 percent
Minor components—10 percent

Characteristics of Ahoy and Similar Soils

Slope: 2 to 10 percent
Landform: Dissected fluviomarine terraces
Parent material: Material weathered from sandstone
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 16 to 28 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.3 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Low
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 4e-3
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
Oe—1 to 4 inches; moderately decomposed plant material
A—4 to 13 inches; silt loam
Bt1—13 to 20 inches; silty clay loam
2Bt2—20 to 26 inches; very fine sandy loam
3Btss1—26 to 33 inches; clay
3Btss2—33 to 60 inches; clay

Characteristics of Hawser, Moderately Steep, and Similar Soils

Slope: 10 to 30 percent
Landform: Backslopes and summits on dissected and uplifted fluviomarine terraces
Parent material: Material weathered from sandstone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.8 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 4e-5
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 7 inches; clay
Bss—7 to 16 inches; clay
Btss—16 to 60 inches; clay

Characteristics of Ahoy, Moderately Steep, and Similar Soils

Slope: 10 to 30 percent
Landform: Dissected fluviomarine terraces
Parent material: Material weathered from sandstone
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 16 to 28 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.9 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Low
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A1—2 to 16 inches; sandy loam
2A2—16 to 18 inches; loamy sand
3Bss1—18 to 41 inches; clay
3Bss2—41 to 61 inches; clay

Characteristics of Hawser and Similar Soils

Slope: 2 to 10 percent
Landform: Backslopes and summits on dissected and uplifted fluviomarine terraces
Parent material: Material weathered from sandstone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.7 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 4e-5
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 7 inches; clay
Bss—7 to 18 inches; clay
Bt—18 to 37 inches; clay
Btk1—37 to 41 inches; clay
Btk2—41 to 60 inches; clay

Minor Components

Windage and similar soils
Composition: About 5 percent
Slope: 30 to 50 percent
Landform: Interfluves and side slopes on hills

Aridic Haploxererts and similar soils
Composition: About 3 percent
Slope: 5 to 30 percent
Landform: Side slopes and interfluves on hills

Pachic Argixerolls and similar soils
Composition: About 2 percent
Slope: 5 to 30 percent
Landform: Side slopes and interfluves on hills

710—Windage-Typic Xerorthents-Buoy complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 1,440 feet (15 to 439 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Windage soil—55 percent
Typic Xerorthents—20 percent
Buoy soil—15 percent
Minor components—10 percent

Characteristics of Windage and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.5 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; loam
Bt1—5 to 12 inches; clay loam

Bt2—12 to 24 inches; clay
Bt3—24 to 31 inches; gravelly clay
Bt4—31 to 37 inches; clay
Bt5—37 to 60 inches; clay

Characteristics of Typic Xerorthents and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A1—0 to 5 inches; gravelly loam
A2—5 to 10 inches; very gravelly fine sandy loam
Cr—10 to 60 inches; soft bedrock

Characteristics of Buoy and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.4 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 12 inches; silt loam
2Bt—12 to 47 inches; clay
2BC—47 to 51 inches; clay loam
2Cr—51 to 60 inches; bedrock

Minor Components

Typic Argixerolls and similar soils
Composition: About 5 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

Rock outcrop
Composition: About 3 percent
Landform: Interfluves and side slopes on hills

Cumulic Haploxerolls and similar soils
Composition: About 1 percent
Slope: 2 to 10 percent
Landform: Dissected drainageways

Typic Palexerolls and similar soils
Composition: About 1 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

711—Windage-Hawser-Typic Haploxeralfs complex, 30 to 65 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island, including hills on fluviomarine terraces
Elevation: 45 to 1,000 feet (15 to 305 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Windage soil—40 percent
Hawser soil—30 percent
Typic Haploxeralfs—15 percent

Minor components—15 percent

Characteristics of Windage and Similar Soils

Slope: 30 to 65 percent
Landform: Interfluves and side slopes on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.8 inches (high)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 7 inches; loam
Bt1—7 to 22 inches; clay loam
Bt2—22 to 31 inches; clay
Bt3—31 to 39 inches; clay
Bt4—39 to 43 inches; clay
Bt5—43 to 51 inches; gravelly clay loam
Bt6—51 to 60 inches; very paragravelly clay loam

Characteristics of Hawser and Similar Soils

Slope: 30 to 45 percent
Landform: Summits and backslopes on dissected and uplifted fluviomarine terraces
Parent material: Material weathered from sandstone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.6
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.7 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None

Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 4 inches; silty clay
Bss1—4 to 18 inches; clay
Bss2—18 to 28 inches; clay
Btk1—28 to 35 inches; clay
Btk2—35 to 41 inches; clay
Btk3—41 to 60 inches; clay

Characteristics of Typic Haploxeralfs and Similar Soils

Slope: 30 to 65 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from sandstone and shale
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 7.6
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 5.1 inches (moderate)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A1—0 to 2 inches; silt loam
A2—2 to 8 inches; silt loam
Bt1—8 to 20 inches; clay loam
Bt2—20 to 31 inches; gravelly clay
Cr—31 to 60 inches; soft bedrock

Minor Components

Rock outcrop
Composition: About 3 percent
Landform: Interfluves and side slopes on hills

Ballast and similar soils
Composition: About 2 percent
Slope: 30 to 65 percent
Landform: Interfluves and side slopes on hills

Buoy and similar soils
Composition: About 2 percent
Slope: 15 to 40 percent
Landform: Interfluves and side slopes on hills

Lodestone and similar soils
Composition: About 2 percent
Slope: 35 to 65 percent
Landform: Interfluves and side slopes on hills

Spinnaker and similar soils
Composition: About 2 percent
Slope: 30 to 65 percent
Landform: Interfluves and side slopes on hills

Typic Argixerolls and similar soils
Composition: About 2 percent
Slope: 30 to 60 percent
Landform: Interfluves and side slopes on hills

Typic Xerorthents and similar soils
Composition: About 2 percent
Slope: 10 to 30 percent
Landform: Interfluves and side slopes on hills

712—Windage-Buoy complex, 30 to 50 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 1,400 feet (15 to 427 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Windage soil—60 percent
Buoy soil—25 percent
Minor components—15 percent

Characteristics of Windage and Similar Soils

Slope: 30 to 50 percent
Landform: Interfluves and side slopes on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow

Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 9.0 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oe—0 to less than 1 inch; moderately decomposed plant material
A1—less than 1 inch to 2 inches; clay loam
A2—2 to 10 inches; clay loam
Bt1—10 to 18 inches; clay
Bt2—18 to 30 inches; clay
Bt3—30 to 43 inches; clay
Bt4—43 to 60 inches; clay

Characteristics of Buoy and Similar Soils

Slope: 30 to 50 percent
Landform: Side slopes and interfluves on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.5 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A—0 to 9 inches; loam
Bt1—9 to 14 inches; loam
2Bt2—14 to 28 inches; clay
2Bt3—28 to 41 inches; gravelly clay
2Cr—41 to 60 inches; bedrock

Minor Components

Typic Palexerolls and similar soils
Composition: About 5 percent
Slope: 30 to 50 percent
Landform: Interfluves and side slopes on hills

Lithic Argixerolls and similar soils
Composition: About 4 percent
Slope: 15 to 35 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 2 percent
Landform: Interfluves and side slopes on hills

Typic Xerorthents and similar soils
Composition: About 2 percent
Slope: 30 to 70 percent
Landform: Interfluves and side slopes on hills

Ballast and similar soils
Composition: About 1 percent
Slope: 30 to 50 percent
Landform: Side slopes and interfluves on hills

Typic Argixerolls and similar soils
Composition: About 1 percent
Slope: 30 to 50 percent
Landform: Side slopes and interfluves on hills

713—Windage-Ballast complex, 20 to 55 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 1,000 feet (15 to 305 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Windage soil—50 percent
Ballast soil—35 percent
Minor components—15 percent

Characteristics of Windage and Similar Soils

Slope: 20 to 55 percent
Landform: Interfluves and side slopes on hills

Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Very slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.9 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 1 inch; clay loam
Bt1—1 to 28 inches; clay
Bt2—28 to 35 inches; clay
Bt3—35 to 41 inches; clay
Bt4—41 to 60 inches; very paragravelly clay

Characteristics of Ballast and Similar Soils

Slope: 30 to 55 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from limestone or calcareous shale
Typical vegetation: Coastal grassland dominated by inland saltgrass
pH in the surface layer: 8.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 22 to 40 inches to lithic bedrock; 22 to 40 inches to paralithic bedrock
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.8 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
  Land capability, nonirrigated: 8e
  Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
  A—0 to 4 inches; loam
  Btk1—4 to 12 inches; clay loam
  Btk2—12 to 24 inches; clay
  Cr—24 to 26 inches; soft bedrock
  R—26 to 35 inches; bedrock

Minor Components

Lithic Argixerolls and similar soils
Composition: About 10 percent
Slope: 20 to 55 percent
Landform: Interfluves and side slopes on hills

Typic Xerorthents and similar soils
Composition: About 4 percent
Slope: 0 to 5 percent
Landform: Interfluves and side slopes on hills

Forestay and similar soils
Composition: About 1 percent
Slope: 15 to 60 percent
Landform: Interfluves and side slopes on hills

721—Buoy fine sandy loam, 9 to 30 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 15 to 1,400 feet (6 to 427 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Buoy soil—85 percent
Minor components—15 percent

Characteristics of Buoy and Similar Soils

Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A—0 to 15 inches; gravelly loam
Bt1—15 to 18 inches; sandy loam
2Bt2—18 to 45 inches; clay
2Cr—45 to 60 inches; bedrock

Minor Components

Lithic Haploxeralfs and similar soils
Composition: About 10 percent
Slope: 30 to 70 percent
Landform: Side slopes and interfluves on hills

Rock outcrop
Composition: About 5 percent
Landform: Interfluves and side slopes on hills

722—Buoy-Rock outcrop complex, 9 to 30 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 15 to 1,400 feet (6 to 427 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Buoy soil, cobbly—55 percent
Rock outcrop—35 percent
Minor components—10 percent

Characteristics of Buoy, Cobbly, and Similar Soils

Slope: 9 to 30 percent
Landform: Side slopes and interfluves on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 7.0

Percentage of the surface covered by rock fragments: 2 to 7 percent subangular boulders, 5 to 15 percent subangular stones, 5 to 15 percent subangular cobbles, and 35 to 60 percent coarse, subangular gravel
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.5 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A—0 to 5 inches; sandy loam
Bt1—5 to 16 inches; sandy clay loam
2Bt2—16 to 24 inches; clay
2Bt3—24 to 43 inches; clay
2Cr—43 to 60 inches; bedrock

Characteristics of Rock Outcrop

Landform: Interfluves and side slopes on hills
Kind of rock: Sandstone
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Typic Palexerolls and similar soils
Composition: About 10 percent
Slope: 2 to 55 percent
Landform: Side slopes and interfluves on hills

723—Buoy-Lithic Argixerolls-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 15 to 1,400 feet (6 to 427 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)

Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Buoy soil—45 percent
Lithic Argixerolls—25 percent
Rock outcrop—15 percent
Minor components—15 percent

Characteristics of Buoy and Similar Soils

Slope: 15 to 35 percent
Landform: Interfluves and side slopes on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.0 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A1—less than 1 inch to 4 inches; sandy loam
A2—4 to 18 inches; loamy sand
A3—18 to 26 inches; loamy sand
2Bt1—26 to 39 inches; sandy clay
2Bt2—39 to 53 inches; clay
2Cr—53 to 60 inches; bedrock

Characteristics of Lithic Argixerolls and Similar Soils

Slope: 15 to 35 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from sandstone
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Slow above the bedrock

Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 1 inch; loamy sand
Bt1—1 to 12 inches; sandy loam
2Bt2—12 to 16 inches; clay loam
2R—16 to 26 inches; bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Sandstone
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Minor Components

Typic Haploxerolls and similar soils
Composition: About 9 percent
Slope: 10 to 20 percent
Landform: Side slopes and interfluves on hills

Lithic Haploxerolls and similar soils
Composition: About 6 percent
Slope: 5 to 20 percent
Landform: Side slopes and interfluves on hills

724—Buoy-Rock outcrop-Ballast complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island

Elevation: 45 to 1,000 feet (15 to 305 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Buoy soil—50 percent
Rock outcrop—20 percent
Ballast soil—20 percent
Minor components—10 percent

Characteristics of Buoy and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.9 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 12 inches; fine sandy loam
Bt—12 to 18 inches; loam
2Bt—18 to 33 inches; clay
2Btk—33 to 41 inches; clay
2BCk—41 to 45 inches; fine sandy loam
2Cr—45 to 60 inches; bedrock

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Sandstone
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Characteristics of Ballast and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from limestone or calcareous shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 22 to 40 inches to paralithic bedrock; 22 to 40 inches to lithic bedrock
Slowest permeability class: Very slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 5.6 inches (moderate)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 5 inches; sandy clay loam
Bt—5 to 28 inches; sandy clay
Btk1—28 to 31 inches; clay
Btk2—31 to 39 inches; extremely paragravelly clay
Cr and R—39 to 49 inches; bedrock

Minor Components

Mollic Haploxeralfs and similar soils
Composition: About 5 percent
Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills

Aridic Haploxererts and similar soils
Composition: About 3 percent
Slope: 5 to 45 percent
Landform: Side slopes and interfluves on hills

Inceptic Haploxeralfs and similar soils
Composition: About 2 percent
Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills

725—Buoy-Typic Haploxeralfs complex, 9 to 30 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 15 to 1,400 feet (6 to 427 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Buoy soil—60 percent
Typic Haploxeralfs—20 percent
Minor components—20 percent

Characteristics of Buoy and Similar Soils

Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.1
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.1 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A1—0 to 6 inches; gravelly fine sandy loam
A2—6 to 18 inches; gravelly fine sandy loam
2Bt1—18 to 30 inches; clay
2Bt2—30 to 41 inches; clay
2Cr—41 to 60 inches; bedrock

Characteristics of Typic Haploxeralfs and Similar Soils

Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from sandstone
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.6
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 5.1 inches (moderate)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A1—0 to 2 inches; silt loam
A2—2 to 8 inches; silt loam
Bt1—8 to 20 inches; clay loam
Bt2—20 to 31 inches; gravelly clay
Cr—31 to 60 inches; soft bedrock

Minor Components

Rock outcrop
Composition: About 10 percent
Landform: Side slopes and interfluves on hills

Calcic Palexeralfs and similar soils
Composition: About 5 percent
Slope: 15 to 40 percent
Landform: Interfluves and side slopes on hills

Typic Haploxeralfs and similar soils
Composition: About 5 percent
Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills

730—Lodestone-Ballast-Buoy complex, 15 to 65 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains

Landscape of the map unit: Hills on the island
Elevation: 45 to 1,000 feet (15 to 305 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Lodestone soil, very deep—35 percent
Ballast soil—30 percent
Buoy soil—20 percent
Minor components—15 percent

Characteristics of Lodestone, Very Deep, and Similar Soils

Slope: 30 to 65 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from calcareous limestone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.6
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.9 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; clay loam
Bss1—2 to 12 inches; clay
Bss2—12 to 26 inches; clay
Bkss1—26 to 33 inches; clay
Bkss2—33 to 51 inches; clay
Bkss3—51 to 60 inches; clay

Characteristics of Ballast and Similar Soils

Slope: 15 to 40 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from limestone or calcareous shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 8.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 22 to 40 inches to paralithic bedrock; 22 to 40 inches to lithic bedrock

Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.0 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 7 inches; clay loam
Btk1—7 to 11 inches; clay
Btk2—11 to 26 inches; clay
Cr—26 to 30 inches; soft bedrock
R—30 to 39 inches; bedrock

Characteristics of Buoy and Similar Soils

Slope: 30 to 65 percent
Landform: Interfluves and side slopes on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.2 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A1—0 to 3 inches; fine sandy loam

A2—3 to 18 inches; gravelly fine sandy loam
2Bt1—18 to 24 inches; very gravelly clay loam
2Bt2—24 to 41 inches; clay
2Cr—41 to 60 inches; bedrock

Minor Components

Hawser and similar soils
Composition: About 5 percent
Slope: 10 to 25 percent
Landform: Backslopes and summits on dissected and uplifted fluviomarine terraces

Typic Palexerolls and similar soils
Composition: About 5 percent
Slope: 5 to 15 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 3 percent
Landform: Interfluves and side slopes on hills

Aridic Durixererts and similar soils
Composition: About 2 percent
Slope: 2 to 15 percent
Landform: Interfluves and side slopes on hills

761—Lodestone-Typic Xerorthents-Windage complex, 25 to 60 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 1,000 feet (15 to 305 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Lodestone soil—35 percent
Typic Xerorthents—20 percent
Windage soil—20 percent
Minor components—25 percent

Characteristics of Lodestone and Similar Soils

Slope: 30 to 50 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from calcareous limestone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 22 to 35 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic

Available water capacity to a depth of 60 inches: About 4.5 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 3 inches; clay loam
Bkss1—3 to 11 inches; clay
Bkss2—11 to 23 inches; clay
BCk—23 to 30 inches; clay
R—30 to 39 inches; bedrock

Characteristics of Typic Xerorthents and Similar Soils

Slope: 25 to 60 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
A1—0 to 5 inches; gravelly loam
A2—5 to 10 inches; very gravelly fine sandy loam
Cr—10 to 60 inches; soft bedrock

Characteristics of Windage and Similar Soils

Slope: 25 to 60 percent
Landform: Interfluves and side slopes on hills
Parent material: Uplifted marine deposits derived from clayey shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 6.8 inches (moderate)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 10 inches; sandy clay loam
Bt1—10 to 30 inches; gravelly sandy clay
Bt2—30 to 33 inches; gravelly sandy clay
Bt3—33 to 60 inches; very paragravelly sandy clay loam

Minor Components

Buoy and similar soils
Composition: About 10 percent
Slope: 30 to 55 percent
Landform: Side slopes and interfluves on hills

Rock outcrop
Composition: About 3 percent
Landform: Side slopes and interfluves on hills

Mollic Haploxeralfs, gravelly surface, and similar soils
Composition: About 2 percent
Slope: 30 to 65 percent
Landform: Interfluves and side slopes on hills

Lithic Xerorthents and similar soils
Composition: About 2 percent
Slope: 5 to 60 percent
Landform: Interfluves and side slopes on hills

Lodestone, moderately steep, and similar soils
Composition: About 2 percent
Slope: 10 to 30 percent
Landform: Side slopes and interfluves on hills

Buoy and similar soils
Composition: About 2 percent
Slope: 10 to 30 percent
Landform: Side slopes and interfluves on hills

Petrocalcic Calcixerepts and similar soils
Composition: About 2 percent
Slope: 30 to 55 percent
Landform: Side slopes and interfluves on hills

Ballast and similar soils
Composition: About 2 percent
Slope: 30 to 55 percent
Landform: Side slopes and interfluves on hills

762—Lodestone-Ballast-Halyard complex, 20 to 55 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 1,000 feet (15 to 305 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Lodestone soil—40 percent
Ballast soil—30 percent
Halyard soil—15 percent
Minor components—15 percent

Characteristics of Lodestone and Similar Soils

Slope: 20 to 45 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from calcareous limestone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 22 to 35 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.6 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
- *Present annual flooding:* None
- *Present annual ponding:* None
- *Surface runoff class:* Very high
- *Current water table:* None noted
- *Natural drainage class:* Moderately well drained

Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 8 inches; clay loam
Bss—8 to 24 inches; clay
Bkss—24 to 30 inches; clay
R—30 to 39 inches; bedrock

Characteristics of Ballast and Similar Soils

Slope: 25 to 55 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from limestone or calcareous shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 8.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 22 to 40 inches to paralithic bedrock; 22 to 40 inches to lithic bedrock
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.8 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; loam
Btk1—2 to 8 inches; clay loam
Btk2—8 to 12 inches; clay loam
Btk3—12 to 19 inches; clay
Btk4—19 to 23 inches; clay
Cr—23 to 39 inches; soft bedrock
R—39 to 48 inches; bedrock

Characteristics of Halyard and Similar Soils

Slope: 30 to 55 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 7.4
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches

Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 5.8 inches (moderate)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 8 inches; silt loam
Bt1—8 to 13 inches; silt loam
Bt2—13 to 22 inches; gravelly clay loam
Bt3—22 to 30 inches; very gravelly clay
Bt4—30 to 39 inches; extremely gravelly clay loam
Cr—39 to 60 inches; soft bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Landform: Interfluves and side slopes on hills

Fiale and similar soils
Composition: About 5 percent
Slope: 0 to 20 percent
Landform: Side slopes, interfluves, and crests on hills

Topdeck and similar soils
Composition: About 5 percent
Slope: 15 to 50 percent
Landform: Interfluves and side slopes on hills

763—Hawser-Lodestone-Buoy complex, 20 to 60 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island, including hills on fluviomarine terraces
Elevation: 45 to 1,000 feet (15 to 305 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Hawser soil—50 percent
Lodestone soil, very deep—25 percent
Buoy soil—15 percent
Minor components—10 percent

Characteristics of Hawser and Similar Soils

Slope: 20 to 50 percent
Landform: Backslopes and summits on dissected and uplifted fluviomarine terraces
Parent material: Material weathered from sandstone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 31 to 40 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 5.8 inches (moderate)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
- *Present annual flooding:* None
- *Present annual ponding:* None
- *Surface runoff class:* Very high
- *Current water table:* None noted
- *Natural drainage class:* Well drained
- *Hydrologic soil group:* D

Interpretive groups
- *Land capability, nonirrigated:* 6e
- *Ecological site:* R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
- Oi—0 to less than 1 inch; slightly decomposed plant material
- A—less than 1 inch to 12 inches; clay
- Bkss—12 to 39 inches; clay
- 2Btk—39 to 47 inches; fine sandy loam
- 2Bt—47 to 60 inches; fine sandy loam

Characteristics of Lodestone, Very Deep, and Similar Soils

Slope: 20 to 40 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from calcareous limestone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 8.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 7.9 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; clay loam
Bkss1—2 to 8 inches; clay
Bkss2—8 to 18 inches; clay
Bkss3—18 to 26 inches; clay
Bkss4—26 to 39 inches; silty clay
Btk—39 to 59 inches; silty clay

Characteristics of Buoy and Similar Soils

Slope: 20 to 60 percent
Landform: Side slopes and interfluves on hills
Parent material: Eolian deposits derived from sedimentary rocks over sandstone
Typical vegetation: California sagebrush intermixed with native and nonnative grasses
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 10 to 28 inches to an abrupt textural change; 39 to 59 inches to paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.4 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI100CA, Loamy Slopes 13-31" p.z.

Typical profile
Oi—0 to less than 1 inch; slightly decomposed plant material
A—less than 1 inch to 9 inches; loam
Bt1—9 to 14 inches; loam
2Bt2—14 to 28 inches; clay
2Bt3—28 to 41 inches; gravelly clay
2Cr—41 to 60 inches; bedrock

Minor Components

Aridic Durixererts and similar soils
Composition: About 5 percent
Slope: 5 to 20 percent
Landform: Side slopes and interfluves on hills

Typic Calcixerolls and similar soils
Composition: About 4 percent
Slope: 30 to 55 percent
Landform: Side slopes and interfluves on hills

Aridic Haploxererts, moderately sloping, and similar soils
Composition: About 1 percent
Slope: 2 to 9 percent
Landform: Side slopes and interfluves on hills

780—Typic Argixerolls complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 5 to 1,310 feet (3 to 400 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Typic Argixerolls—75 percent
Minor components—25 percent

Characteristics of Typic Argixerolls and Similar Soils

Slope: 30 to 75 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia
Typical vegetation: California sagebrush and Santa Cruz Island buckwheat
pH in the surface layer: 7.6
Percentage of the surface covered by rock fragments: 15 to 45 percent coarse, subangular gravel and 0 to 15 percent subangular cobbles
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.5 inches (low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI113CA, Loamy Volcanic Slopes 13-24" p.z.

Typical profile
A—0 to 1 inch; sandy loam
Bt1—1 to 20 inches; gravelly sandy loam
Bt2—20 to 28 inches; gravelly sandy clay loam
BCt—28 to 31 inches; gravelly sandy clay
Cr—31 to 60 inches; soft bedrock

Minor Components

Hawser and similar soils
Composition: About 10 percent
Slope: 30 to 75 percent
Landform: Backslopes and summits on dissected and uplifted fluviomarine terraces

Typic Palexerolls and similar soils
Composition: About 8 percent
Slope: 15 to 50 percent
Landform: Side slopes and interfluves on hills

Spinnaker and similar soils
Composition: About 4 percent
Slope: 5 to 50 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 3 percent
Landform: Side slopes and interfluves on hills

800—Ballast-Halyard-Typic Argixerolls complex, 9 to 50 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Rosa Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 1,000 feet (15 to 305 meters)
Mean annual precipitation: 21 to 31 inches (533 to 787 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 355 to 365 days

Map Unit Composition

Ballast soil—50 percent
Halyard soil—25 percent
Typic Argixerolls—15 percent
Minor components—10 percent

Characteristics of Ballast and Similar Soils

Slope: 9 to 50 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from limestone or calcareous shale
Typical vegetation: Coastal grassland dominated by inland saltgrass

pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.4 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 16 inches; clay loam
Bt—16 to 20 inches; clay
Btk—20 to 28 inches; clay
Cr—28 to 60 inches; soft bedrock

Characteristics of Halyard and Similar Soils

Slope: 9 to 50 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: Open chaparral with California sagebrush and grasses covering large areas
pH in the surface layer: 6.5
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 4.6 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI105CA, Deep Slopes 13-24" p.z.

Typical profile
A—0 to 6 inches; loam
Bt1—6 to 11 inches; clay loam
Bt2—11 to 22 inches; clay
Bt3—22 to 29 inches; clay
Cr1—29 to 33 inches; bedrock
Cr2—33 to 60 inches; bedrock

Characteristics of Typic Argixerolls and Similar Soils

Slope: 9 to 50 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.6
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock; 21 to 41 inches to lithic bedrock
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.2 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 6 inches; silty clay loam
Bt—6 to 20 inches; clay
Cr—20 to 28 inches; soft bedrock
R—28 to 37 inches; bedrock

Minor Components

Rock outcrop
Composition: About 5 percent
Landform: Side slopes and interfluves on hills

Topdeck and similar soils
Composition: About 3 percent
Slope: 9 to 50 percent
Landform: Side slopes and interfluves on hills

Starboard and similar soils
Composition: About 2 percent
Slope: 25 to 60 percent
Landform: Interfluves and side slopes on hills

850—Typic Natrixeralfs-Typic Haploxeralfs, dry, complex, 5 to 20 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Barbara Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Fluviomarine terraces on the island
Elevation: 0 to 485 feet (1 to 149 meters)
Mean annual precipitation: 6 to 10 inches (152 to 254 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 365 days

Map Unit Composition

Typic Natrixeralfs—50 percent
Typic Haploxeralfs, dry—45 percent
Minor components—5 percent

Characteristics of Typic Natrixeralfs and Similar Soils

Slope: 5 to 15 percent
Landform: Backslopes and summits on fluviomarine terraces
Parent material: Uplifted silty marine deposits and slope alluvium derived from basalt or volcanic breccia
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 2 to 8 inches to a natric horizon; 20 to 39 inches to paralithic bedrock
Slowest permeability class: Moderately slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity to a depth of 60 inches: About 0.0 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 4e-6
Ecological site: None assigned

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 3 inches; silt loam
Bt1—3 to 6 inches; silt loam
Bt2—6 to 12 inches; silty clay loam
Btk—12 to 22 inches; silty clay loam
Btkz—22 to 24 inches; silty clay loam
Cr—24 to 60 inches; soft bedrock

Characteristics of Typic Haploxeralfs, Dry, and Similar Soils

Slope: 5 to 20 percent
Landform: Summits and backslopes on fluviomarine terraces
Parent material: Uplifted silty marine deposits and slope alluvium derived from volcanic breccia or basalt
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 39 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 9.7 inches (high)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: None assigned

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; silt loam
Bt1—3 to 8 inches; silty clay loam
Bt2—8 to 18 inches; silty clay loam
Btk1—18 to 28 inches; silty clay loam
Btk2—28 to 47 inches; silt loam
Btk3—47 to 49 inches; silt loam
R—49 to 59 inches; bedrock

Minor Components

Typic Xerorthents and similar soils
Composition: About 3 percent
Slope: 5 to 20 percent
Landform: Backslopes and summits on fluviomarine terraces

Rock outcrop
Composition: About 2 percent
Landform: Backslopes and summits on eroded fluviomarine terraces

851—Typic Haploxeralfs, dry-Typic Natrixeralfs complex, 20 to 50 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Barbara Island
MLRA: 20, Southern California Mountains

Landscape of the map unit: Hills on the island
Elevation: 0 to 485 feet (1 to 149 meters)
Mean annual precipitation: 6 to 10 inches (152 to 254 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 365 days

Map Unit Composition

Typic Haploxeralfs, dry—60 percent
Typic Natrixeralfs—30 percent
Minor components—10 percent

Characteristics of Typic Haploxeralfs, Dry, and Similar Soils

Slope: 20 to 50 percent
Landform: Interfluves and side slopes on hills
Parent material: Uplifted silty marine deposits and slope alluvium derived from volcanic breccia or basalt
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 39 to 59 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 9.7 inches (high)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
- *Present annual flooding:* None
- *Present annual ponding:* None
- *Surface runoff class:* High
- *Current water table:* None noted
- *Natural drainage class:* Well drained
- *Hydrologic soil group:* C

Interpretive groups
- *Land capability, nonirrigated:* 7e
- *Ecological site:* None assigned

Typical profile
- Oi—0 to 1 inch; slightly decomposed plant material
- A—1 to 3 inches; silt loam
- Bt1—3 to 8 inches; silty clay loam
- Bt2—8 to 18 inches; silty clay loam
- Btk1—18 to 28 inches; silty clay loam
- Btk2—28 to 47 inches; silt loam
- Btk3—47 to 49 inches; silt loam
- R—49 to 59 inches; bedrock

Characteristics of Typic Natrixeralfs and Similar Soils

Slope: 20 to 50 percent
Landform: Interfluves and side slopes on hills
Parent material: Uplifted silty marine deposits and slope alluvium derived from basalt or volcanic breccia
Typical vegetation: None
pH in the surface layer: 6.0

Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (natric horizon): 2 to 8 inches
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity to a depth of 60 inches: About 0.4 inch (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: None assigned

Typical profile
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 4 inches; silt loam
Bt—4 to 16 inches; silty clay loam
Btk—16 to 31 inches; silty clay
Btkz—31 to 60 inches; silty clay

Minor Components

Typic Haploxeralfs, strongly sloping, and similar soils
Composition: About 4 percent
Slope: 0 to 15 percent
Landform: Backslopes and summits on fluviomarine terraces

Typic Natrixeralfs, strongly sloping, and similar soils
Composition: About 4 percent
Slope: 5 to 15 percent
Landform: Backslopes and summits on fluviomarine terraces

Rock outcrop
Composition: About 1 percent
Landform: Summit and backslopes on eroded fluviomarine terraces

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 5 to 20 percent
Landform: Summits and backslopes on fluviomarine terraces

852—Lithic Argixerolls, dry-Typic Natrixeralfs complex, 2 to 20 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Barbara Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and fluviomarine terraces on the island
Elevation: 0 to 485 feet (1 to 149 meters)

Mean annual precipitation: 6 to 10 inches (152 to 254 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 365 days

Map Unit Composition

Lithic Argixerolls, dry—55 percent
Typic Natrixeralfs—35 percent
Minor components—10 percent

Characteristics of Lithic Argixerolls, Dry, and Similar Soils

Slope: 2 to 20 percent
Landform: Backslopes and summits on hills
Parent material: Material weathered from volcanic breccia or basalt
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: 10 to 75 percent coarse, subangular gravel
Depth to restrictive feature: 3 to 6 inches to paralithic bedrock; 6 to 20 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.4 inch (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: None assigned

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; loam
Bt—2 to 4 inches; gravelly clay loam
Cr—4 to 6 inches; soft bedrock
R—6 to 16 inches; bedrock

Characteristics of Typic Natrixeralfs and Similar Soils

Slope: 2 to 20 percent
Landform: Summits and backslopes on fluviomarine terraces
Parent material: Uplifted silty marine deposits and slope alluvium derived from basalt or volcanic breccia
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 4 to 16 inches to a natric horizon; 13 to 17 inches to paralithic bedrock; 20 to 39 inches to lithic bedrock
Slowest permeability class: Slow above the bedrock

Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity to a depth of 60 inches: About 1.6 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: None assigned

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; silty clay loam
Bt—5 to 12 inches; silty clay
Btkz—12 to 15 inches; silty clay
Cr—15 to 21 inches; soft bedrock
R—21 to 31 inches; bedrock

Minor Components

Typic Haploxeralfs and similar soils
Composition: About 4 percent
Slope: 0 to 15 percent
Landform: Summits and backslopes on fluviomarine terraces

Typic Natrixeralfs, moderately steep, and similar soils
Composition: About 4 percent
Slope: 15 to 30 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 1 percent
Landform: Summits and backslopes on eroded fluviomarine terraces

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 2 to 50 percent
Landform: Side slopes and interfluves on hills

853—Rock outcrop-Typic Haploxeralfs complex, 50 to 120 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Barbara Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 0 to 485 feet (1 to 149 meters)
Mean annual precipitation: 6 to 10 inches (152 to 254 millimeters)

Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 365 days

Map Unit Composition

Rock outcrop—45 percent
Typic Haploxeralfs, dry—40 percent
Minor components—15 percent

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills
Kind of rock: Volcanic breccia, andesite, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Characteristics of Typic Haploxeralfs, Dry, and Similar Soils

Slope: 50 to 120 percent
Landform: Interfluves and side slopes on hills
Parent material: Uplifted silty marine deposits and slope alluvium derived from volcanic breccia or basalt
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 39 to 59 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 9.7 inches (high)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: None assigned

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; silt loam
Bt1—3 to 8 inches; silty clay loam
Bt2—8 to 18 inches; silty clay loam
Btk1—18 to 28 inches; silty clay loam
Btk2—28 to 47 inches; silt loam
Btk3—47 to 49 inches; silt loam
R—49 to 59 inches; bedrock

Minor Components

Typic Natrixeralfs and similar soils
Composition: About 8 percent
Slope: 2 to 15 percent
Landform: Backslopes and summits on fluviomarine terraces

Typic Xerorthents, very steep, and similar soils
Composition: About 7 percent
Slope: 50 to 120 percent
Landform: Interfluves and side slopes on hills

860—Topdeck-Halyard association, 4 to 15 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 2,170 feet (15 to 662 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Topdeck soil—45 percent
Halyard soil—40 percent
Minor components—15 percent

Characteristics of Topdeck and Similar Soils

Slope: 4 to 15 percent
Landform: Crests and interfluves on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.5 inches (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: Low

Hydrologic properties
  Present annual flooding: None
  Present annual ponding: None
  Surface runoff class: Very high
  Current water table: None noted
  Natural drainage class: Well drained
  Hydrologic soil group: D

Interpretive groups
  Land capability, nonirrigated: 6e
  Ecological site: None assigned

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 5 inches; silt loam
Bt—5 to 14 inches; silty clay loam
R—14 to 24 inches; bedrock

Characteristics of Halyard and Similar Soils

Slope: 4 to 15 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: None
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (paralithic bedrock): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 6.0 inches (moderate)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 3e-3
Ecological site: None assigned

Typical profile
A—0 to 3 inches; loam
Bt1—3 to 16 inches; clay
Bt2—16 to 31 inches; clay
Bt3—31 to 39 inches; clay
Cr—39 to 60 inches; soft bedrock

Minor Components

Typic Xerorthents and similar soils
Composition: About 5 percent
Slope: 50 to 100 percent
Landform: Cliffs

Spinnaker and similar soils
Composition: About 3 percent
Slope: 2 to 60 percent
Landform: Side slopes and interfluves on hills

Halyard, moderately steep, and similar soils
Composition: About 2 percent
Slope: 15 to 30 percent
Landform: Side slopes and interfluves on hills

Rock outcrop
Composition: About 2 percent
Landform: Side slopes and interfluves on hills

Topdeck, steep, and similar soils
Composition: About 2 percent
Slope: 15 to 45 percent
Landform: Interfluves and side slopes on hills

Starboard and similar soils
Composition: About 1 percent
Slope: 25 to 60 percent
Landform: Interfluves and side slopes on hills

861—Rock outcrop-Topdeck-Spinnaker complex, 30 to 75 percent slopes

Map Unit Setting

General location: Channel Islands National Park, Santa Cruz Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills and mountains on the island
Elevation: 45 to 2,440 feet (15 to 744 meters)
Mean annual precipitation: 13 to 24 inches (330 to 610 millimeters)
Mean annual air temperature: 61 to 73 degrees F (16 to 23 degrees C)
Frost-free period: 320 to 365 days

Map Unit Composition

Rock outcrop—40 percent
Topdeck soil—30 percent
Spinnaker soil—15 percent
Minor components—15 percent

Characteristics of Rock Outcrop

Landform: Side slopes and interfluves on hills; mountain flanks
Kind of rock: Andesite, volcanic breccia, or basalt
Typical vegetation: None

Interpretive groups
Land capability, nonirrigated: 8
Ecological site: None assigned

Characteristics of Topdeck and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills; mountain flanks
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: None
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Moderate (LEP of 3 to less than 6)

Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: None assigned

Typical profile
A1 and A2—0 to 6 inches; gravelly loam
Bt—6 to 10 inches; gravelly loam
R—10 to 20 inches; bedrock

Characteristics of Spinnaker and Similar Soils

Slope: 30 to 75 percent
Landform: Side slopes and interfluves on hills and on mountains
Parent material: Material weathered from volcanic breccia, andesite, or basalt
Typical vegetation: None
pH in the surface layer: 6.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 6 to 18 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.1 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: None assigned

Typical profile
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; gravelly sandy loam
Bw—2 to 12 inches; gravelly sandy loam
R—12 to 22 inches; bedrock

Minor Components

Fiale and similar soils
Composition: About 10 percent
Slope: 8 to 30 percent
Landform: Side slopes and interfluves on hills

Halyard and similar soils
Composition: About 5 percent
Slope: 8 to 30 percent
Landform: Interfluves and side slopes on hills; mountain flanks

900—Petrocalcic Palexeralfs, 5 to 15 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Fluviomarine terraces on the island
Elevation: 5 to 655 feet (2 to 200 meters)
Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 365 days

Map Unit Composition

Petrocalcic Palexeralfs—85 percent
Minor components—15 percent

Characteristics of Petrocalcic Palexeralfs and Similar Soils

Slope: 5 to 15 percent
Landform: Backslopes and summits on dissected fluviomarine terraces
Parent material: Material weathered from calcareous sandstone
Typical vegetation: Coastal grassland dominated by inland saltgrass
pH in the surface layer: 7.4
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (petrocalcic horizon): 10 to 20 inches
Slowest permeability class: Impermeable
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.7 inches (very low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Low
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI118CA, Marine Terraces 21-34" p.z.

Typical profile
A—0 to less than 1 inch; very fine sandy loam
2Bt1—less than 1 inch to 4 inches; clay
2Bt2—4 to 11 inches; clay
2Bkm1—11 to 31 inches; petrocalcic material
2Bkm2—31 to 60 inches; petrocalcic material

Minor Components

Petrocalcic Palexeralfs, gently sloping, and similar soils
Composition: About 9 percent
Slope: 2 to 5 percent
Landform: Summits and backslopes on dissected fluviomarine terraces

Gullied land
Composition: About 5 percent
Landform: Summits and backslopes on dissected fluviomarine terraces

Abaft and similar soils
Composition: About 1 percent
Slope: 2 to 9 percent
Landform: Interfluves and side slopes on dunes

910—Hawser association, 2 to 20 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Fluviomarine terraces on the island
Elevation: 45 to 620 feet (15 to 190 meters)
Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 365 days

Map Unit Composition

Hawser soil—65 percent
Hawser soil, moderately steep—20 percent
Minor components—15 percent

Characteristics of Hawser and Similar Soils

Slope: 2 to 9 percent
Landform: Backslopes and summits on dissected and uplifted fluviomarine terraces
Parent material: Material weathered from sandstone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.9 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: High
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 3e-3
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; clay loam
Bss1—2 to 17 inches; clay
Bss2—17 to 60 inches; clay

Characteristics of Hawser, Moderately Steep, and Similar Soils

Slope: 9 to 20 percent
Landform: Backslopes and summits on dissected and uplifted fluviomarine terraces
Parent material: Material weathered from sandstone and shale
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 8.9 inches (high)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Medium

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 4e-3
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A—0 to 2 inches; clay loam
Bss1—2 to 17 inches; clay
Bss2—17 to 60 inches; clay

Minor Components

Typic Durixerolls and similar soils
Composition: About 7 percent
Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills

Ironshot and similar soils
Composition: About 6 percent
Slope: 2 to 9 percent
Landform: Dissected fluviomarine terraces

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 2 to 5 percent
Landform: Cliffs

Gullied land
Composition: About 1 percent
Landform: Uplifted and dissected islands

920—Typic Durixerolls, 5 to 15 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 160 to 830 feet (50 to 253 meters)
Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 365 days

Map Unit Composition

Typic Durixerolls—85 percent
Minor components—15 percent

Characteristics of Typic Durixerolls and Similar Soils

Slope: 5 to 15 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from calcareous sandstone
Typical vegetation: Scrubland characterized by prostrate coastal goldenbush, silver lupine, and San Miguel milkvetch
pH in the surface layer: 7.2
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 4 to 20 inches to an abrupt textural change; 20 to 39 inches to a duripan; 20 to 40 inches to paralithic bedrock
Slowest permeability class: Impermeable
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.5 inches (low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 4e-8
Ecological site: R020XI119CA, Gentle Calcareous Slopes 21-34" p.z.

Typical profile
A1—0 to 1 inch; sandy loam
A2—1 to 19 inches; sandy loam
2Bw—19 to 23 inches; clay
3Bw—23 to 27 inches; fine sandy loam
4Bkqm—27 to 30 inches; duripan
4Cr—30 to 60 inches; bedrock

Minor Components

Typic Xeropsamments and similar soils
Composition: About 5 percent
Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills

Hawser and similar soils
Composition: About 5 percent
Slope: 5 to 15 percent
Landform: Summits and backslopes on dissected and uplifted fluviomarine terraces

Lithic Haploxeralfs and similar soils
Composition: About 4 percent
Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 1 percent
Landform: Interfluves and side slopes on hills

921—Typic Durixerolls, 9 to 30 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 160 to 830 feet (50 to 253 meters)
Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 365 days

Map Unit Composition

Typic Durixerolls—85 percent
Minor components—15 percent

Characteristics of Typic Durixerolls and Similar Soils

Slope: 9 to 30 percent
Landform: Side slopes and interfluves on hills
Parent material: Material weathered from calcareous sandstone
Typical vegetation: Scrubland characterized by prostrate coastal goldenbush, silver lupine, and San Miguel milkvetch
pH in the surface layer: 7.4
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 12 to 24 inches to an abrupt textural change; 20 to 39 inches to a duripan; 20 to 40 inches paralithic bedrock
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 2.7 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None

Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 6e
Ecological site: R020XI119CA, Gentle Calcareous Slopes 21-34" p.z.

Typical profile
A—0 to 20 inches; sandy loam
2Bt—20 to 31 inches; clay
3Bkqm—31 to 33 inches; duripan
3Cr—33 to 60 inches; bedrock

Minor Components

Typic Xeropsamments and similar soils
Composition: About 7 percent
Slope: 9 to 30 percent
Landform: Side slopes and interfluves on dunes

Lithic Haploxeralfs and similar soils
Composition: About 6 percent
Slope: 9 to 30 percent
Landform: Side slopes and interfluves on hills

Rock outcrop
Composition: About 2 percent
Landform: Interfluves and side slopes on hills

930—Fluventic Haploxerolls, 1 to 4 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Fluviomarine terraces on the island
Elevation: 45 to 655 feet (15 to 200 meters)
Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 365 days

Map Unit Composition

Fluventic Haploxerolls—85 percent
Minor components—15 percent

Characteristics of Fluventic Haploxerolls and Similar Soils

Slope: 1 to 4 percent
Landform: Dune lakes
Parent material: Sandy alluvium derived from calcareous sandstone
Typical vegetation: Coastal grassland dominated by inland saltgrass
pH in the surface layer: 7.7
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Not saline

Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.4 inches (low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: Very rare
Present annual ponding: Rare
Surface runoff class: Negligible
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: B

Interpretive groups
Land capability, nonirrigated: 3e-3
Ecological site: R020XI118CA, Marine Terraces 21-34" p.z.

Typical profile
A1—0 to 8 inches; sandy clay loam
A2—8 to 15 inches; sandy loam
Bw—15 to 30 inches; loamy sand
2C1—30 to 31 inches; clay
3C2—31 to 35 inches; loamy sand
4C3—35 to 39 inches; clay
5C4—39 to 60 inches; loamy sand

Minor Components

Typic Xeropsamments and similar soils
Composition: About 5 percent
Slope: 2 to 4 percent
Landform: Interfluves and side slopes on dunes

Typic Durixerolls and similar soils
Composition: About 5 percent
Slope: 2 to 4 percent
Landform: Side slopes and interfluves on hills

Hawser and similar soils
Composition: About 5 percent
Slope: 1 to 4 percent
Landform: Summits and backslopes on dissected and uplifted fluviomarine terraces

940—Typic Durixeralfs, 40 to 80 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 45 to 820 feet (15 to 250 meters)
Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 365 days

Map Unit Composition

Typic Durixeralfs—85 percent
Minor components—15 percent

Characteristics of Typic Durixeralfs and Similar Soils

Slope: 40 to 80 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from calcareous sandstone
Typical vegetation: Scrubland characterized by prostrate coastal goldenbush, silver lupine, and San Miguel milkvetch
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature: 2 to 3 inches to a duripan; 2 to 4 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 0.3 inch (very low)
Shrink-swell potential: High (LEP of 6 to 9)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI119CA, Gentle Calcareous Slopes 21-34" p.z.

Typical profile
A—0 to 1 inch; fine sandy loam
2Btk—1 to 2 inches; clay loam
3Bkqm—2 to 2.33 inches; duripan
3R—2.33 to 12 inches; bedrock

Minor Components

Pachic Argixerolls and similar soils
Composition: About 10 percent
Slope: 30 to 60 percent
Landform: Interfluves and side slopes on hills

Rock outcrop
Composition: About 3 percent
Landform: Interfluves and side slopes on hills

Gullied land
Composition: About 2 percent
Landform: Gulches

950—Ahoy-Ironshot association, 5 to 15 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Fluviomarine terraces on the island
Elevation: 45 to 620 feet (15 to 190 meters)

Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 365 days

Map Unit Composition

Ahoy soil—70 percent
Ironshot soil—15 percent
Minor components—15 percent

Characteristics of Ahoy and Similar Soils

Slope: 5 to 15 percent
Landform: Dissected fluviomarine terraces
Parent material: Material weathered from sandstone
Typical vegetation: Native and nonnative grasses
pH in the surface layer: 6.1
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (abrupt textural change): 16 to 28 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 3.2 inches (low)
Shrink-swell potential: Very high (LEP of less than 9)
Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Low
Current water table: None noted
Natural drainage class: Moderately well drained
Hydrologic soil group: C

Interpretive groups
Land capability, nonirrigated: 4e-3
Ecological site: R020XI116CA, Clayey Slopes 13-31" p.z.

Typical profile
A1—0 to 1 inch; silt loam
A2—1 to 11 inches; silty clay loam
A3—11 to 18 inches; fine sandy loam
2Btss—18 to 60 inches; clay

Characteristics of Ironshot and Similar Soils

Slope: 5 to 15 percent
Landform: Dissected fluviomarine terraces
Parent material: Sandy eolian material derived from sandstone over sandstone residuum
Typical vegetation: Coastal grassland dominated by inland saltgrass
pH in the surface layer: 7.0
Percentage of the surface covered by rock fragments: None
Restrictive feature: None noted
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 5.0 inches (moderate)
Shrink-swell potential: Low (LEP of less than 3)

Potential for soil slippage: Low

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Low
Current water table: None noted
Natural drainage class: Somewhat excessively drained
Hydrologic soil group: A

Interpretive groups
Land capability, nonirrigated: 3e-4
Ecological site: R020XI118CA, Marine Terraces 21-34" p.z.

Typical profile
A—0 to 15 inches; sandy loam
Bw—15 to 26 inches; loamy sand
2C—26 to 60 inches; sand

Minor Components

Typic Xeropsamments and similar soils
Composition: About 10 percent
Slope: 9 to 30 percent
Landform: Interfluves and side slopes on dunes

Typic Xerorthents and similar soils
Composition: About 4 percent
Slope: 5 to 9 percent
Landform: Cliffs

Rock outcrop
Composition: About 1 percent
Landform: Backslopes on dissected fluviomarine terraces

970—Dune land, 9 to 30 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 30 to 720 feet (10 to 220 meters)
Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 365 days

Map Unit Composition

Dune land—90 percent
Minor components—10 percent

Characteristics of Dune Land

Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills
Kind of material: Sandy eolian material derived from calcareous sandstone
Typical vegetation: Temporary beach and dune plant community in which red sand verbena, beach bur, and beach suncup are common; prostrate coastal

goldenbush and silver lupine in the more stable areas; no vegetation in some unstable areas

Interpretive groups
Land capability, nonirrigated: 8e
Ecological site: R020XI101CA, Sandy Dunes 13-34" p.z.

Minor Components

Typic Xeropsamments and similar soils
Composition: About 10 percent
Slope: 9 to 30 percent
Landform: Interfluves and side slopes on hills

980—Lithic Haploxeralfs, 15 to 50 percent slopes

Map Unit Setting

General location: Channel Islands National Park, San Miguel Island
MLRA: 20, Southern California Mountains
Landscape of the map unit: Hills on the island
Elevation: 160 to 720 feet (50 to 220 meters)
Mean annual precipitation: 24 to 34 inches (610 to 864 millimeters)
Mean annual air temperature: 61 to 66 degrees F (16 to 19 degrees C)
Frost-free period: 365 days

Map Unit Composition

Lithic Haploxeralfs—85 percent
Minor components—15 percent

Characteristics of Lithic Haploxeralfs and Similar Soils

Slope: 15 to 50 percent
Landform: Interfluves and side slopes on hills
Parent material: Material weathered from calcareous sandstone
Typical vegetation: Coastal bluff scrub dominated by dudleyas, prostrate coastal goldenbush, and giant coreopsis
pH in the surface layer: 6.8
Percentage of the surface covered by rock fragments: None
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity to a depth of 60 inches: About 1.2 inches (very low)
Shrink-swell potential: Low (LEP of less than 3)
Potential for soil slippage: High

Hydrologic properties
Present annual flooding: None
Present annual ponding: None
Surface runoff class: Very high
Current water table: None noted
Natural drainage class: Well drained
Hydrologic soil group: D

Interpretive groups
Land capability, nonirrigated: 7e
Ecological site: R020XI121CA, Rocky Bluffs 24-34" p.z.

Typical profile

A—0 to 9 inches; loamy sand
Bt—9 to 15 inches; gravelly sandy loam
R—15 to 25 inches; bedrock

Minor Components

Lithic Haploxeralfs, strongly sloping, and similar soils
Composition: About 8 percent
Slope: 5 to 15 percent
Landform: Side slopes and interfluves on hills

Inceptic Haploxeralfs and similar soils
Composition: About 5 percent
Slope: 5 to 25 percent
Landform: Interfluves and side slopes on hills

Typic Xerorthents and similar soils
Composition: About 1 percent
Slope: 50 to 100 percent
Landform: Cliffs

Rock outcrop
Composition: About 1 percent
Landform: Side slopes and interfluves on hills

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 to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as 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, reclamation material, 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, ecologists, 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.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate whether or not the soils are limited by soil features that affect a specified use or in terms that indicate the suitability or potential of the soils for the use. Thus, the tables may show limitation classes, suitability classes, or classes indicating the potential of the soils for the use. Terms for the limitation classes are *no limitations* and *limitations*. Terms for the suitability ratings are *suited* and *unsuited.* Terms indicating potential are *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

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, 2e. The letter *e* shows that the main hazard is the 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 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not assigned to the soils in this survey area.

The capability classification of the soils in this survey area is given in table 3 and in the section “Detailed Soil Map Units.”

Major Land Resource Area

This survey area is in MLRA 20, the Southern California Mountains. It is made up of uplifted sedimentary rocks, intrusive volcanic rocks, and metamorphic and plutonic rocks that form steep hills and mountains. The natural vegetation is mainly coastal sagebrush. Elevation ranges from sea level to 2,460 feet (750 meters).

Precipitation, temperature, and the frost-free period vary from island to island and with proximity to the ocean. The mean annual temperature generally is 61 to 73 degrees F (16 to 23 degrees C) on Santa Cruz, Santa Barbara, and Anacapa Islands, but is 56 to 61 degrees F (13 to 16 degrees C) on the heavily vegetated north-facing slopes of hills and mountains on Santa Cruz Island. In areas of pine woodland that are prone to long periods of fog, the mean annual temperature also is 56 to 61 degrees F, but the temperatures do not vary by more than 43 degrees F (6 degrees C) between summer and winter. On Santa Rosa and San Miguel Islands, the mean annual temperature is 61 to 66 degrees F (16 to 19 degrees C).

The average annual precipitation is 13 to 24 inches (330 to 610 millimeters) on Santa Cruz and Anacapa Islands, 21 to 31 inches (533 to 787 millimeters) on Santa Rosa Island, 24 to 34 inches (610 to 864 millimeters) on San Miguel Island, and 6 to 10 inches (152 to 254 millimeters) on Santa Barbara Island.

The frost-free period is 320 to 365 days on Santa Cruz Island and 355 to 365 days on all of the other islands.

Rangeland

By Loretta J. Metz, Marchel Munnecke, and Kendra Moseley, Rangeland Management Specialists, Natural Resources Conservation Service.

Rangeland, some of which occurs as “wildland,” has a native vegetation of grasses, grasslike plants, forbs, shrubs, and trees with a total tree canopy cover of less than 25 percent. Essentially, rangeland can be thought of as the interface between areas suitable for growing crops (cropland) and forestland. Vegetation on rangeland provides many habitat components, aids in controlling soil erosion, is suitable for grazing or browsing by wildlife and domestic animals, and offers scenic and recreational opportunities. Rangeland is environmentally and economically important.

Characterization and Management of Rangeland on the Channel Islands

Channel Islands National Park consists of five of the eight California Channel Islands—Santa Barbara Island, Anacapa Island, Santa Cruz Island, Santa Rosa Island, and San Miguel Island. These islands are home to many different plant communities, ranging from the communities on coastal dune lands to oak and evergreen woodlands. Rangeland makes up a significant portion of the plant communities in the Channel Islands National Park, and land use history on this rangeland has been extensive and well documented.

Because of the many uses of the rangeland, it is important to characterize and quantify the rangeland on the basis of its ability to produce various kinds, proportions, and amounts of plants. These abilities and the resultant plant communities are largely dependent on the soils, climate, topography, aspect, slope, and other abiotic features of the landscape. To understand these soil-plant interactions and the effects of selected management practices, the Natural Resources Conservation Service classifies areas of rangeland into ecological sites. An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation (USDA, NRCS, National Range and Pasture Handbook). The survey area has 16 ecological sites.

Correlated soil types and plant communities were identified in this survey area. They serve as the basis for the development of each ecological site description. Soil properties that affect the moisture supply and plant nutrients, such as soil texture, depth, and amount of rock fragments, have the greatest influence on the productivity of rangeland plants and on the composition and distribution of the plant community. Soil reaction, salt content, fog drip, and a seasonal high water table also are important. Geography and climate play an important role in the location of plant communities across the landscape and are reflected in various soil properties. For example, south- and west-facing slopes commonly support chaparral species and plant communities because of the heat intensity, a high evapotranspiration rate, and the resultant droughtiness. North- and east-facing slopes, which are exposed to less solar radiation, generally support woodland and forestland species and plant communities. Differences in soil properties affecting the composition, production, and distribution of the plant community are accounted for in the correlation of ecological sites to the individual map unit components.

Table 4 lists the ecological site for the soil components of the map units in the survey area; the total annual production of vegetation in favorable, normal, and unfavorable years; the potential natural vegetation by common plant names; and the average species composition (percent of the total annual air-dry weight).

Total dry-weight production is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year’s growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

Yields are adjusted to a common percent of air-dry moisture content. The relationship of green weight to air-dry weight varies according to such factors as exposure, amount of shade, recent rains, and unseasonable dry periods. These production amounts can be used to calculate carrying capacity and stocking rates for management of domestic or wild animals or to determine fuel-loading in preparation of prescribed burning plans or fire modeling.

Potential natural vegetation (the grasses, forbs, shrubs, and trees that make up most of the potential natural plant community on each soil component) is listed by common name. Under *species composition by weight*, the expected percentage of the total annual production is given for each species making up the potential natural vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Land Use History on the Channel Islands

Native Americans inhabited the Channel Islands beginning at least 6000 years B.P. (Moody and Jones, 2000). As many as 2,000 Chumash Indians occupied the islands for thousands of years before contact with Anglo-Europeans. The Chumash were skilled mariners, hunting and fishing primarily by canoe, or tomols, and trading mainly shell beads (The Nature Conservancy, 2005). Many people believe that the Chumash used fire on a regular basis to clear shrublands in order to favor grassland species in the coastal mountains of mainland California and that this practice also was applied on the Channel Islands (Keeley, 2002). Aside from fires set by the native people, it is not likely that fire was or is a common occurrence on these islands. Lightning-initiated fires are not frequent on the Channel Islands because of the nature of the storms on the islands (Minnich and Scott).

During the mid 1800s and the early 1900s, grazing by sheep, goats, cattle, horses, and pigs heavily impacted the Channel Islands. Each of the islands has its own ranching history. Generally, ranching began on the islands in the early 1800s. In 1839, Andres Castillero became the first private land owner when the Mexican Government granted him Santa Cruz Island. Ranching activities on that island continued to expand. By 1853, the Santa Cruz Island Ranch had a good reputation for its well bred, healthy Merino sheep. The population steadily increased as the sheep became feral. It was more than 50,000 between 1870 and 1885 and had risen to 100,000 by 1890. In 1939, about 35,000 sheep were rounded up for sale to the mainland. This sale was the beginning of efforts to eliminate the sheep because of their detrimental effects on the island. In 1987, The Nature Conservancy became the sole owner of 76 percent of Santa Cruz Island. It continued to eliminate the sheep and removed cattle from the island as well. Pigs were reportedly introduced to Santa Cruz Island in 1853 and let loose in 1854. The pigs are currently being eliminated section by section from Santa Cruz Island as a part of an overall island restoration effort. Many acres of the island were cultivated for various crops, including hay. In 1922, hay was grown on more than 800 acres at Christi Ranch, Scorpion Ranch, and near Prisoners Harbor (Junak et al., 1995).

Livestock also were also introduced to Santa Rosa, San Miguel, and Santa Barbra Islands. Santa Rosa Island may have had livestock as early as 1805. By 1894, a maximum of 60,000 sheep inhabited Santa Rosa Island. Cattle had become the main livestock by 1902 (Cole and Liu, 1994). San Miguel Island had sheep, cattle, and horses by the 1850s. By the mid 1940s, however, it was used primarily as a bombing range by the navy. Santa Barbra Island was heavily impacted by grazing (primarily by rabbits), farming, and intentional and accidental fires.

General Characteristics of Ecological Sites in the Survey Area

Ecological sites are described only for the three bigger islands—Santa Cruz, Santa Rosa, and San Miguel Islands. Because of time constraints, an ecological site description specialist was not able to visit Santa Barbara Island or Anacapa Island, and consequently no ecological site data were collected from these islands. For more information about these islands and their plant communities, contact the National Park Service.

Refer to the full ecological site descriptions for more detailed information about each site. The complete ecological site descriptions for Santa Cruz, Santa Rosa, and San Miguel Islands can be obtained from the USDA, Natural Resources Conservation Service, or downloaded from the NRCS Ecological Site Information System Web site (http://esis.sc.egov.usda.gov/). Table 4 assigns ecological sites to the soil components on these islands.

All plant species names have been correlated directly with the “PLANTS Database” (USDA, NRCS), which can be accessed at http://plants.usda.gov. Table 5 lists the common and scientific plant names and the plant symbols. This table aids in correct plant identification and serves as a cross-reference to plant species listed in table 4. The plant synonymy as reported in the “PLANTS Database” at the time of publication was used.

Loamy Slopes 13-31” p.z. (R020XI100CA).—This ecological site is on coastal hills, in canyons, and on alluvial fans (fig. 5). It occurs on all aspects, but it favors south-facing slopes. Slope ranges from 2 to 75 percent. It is mainly 30 to 75 percent. Elevation ranges from about 10 to 1,500 feet. The site is dominated by California sagebrush (*Artemisia californica*) and coyotebrush (*Baccharis pilularis*) with intermixed native and annual grasses (*Nassella* spp., *Avena* spp., and *Bromus* spp.). The soils are primarily Mollisols that have an argillic horizon and are shallow or moderately deep to bedrock.

Figure 5.—An area of the ecological site Loamy Slopes 13-31” p.z.

Sandy Dunes 13-31” p.z. (R020XI101CA).—This ecological site is on coastal beaches and dunes (fig. 6). Slope ranges from 0 to 25 percent. It is mainly 0 to 9 percent. Elevation ranges from 3 to about 300 feet above sea level. Red sand verbena (*Abronia maritima*) and silver burr ragweed (*Ambrosia chamissonis*) are the most dominant species on this ecological site. Other notable species include silver and yellow bush lupines (*Lupinus albifrons* and *L. arboreus*), sea fig (*Carpobrotus chilensis*), and California goosefoot (*Chenopodium californicum*). The soils formed in sandy eolian material derived from volcanic and sedimentary rocks, are deep or very deep, and have a texture of loamy sand and a low available water capacity.

Figure 6.—An area of the ecological site Sandy Dunes 13-31” p.z.

Shallow Uplands 13-24” p.z. (R020XI102CA).—This ecological site is on the backslopes of hills and mountains (fig. 7). Slope ranges from 15 to 75 percent, and elevation ranges from 49 to 2,440 feet. The site is dominated by Santa Cruz Island buckwheat (*Eriogonum arborescens*) and redflower buckwheat *(Eriogonum grande*

Figure 7.—An area of the ecological site Shallow Uplands 13-24” p.z.

var. grande) as well as island broom (*Lotus dendroideus)*, and several native and annual grasses, including threeawn *(Aristida* spp.), tussockgrass (*Nassella* spp.), and oats and bromes (*Avena* spp. and *Bromus* spp.). The soils formed in material weathered from schist, volcanic breccia, andesite, or basalt and are shallow to bedrock. They are well drained and have textures of very gravelly loam and gravelly sandy loam.

Riparian Areas 13-31" p.z. (R020XI103CA).—This ecological site is in river valleys and on flood plains and stream terraces (fig. 8). It is primarily in areas of intermittent streambeds and terraces, but the streams become perennial as they reach the ocean and are generally braided with surface pebbles and cobbles. Slopes range from 0 to 8 percent, and elevation ranges from 3 to 1,968 feet. These riparian areas are primarily on Santa Cruz and Santa Rosa Islands. They vary considerably in size, substrate, and vegetative composition. The potential natural community is a mixture of cottonwoods (*Populus* spp.) and willows (*Salix* spp.) as well as an herbaceous cover of native grasses (*Agrostis* spp. and *Eleocharis* spp.), sedges (*Carex* spp.), and rushes (*Juncus* spp.). Figure 8, however, shows a riparian area that is dominated by mule's fat (*Baccharis salicifolia)* and has a scattered ground cover of mostly nonnative, annual, upland grasses *(Avena* spp. and *Bromus* spp.). California brome (*Bromus carinatus)* and inland saltgrass *(Distichlis spicata*) also occur. The soils formed in alluvium derived from mixed rock sources, are deep, and are extremely gravelly and cobbly below a depth of 24 inches.

Figure 8.—An area of the ecological site Riparian Areas 13-31" p.z.

Deep Slopes 13-24" p.z. (R020XI105CA).—This ecological site occurs only on hills on Santa Cruz Island (fig. 9). Slope ranges from 2 to 75 percent, and elevation ranges from 49 to 2,171 feet. The site is dominated by island mountain mahogany (*Cercocarpus betuloides var. blancheae*) and island ceanothus (*Ceanothus*

Figure 9.—An area of the ecological site Deep Slopes 13-24" p.z.

megacarpus var. insularis) as well as several other chaparral species, including Channel Island scrub oak *(Quercus pacifica*), chamise (*Adenostoma fasciculatum*), manzanita (*Arctostaphylos* spp.), island redberry (*Rhamnus pirifolia*), and lemonade berry (*Rhus integrifolia*). In some areas distribution may be more open and patchy, with more coastal sage scrub and grasslands intermixed. The soils formed in several kinds of residuum. They are moderately deep or deep and have loamy textures. This site is similar to R020XI106CA, R020XI108CA, R020XI109CA, and R020XI112CA and is characterized by deeper soils, extending to a depth of 80 inches or more in some areas.

Shallow Slopes 13-31" p.z. (R020XI106CA).—This ecological site is on windblown ridgetops and side slopes (fig. 10.). Slope ranges from 2 to 75 percent, and elevation ranges from 600 to 1,601 feet. On Santa Cruz Island, the site is primarily at the west end of the island, where it is dominated by Channel Island scrub oak (*Quercus pacifica*) and prostrate chamise (*Adenostoma fasciculatum var. prostratum*). Island bush monkeyflower (*Mimulus flemingii*) and bush monkeyflower (*Mimulus longiflorus*) are also common. The largest area of this site is on Santa Rosa Island, near Black Mountain. This area is underlain by sandstone. It is dominated by Santa Rosa Island manzanita (*Arctostaphylos confertiflora*) and prostrate chamise (*Adenostoma fasciculatum var. prostratum*). The soils on both islands are primarily shallow sandy loams with high or very high runoff potential and a low available water capacity. This site is similar to R020XI105CA, R020XI108CA, R020XI109CA, R020XI110CA, and R020XI112CA.

Convex Slopes 13-24" p.z. (R020XI108CA).—This ecological site is on the northeast and northwest aspects of the shoulders and backslopes of hills (fig. 11). It is only on the south side of the central valley on Santa Cruz Island. Slopes range from 30 to 75 percent, and elevation ranges from 699 to 1,299 feet. The site is dominated by Channel Island scrub oak (*Quercus pacifica*), island manzanita

Figure 10.—An area of the ecological site Shallow Slopes 13-31” p.z.

Figure 11.—An area of the ecological site Convex Slopes 13-24” p.z.

(*Arctostaphylos insularis*), island ceanothus (*Ceanothus arboreus*), chamise (*Adenostoma fasciculatum*), island mountain mahogany (*Cercocarpus betuloides var. blancheae*), and toyon (*Heteromeles arbutifolia*). In areas that have a patchier shrub cover, higher densities of annual grasses, consisting primarily of bromes (*Bromus* spp.), can occur. The soils formed in material weathered from schist and have paralithic bedrock at a depth of 15 to 21 inches. Available water capacity is extremely low. The surface layer is primarily loamy, and the subsurface texture is gravelly clay loam. This site is similar to R020XI105CA, R020XI106CA, R020XI109CA, R020XI110CA, and R020XI112CA.

Shaly Slopes 13-24” p.z. (R020XI109CA).—This ecological site is on the backslopes of hills (fig. 12). Slope ranges from 2 to 75 percent, and elevation ranges from 49 to 2,460 feet. The site is dominated by Channel Island scrub oak (*Quercus pacifica*) and ripgut brome (*Bromus diandrus*). In some areas on Santa Cruz Island, California live oak (*Quercus agrifolia*) and Santa Cruz Island manzanita (*Arctostaphylos insularis*) also occur. The understory is dominated by nonnative species, including wild oat (*Avena fatua*), black mustard (*Brassica nigra*), ripgut brome (*Bromus diandrus*), and horehound (*Marrubium vulgare*). The soils formed primarily in material weathered from clayey shale in areas of uplifted marine deposits. They are deep or very deep and have a loamy surface layer and a clayey subsurface texture. Permeability is slow, runoff is rapid, and the soils are moderately well drained. This site is similar to R020XI112CA and is characterized by a heavy cover of Channel Island scrub oak.

Figure 12.—An area of the ecological site Shaly Slopes 13-24” p.z.

Concave Slopes 13-24” p.z. (R020XI110CA).—This ecological site is in concave areas, such as draws and swales between ridges that are dominated by droughtier chaparral species (fig. 13). It is generally on north aspects. Slope ranges from 30 to

75 percent, and elevation ranges from 699 to 1,299 feet. Channel Island scrub oak (*Quercus pacifica*) and toyon (*Heteromeles arbutifolia*) generally dominate the plant community, but a variety of other species also can occur. These species include Channel Island cherry (*Prunus ilicifolia var. lyonii*), island ceanothus (*Ceanothus arboreus*), summer holly (*Comarostaphylis diversifolia var. planifolia*), lemonade berry (*Rhus integrifolia*), California live oak (*Quercus agrifolia*), and bush monkeyflower (*Mimulus longiflorus*). The soils formed in material weathered from schist. They are loamy, moderately deep to bedrock, and well drained. Permeability is moderately slow, and runoff is high. This site is similar to R020XI105CA, R020XI106CA R020XI108CA, R020XI109CA, and R020XI112CA, and is characterized by heavy cover and species diversity.

Figure 13.—An area of the ecological site Concave Slopes 13-24” p.z.

Moderately Deep Volcanic Slopes 13-24” p.z. (R020XI112CA).—This ecological site is primarily on the backslopes of mountains and hills (fig. 14). Slope ranges from 4 to 85 percent, and elevation ranges from 49 to 2,460 feet. The site is dominated primarily by Channel Island scrub oak (*Quercus pacifica*) and California live oak (*Quercus agrifolia*), but it has some toyon (*Heteromeles arbutifolia*) and summer holly (*Comarostaphylis diversifolia var. planifolia*). The soils formed in material weathered from volcanic breccia, andesite, or basalt. They are moderately deep to bedrock and are well drained. Runoff is high, and permeability is moderately slow above the bedrock. The surface layer is loamy, and the subsurface texture is clay loam. This site is similar to R020XI105CA, R020XI106CA R020XI108CA, R020XI109CA, and R020XI110CA.

Loamy Volcanic Slopes 13-26” p.z. (R020XI113CA).—This ecological site is on all aspects of hills and mountains (fig. 15). Slope generally ranges from 15 to 80 percent, and elevation ranges from 49 to 2,460 feet. This site is commonly referred to

Figure 14.—An area of the ecological site Moderately Deep Volcanic Slopes 13-24” p.z.

Figure 15.—An area of the ecological site Volcanic Slopes 13-26” p.z.

as coastal sage scrub, and it is distinguished by a dominance of California sagebrush (*Artemisia californica*), Santa Cruz Island buckwheat (*Eriogonum arborescens*), and tussockgrasses (*Nassella* spp. and *Achnatherum diegoense*). When this plant community has been disturbed or altered, coyotebrush (*Baccharis pilularis*) and nonnative annual grasses may occur. The soils formed in mixed alluvium derived primarily from volcanic and sedimentary rocks. They are very deep and have a loamy surface layer.

Clayey Slopes 13-26” p.z. (R020XI116CA).—This ecological site is dominantly on coastal hills and marine terraces (fig. 16). Slope ranges from 2 to 80 percent on all aspects. Elevation ranges from just above 20 feet to 2,460 feet. It is mainly below 1,500 feet. The site is dominated by purple tussockgrass (*Nassella pulchra*) and smallflower tussockgrass (*Nassella lepida*). It occurs is on many different soils. The soils formed in material weathered from andesite, basalt, volcanic breccia, sandstone, and calcareous shale. They generally are moderately deep or deep and have a clayey surface layer. The subsurface texture is most commonly clay. The soils are generally Mollisols with an argillic horizon or Vertisols with a high shrink-swell potential. This site is associated with or similar to R020XI100CA, R020XI113CA R020XI118CA, and R020XI122CA. It is characterized by native needlegrasses and is adjacent to or intertwined with the coastal grassland community.

Figure 16.—An area of the ecological site Clayey Slopes 13-26” p.z.

Marine Terraces 13-26” p.z. (R020XI118CA).—This ecological site is on marine terraces (fig. 17). Slope ranges from 1 to 15 percent on all aspects. Elevation ranges from just above 7 feet to 656 feet. It is most commonly below 200 feet. This site is dominated by inland saltgrass (*Distichlis spicata*) with a mixture of alkali rye (*Leymus triticoides*) and tussockgrasses (*Nassella* spp.). The site also has a lesser cover of nonnative annual grasses, including ripgut brome (*Bromus diandrus*) and wild oat (*Avena fatua*). The soils formed primarily in sandy windblown alluvium derived from sandstone. The surface layer is loamy, and the subsurface texture is mostly sandy loam. The site is associated with or similar to R020XI116CA.

Figure 17.—An area of the ecological site Marine Terraces 13-26” p.z.

Gentle Calcareous Slopes 13-26” p.z. (R020XI119CA).—This ecological site is primarily on San Miguel Island, but it also occurs on the west end of Santa Rosa Island. It is on coastal slopes (fig. 18). Slope ranges from 5 to 80 percent on all aspects, and elevation ranges from just above 49 feet to 830 feet. In many areas this site is dominated by prostrate coastal goldenbush (*Isocoma menziesii var. sedoides*) and western blue-eyed grass (*Sisyrinchium bellum*). The area shown in figure 18 is dominated by coyotebrush (*Baccharis pilularis*) and silver lupine (*Lupinus albifrons*). The soils formed primarily in material weathered from calcareous sandstone. They have a surface layer of sandy loam and have loamy or clayey subsurface textures. Typic Durixeralfs and Durixerolls have a duripan at varying depths. The duripan is impenetrable to most plant roots, inhibits waterflow, and thus is similar to bedrock. Most of the site shows strong evidence of calcium carbonates in the soils. This site is associated with or similar to R020XI101CA.

Pinus muricata/Quercus pacifica (F020XI200CA).—This ecological site is on hills and mountains (fig. 19). Slope ranges from 30 to 75 percent, and elevation ranges from 499 to 1,601 feet. The overstory is dominated by bishop pine (*Pinus muricata*). Channel Island scrub oak (*Quercus pacifica*) is the dominant understory species. It is intermixed with a variety of other chaparral species. The other species include felt-leaf ceanothus (*Ceanothus arboreus*), Santa Cruz Island manzanita (*Arctostaphylos insularis*), coyotebrush (*Baccharis pilularis*), toyon (*Heteromeles arbutifolia*), lemonade berry (*Rhus integrifolia*), summer holly (*Comarostaphylis diversifolia var. planifolia*), and California huckleberry (*Vaccinium ovatum*). The soils formed in material weathered from several kinds of rocks, including schist, gabbro, diorite, volcanic breccia, andesite, and basalt. They are moderately deep or deep, are well drained, have very high runoff potential, and have a loamy surface layer and loamy subsurface textures.

Pinus torreyana var. insularis/Nassella pulchra (F020XI201CA).—This ecological site is on hills and mountains (fig. 20). Slope ranges from 30 to 75 percent, and elevation ranges from 328 to 1,476 feet. The site is dominated by an overstory of

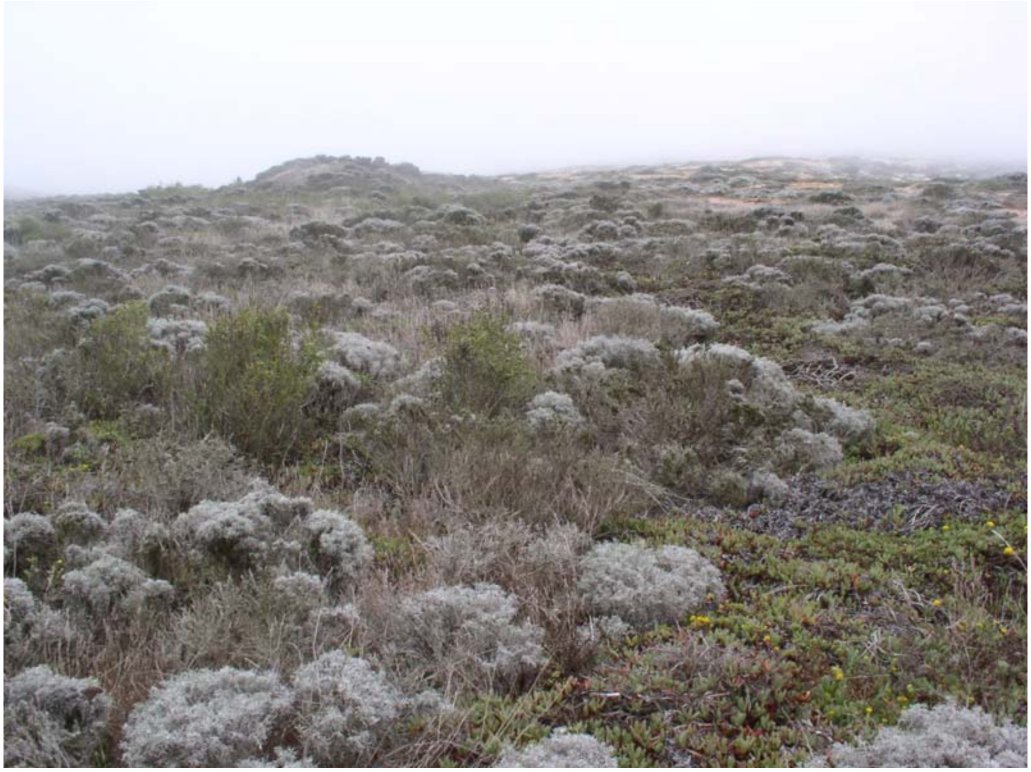

Figure 18.—An area of the ecological site Gentle Calcareous Slopes 13-26” p.z.

Figure 19.—An area of the ecological site Pinus muricata/Quercus pacifica.

Figure 20.—An area of the ecological site Pinus torreyana var. insularis/Nassella pulchra.

Santa Rosa Island Torrey pine (*Pinus torreyana var. insularis*) and has very little understory. California live oak (*Quercus agrifolia*), purple tussockgrass (*Nassella pulchra*), and roundfruit sedge (*Carex globosa*) can occur along with other species in areas with a more open overstory. Torrey pine (*Pinus torreyana*) stands occur naturally only in two areas—the Torrey Pines State Reserve (TPSR) and Santa Rosa Island. These areas have the smallest natural population of any known *Pinus* species and have very little genetic diversity. Both the mainland and island populations of Torrey pine (*Pinus torreyana* and *P. torreyana var. insularis*) occur along the tops of steep, erodible coastal cliffs where summer fogs are frequent. The soils formed in material weathered from sandstone. The surface layer is loamy sand, and the subsurface texture is sandy clay. The soils are moderately deep and have a very high runoff rate and moderate permeability.

Ecological Sites Arranged by Symbol

F020XI200CA .... Pinus muricata/Quercus pacifica
F020XI201CA .... Pinus torreyana var. insularis/Nassella pulchra
R020XI100CA .... Loamy Slopes 13-31” p.z.
R020XI101CA .... Sandy Dunes 13-31” p.z
R020XI102CA .... Shallow Uplands 13-24” p.z.
R020XI103CA .... Riparian Areas 13-31” p.z.
R020XI105CA .... Deep Slopes 13-24” p.z.
R020XI106CA .... Shallow Slopes 13-31” p.z.
R020XI108CA .... Convex Slopes 13-24” p.z.
R020XI109CA .... Shaly Slopes 13 -24” p.z.
R020XI110CA .... Concave Slopes 13-24” p.z.
R020XI112CA .... Moderately Deep Volcanic Slopes 13-24” p.z.
R020XI113CA .... Loamy Volcanic Slopes 13-26” p.z.
R020XI116CA .... Clayey Slopes 13-26” p.z.
R020XI118CA .... Marine terraces 13-26” p.z.
R020XI119CA .... Gentle Calcareous Slopes 13-26” p.z.

Ecological Sites Arranged by Site Name

Wildlife

More than 140 land bird species have been identified on the islands. The Island scrub jay, a Santa Cruz Island endemic, is a living example of “gigantism,” whereby some island animals evolve to a larger form. This bird is one-third bigger and much bluer than the mainland scrub jay. Other animals, such as the island fox and spotted skunk, tend toward “dwarfism,” growing smaller over the ages. Other ground mammals are deer, elk, deer mouse, and harvest mouse. Feral pigs still occur on Santa Cruz Island as of this writing. The deer, elk, and feral pigs are not native and have been introduced to the islands only in relatively recent times.

Many of the soils that occur in on fluviomarine terraces or hillsides are Vertisols. Examples are Hawser and Fiale soils. These soils typically have cracks of various widths and depths, depending on how dry the soils are (fig. 21). As the summer progresses and the soils dry out, the cracks get wider and deeper. These cracks provide unique habitat for salamanders, mice, and related species. These species attract species that prey on them, such as snakes.

Many of the hills and mountains in the survey area are very rocky. Some rock outcrop occurs in most of the map units. These rocky areas provide good habitat for any species that likes to hide under rocks and to the species that prey upon them. Topdeck soils are typical in these soils.

Riparian areas along the perennial streams, typified by Typic Xerofluvents and Cumulic Haploxerolls, provide habitat for many water-loving birds.

Some of the map units in the survey area have north-facing as well as south-facing soil components. An example is Delphine-Miasotus-Yardarm association, 30 to 75 percent slopes. The Delphine soil is dominantly on the south-facing side slopes and ridgetops of hills, and the Miasotus and Yardarm soils are dominantly on the north-facing side slopes of hills. The north-facing slopes have many more shrubs and forbs than the south-facing slopes. The north-facing slopes provide better habitat for the many species of birds common in the survey area. For instance, hummingbirds were often seen on the north-facing slopes but seen seldom on the south-facing slopes. Also, foxes are more often seen on the more productive north-facing slopes. More burrowing animals are on the north-facing slopes, where the soils are deeper and softer.

This relationship occurs throughout the survey area, especially in the oak woodlands, which occur dominantly on north-facing slopes. Starboard soils are typical in these areas.

Figure 21.—The surface of Fiale soils, which are characterized by surface cracks.

Feral Pigs and Soil Disturbance

One of the factors making the soils of the Channel Islands unique is the limited soil burrowing by animals. There were only six species of mammals on the islands during the period when the soils formed. The only mammals that affected soil formation were skunks, foxes, mice, pygmy mammoths, and humans. The mainland had numerous burrowing animals, such as gophers and squirrels. Over the thousands of years of soil formation, these mammals had a significant impact on soil formation on the mainland. On the Channel Islands, however, no true burrowing animals occur and the animals that do burrow, such as mice and skunks, do so to a much lesser degree than on the mainland. Prehistoric humans always have a significant effect on soil formation, but that effect tends to be restricted to areas of villages and camps.

Feral pigs have affected large areas of Santa Cruz Island (fig. 22). In some areas they have dug holes as much as 3 feet deep. The digging tends to destroy or highly disturb the plant community. Areas as large as 100 by 100 feet or larger were completely denuded of all vegetation. It is likely that the pigs had similar effects on Santa Rosa Island when they inhabited that island.

This digging highly disturbs the natural soils. In some areas the changes are irreversible, and in others it will take hundreds of years before the soils resemble what they were in their natural state.

The detrimental impacts of pig disturbance on the soil include:

1) Destruction of soil structure and "tilth," reducing the ability of the soil to sustain plants and soil organisms, reducing the infiltration rate of the soil, and increasing the runoff rate and the hazard of erosion.

2) Destruction of the protective surface layer when it is churned and mixed into the subsoil. Loss of the topsoil reduces the fertility level of the soil, increases the

Figure 22.—Typical disturbance by feral pigs in an area of Topdeck soils on the north side of Diablo Peak on Santa Cruz Island.

hazard of erosion, and increases the soil temperature to abnormal levels, thus disrupting the natural soil ecology.

3) Where large areas are denuded of plants, a very high runoff potential and very high hazards of wind erosion and water erosion.

4) Reduction of the content of organic matter in the soil because of “aeration.” The pigs aerate the soil, but this aeration is detrimental to the natural ecology of the soil and to soil structure and fertility. Exposing the soil to the open atmosphere after it has remained undisturbed for many thousands of years causes an irreversible oxidation process whereby the organic matter natural in the soil “burns off.” Also, the porosity of the soil is reduced and tilth deteriorates.

5) An increase in soil temperature because of the exposure of the soil to the open air and sunlight. Some soil organisms cannot survive such changes in their habitat.

Recreation

The soils of the survey area are rated in tables 6a and 6b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *No limitations* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Limitations* indicates that the soil has some features that are favorable for the specified use and some that are unfavorable. This table identifies only the most significant limitations for any given soil. The limitations listed can be overcome or minimized by special planning, design, or installation. Fair or poor performance and moderate or high maintenance can be expected, depending on the number of limitations and the severity of each limitation.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables 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 sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 6a and 6b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

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 ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Areas of *lawns, landscaping, and golf fairways* are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

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 between the surface and a depth of 5 to 7 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 should 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 particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, 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 kinds 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 evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, roadfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and 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

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 7a and 7b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and shallow excavations.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *No limitations* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Limitations* indicates that the soil has some features that are favorable for the specified use and some that are unfavorable. This table identifies only the most significant limitations for any given soil. The limitations listed can be overcome or minimized by special planning, design, or installation. Fair or poor performance and moderate or high maintenance can be expected, depending on the number of limitations and the severity of each limitation.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

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 soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Sanitary Facilities

Tables 8a and 8b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *No limitations* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Limitations* indicates that the soil has some features that are favorable for the specified use and some that are unfavorable. This table identifies only the most significant limitations for any given soil. The limitations listed can be overcome or minimized by special planning, design, or installation. Fair or poor performance and moderate or high maintenance can be expected, depending on the number of limitations and the severity of each limitation.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

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. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, 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. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid 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. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

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 the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 9a and 9b give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table ENG-1, only the likelihood 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 Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The numbers 0.00 to 0.07 indicate that the layer is a poor source. The numbers 0.75 to 1.00 indicate that the layer is a good source. The numbers 0.08 to 0.74 indicate the degree to which the layer is a likely source.

The soils are rated *good, fair,* or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

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. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

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.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

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 whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a 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 AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Water Management

Table 10 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for embankments, dikes, and levees and for pond reservoir areas. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *No limitations* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Limitations* indicates that the soil has some features that are favorable for the specified use and some that are unfavorable. This table identifies only the most significant limitations for any given soil. The limitations listed can be overcome or minimized by special planning, design, or installation. Fair or poor performance and moderate or high maintenance can be expected, depending on the number of limitations and the severity of each limitation.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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. Embankments that have zoned construction (core and shell) are not considered. 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.

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.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained 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 particle-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 to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 11 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, 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 (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

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

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-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 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

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

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

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 12 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 12, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^{1}/_{3}$- or $^{1}/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), 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 and septic tank absorption fields.

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 soil layer. The capacity varies, depending on soil properties that affect retention of water. 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.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 12, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Chemical Properties

Table 13 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil 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.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Erosion Properties

Table 14 shows the erosion factors, wind erodibility groups, and wind erodibility index of the soils in the survey area.

Erosion factors are shown in table 14 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) 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 and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Surface layers that are primarily composed of organic matter do not have K factors estimated.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

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.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the “National Soil Survey Handbook,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Water Features

Table 15 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, 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 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.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 15 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 15 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

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

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

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 little or no horizon development.

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

Soil Features

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

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Soil slippage potential is determined by observation of surface features that indicate a mass of soil will possibly slip when the vegetation is removed and soil water is at or near saturation or when the soil is undercut. Slippage is an important consideration for engineering practices and other land management. The hazard of soil slippage is determined by observing slope, strike and dip, surface drainage patterns, and such features as slip scars and slumps.

Soil slippage is influenced by the angle of repose on the landscape. The angle of repose is defined as the steepest angle that bare soil will maintain. For natural soils, it is about 34 percent. Beyond this angle, soil material and rocks are totally under the influence of gravity and may slide downhill unless anchored by plants. In the Channel Islands National Park, the soils that have a slope of more than 34 percent are susceptible to soil slippage during dry periods. During periods of intensive rainfall, the critical angle of repose decreases, depending on soil type, rainfall, and other factors.

Landslides are evident in many areas of Channel Islands National Park. Some of these landslides have areas of deposition from upslope soils, but most do not. Much of the deposited material is washed away in the steep canyon bottom to form new beaches.

The underlying geology influences the potential for soil slippage. The soils that are susceptible to slippage include unstable soils that are underlain by tilted sedimentary rock downslope or are underlain by clayey shale, unstable soils in areas of previous slides, and unstable soils that are on parallel ridges and are underlain by basalt.

Areas with flat-lying sedimentary rock are moderately unstable and are susceptible to slippage under certain conditions. These areas are very rare in the Channel Islands National Park because most areas in the park have sloping sedimentary beds.

Areas with sedimentary beds that are perpendicular to the soil slope are much less susceptible to soil slippage than other areas. The protruding beds can act as anchors or barriers to soil movement. The angle of geologic bedding can change greatly over short distances; therefore, onsite investigation is recommended before structures are built.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes 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 results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete 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 also is 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 (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve 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 Alfisol.

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 Xeralf (*Xer*, meaning dry, plus *alf*, from Alfisol).

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; type of saturation; 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 Haploxeralfs (*Hapl*, meaning minimal horizonation, plus *xeralf*, the suborder of the Alfisols that has a xeric moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup 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 taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Haploxeralfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, 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, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy-skeletal, mixed, superactive, thermic, shallow Typic Haploxeralfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each 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" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the series.

Abaft Series

The Abaft series consists of very deep, excessively drained soils that formed in sandy eolian material derived from mixed sources. These soils are on stabilized dunes. Slope ranges from 0 to 25 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Mixed, thermic Typic Xeropsamments

Typical pedon of Abaft loamy sand, under a vegetative cover of succulents, ripgut brome, and lupine, on a sand dune at a elevation of 100 feet; on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands, near Carrington Point; 34 degrees, 1 minute, 45 seconds north latitude and 120 degrees, 3 minutes, 32 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A1—0 to 5 inches (0 to 12 cm); pale brown (10YR 6/3), stratified loamy sand, brown (10YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; neutral, pH 6.8 by phenol red; clear smooth boundary.

A2—5 to 13 inches (12 to 32 cm); pale brown (10YR 6/3), stratified loamy sand, brown (10YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; neutral, pH 6.8 by phenol red; clear smooth boundary.

2C—13 to 59 inches (32 to 150 cm); pale brown (10YR 6/3), stratified sand, brown (10YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; neutral, pH 6.8 by phenol red.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-June to mid-November and is usually moist the rest of the year.

The A horizon has dry color of 10YR 7/2, 6/2, 6/3, or 6/4. It has moist color of 10YR 5/2, 4/2, 4/3, or 4/4.

Texture is loamy sand or sand throughout the profile. The soils generally have no rock fragments, but in some pedons they have 1 to 2 percent small pebbles.

Ahoy Series

The Ahoy series consists of very deep, moderately well drained soils that formed in material weathered from sandstone. These soils are on marine terraces. Slope ranges from 2 to 30 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Fine-loamy over clayey, mixed over smectitic, superactive, thermic Vertic Argixerolls

Typical pedon of Ahoy silt loam, in an area of Ahoy-Hawser association, 2 to 30 percent slopes, on a southwest-facing slope of 3 percent, under a cover of ripgut and wild oats, at an elevation of 465 feet; on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 23 seconds north latitude and 120 degrees, 8 minutes, 47 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 1 inch (0 to 3 cm); slightly decomposed plant material; abrupt smooth boundary.

Oe—1 to 4 inches (3 to 11 cm); moderately decomposed plant material with less than 30 percent mineral soil material; abrupt smooth boundary.

A—4 to 13 inches (11 to 34 cm); brown (10YR 5/3) silt loam, very dark brown (10YR 2/2) moist; 15 percent clay; moderate medium subangular blocky structure; very hard, very friable, moderately sticky, moderately plastic; common very fine roots throughout; faint slickensides and distinct clay films on all faces of peds and distinct clay films on surfaces along root channels; pH 5.5 by phenol red; clear wavy boundary.

Bt1—13 to 21 inches (34 to 52 cm); brown (7.5YR 4/3) silty clay loam, very dark brown (7.5YR 2.5/2) moist; 31 percent clay; moderate medium subangular blocky structure; moderately hard, very friable, very sticky, very plastic; common very fine roots throughout; distinct clay films on all faces of peds; pH 5.5 by phenol red; gradual wavy boundary.

2Bt2—21 to 26 inches (52 to 67 cm); light gray (10YR 7/1) very fine sandy loam, dark grayish brown (10YR 4/2) moist; 16 percent clay; moderate medium subangular blocky structure; moderately hard, very friable, slightly sticky, very plastic; common very fine roots throughout; distinct clay films on surfaces along root channels and distinct clay films on all faces of peds; pH 6.0 by phenol red; diffuse wavy boundary.

3Bt3—26 to 33 inches (67 to 84 cm); black (5Y 2.5/2) clay, very dark grayish brown (2.5Y 3/2) moist; 45 percent clay; moderate medium subangular blocky structure; hard, firm, very sticky, very plastic; common very fine roots throughout; distinct clay films on all faces of peds; slight effervescence; pH 6.0 by phenol red; clear wavy boundary.

3Bss—33 to 60 inches (84 to 152 cm); black (5Y 2.5/2) clay, black (5Y 2.5/2) moist; 65 percent clay; massive; very hard, very firm, very sticky, very plastic; common very fine roots throughout; prominent slickensides on vertical faces of peds; strong effervescence; pH 7.0 by phenol red.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The particle-size control section averages 27 to 40 percent clay in the upper part and 40 to 60 percent clay in the lower part. Vertical cracks are as much as 10 millimeters wide and begin within 10 centimeters of the 2Bss horizon (when described in May).

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, or 3/2. It has moist color of 10YR 3/2 or 2/2.

The Bt1 and 2Bt2 horizons have dry color of 10YR 7/2, 7/1, 6/3, 6/4, 6/2, or 4/3; 7.5YR 4/3; or 2.5Y 2.5/2 or 6/4. They have moist color of 10YR 5/2, 4/2, 3/3, 4/4, or 5/2 or 7.5YR 2.5/2.

The 3Bt and 3Bss horizons have dry color of 5Y 2.5/2 or 2.5Y 4/2. They have moist color of 2.5Y 2.5/2 or 3/2.

Ballast Series

The Ballast series consists of moderately deep, moderately well drained soils that formed in material weathered from calcareous shale and limestone. These soils are on hills. Slope ranges from 25 to 75 percent. The mean annual precipitation is about 610 millimeters (24 inches), and the mean annual air temperature is about 17 degrees C (63 degrees F).

Taxonomic classification: Fine, smectitic, thermic Typic Calcixerolls

Typical pedon of Ballast loam, in an area of Windage-Ballast complex, on a south-facing slope of 45 percent, under a cover of wild oats, at an elevation of 230 feet (70 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 1 minute, 38 seconds north latitude and 119 degrees, 32 minutes, 42 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was moist at a depth of 21 cm. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches (0 to 10 cm); dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; moderately hard, very friable, moderately sticky, moderately plastic; common fine and common very fine roots; common very fine tubular pores; 10 percent 5- to 75-millimeter pebbles; slight effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0 by phenol red; clear wavy boundary.

Btk1—4 to 12 inches (10 to 30 cm); dark grayish brown (10YR 4/2) clay loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, moderately sticky, moderately plastic; common very fine roots; common very fine tubular pores; few thin clay films on faces of peds; 5 percent fine prominent irregular pale red (2.5YR 7/2) carbonate masses in the matrix; 10 percent 2- to 75-millimeter pebbles; slight effervescence, by HCl, 1 normal; calcium carbonate equivalent of 4 percent; moderately alkaline, pH 8.0 by phenol red; clear wavy boundary.

Btk2—12 to 24 inches (30 to 60 cm); white (2.5YR 8/1) clay, light reddish brown (2.5YR 7/4) moist; moderate medium angular blocky structure; soft, very friable, moderately sticky, moderately plastic; common very fine roots; common very fine tubular pores; few thin clay films on faces of peds; faint irregular carbonates, finely disseminated in the matrix, 10 percent fine distinct irregular light gray (10YR 7/2) carbonate masses around rock fragments, and 10 percent fine distinct irregular light gray (10YR 7/2) carbonate masses in the matrix; 10 percent 2- to 75-millimeter pebbles; violent effervescence, by HCl, 1 normal; calcium carbonate equivalent of 36 percent; moderately alkaline, pH 8.0 by phenol red; abrupt wavy boundary.

Cr—24 to 26 inches (60 to 65 cm); soft, calcareous shale bedrock.

R—26 inches (65 to 66 cm); hard, calcareous shale bedrock.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The depth to paralithic material ranges from 22 to 40 inches (55 to 101 cm). The particle-size control section averages 35 to 55 percent clay.

The A horizon has dry color of 10YR 5/2, 4/2, or 4/1. It has moist color of 10YR 3/3 or 2/2. Reaction is neutral to moderately alkaline. Effervescence is none or slight.

The Btk horizon has dry color of 10YR 4/2, 3/2, 3/1, or 2/2 or 2.5YR 8/2, 8/1, 7/4, 7/2, 6/4, 5/2, or 4/4. It has moist color of 10YR 2/1 or 2/2 or 2.5YR 7/4, 7/2, 6/2, 5/2, 4/2, 3/2, or 2/2. Reaction is slightly alkaline or moderately alkaline. Effervescence is slight, strong, or violent. Texture is clay loam or clay. The content of clay ranges from

35 to 60 percent. Calcium carbonate equivalent ranges from 1 to 40 percent, increasing with increasing depth. It is always more than 15 percent in some part of the Btk2 horizon.

Some pedons have a Bk horizon. This horizon has dry color of 10YR 8/2, 7/4, 7/2, or 6/4 or 2.5Y 8/2 or 5/2. It has moist color of 10YR 8/1, 6/8, 5/6, or 5/4 or 2.5Y 6/4, 5/6, or 5/2. Effervescence is strong or violent. The content of clay ranges from 35 to 60 percent.

The R horizon is violently effervescent, moderately hard to soft limestone or calcareous shale. It is brittle and fractured.

Bereme Series

The Bereme series consists of shallow, well drained soils that formed in sandstone residuum. These soils are on hills and in canyons. Slope ranges from 15 to 75 percent. The mean annual precipitation is about 26 inches (457 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Loamy, mixed, superactive, thermic Lithic Argixerolls

Typical pedon of Bereme sandy loam, on a canyon side with a slope of 44 percent, under a cover of buckwheat and wild oats, at an elevation of 444 feet (135 meters); on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; on the west side of Canada Lobos canyon about 1/2 mile north of a road; 34 degrees, 0 minutes, 20 seconds north latitude and 120 degrees, 5 minutes, 27 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A—0 to 1 inch (0 to 3 cm); grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; 8 percent clay; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; many very fine roots; many very fine interstitial pores; neutral, pH 6.8 by phenol red; abrupt smooth boundary.

Bt1—1 to 12 inches (3 to 30 cm); brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; 14 percent clay; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; many very fine roots; many very fine tubular pores; 10 percent very fine faint clay bodies on faces of peds; neutral, pH 7.2 by phenol red; clear smooth boundary.

Bt2—12 to 15 inches (30 to 37 cm); brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; 14 percent clay; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; many very fine roots; many very fine interstitial pores; 10 percent fine faint clay bodies on faces of peds; neutral, pH 7.2 by phenol red; abrupt smooth boundary.

R—15 to 16 inches (37 to 40 cm); very strongly cemented sandstone bedrock.

The depth to bedrock is 7 to 20 inches (18 to 50 centimeters). It is mainly 10 to 20 inches (25 to 50 centimeters). The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The particle-size control section averages 12 to 18 percent clay and 0 to 25 percent rock fragments. The content of organic matter is 2 to 3 percent to a depth of at least 7 inches (18 centimeters). Reaction is slightly acid or neutral.

The A horizon has dry color of 10YR 5/2. It has moist color of 10YR 3/2.

The Bt horizon has dry color of 10YR 5/2 or 5/3. It has moist color of 10YR 3/3 or 3/2. Texture is sandy loam or gravelly sandy loam. The content of clay is 12 to 18 percent. The content of gravel is 0 to 25 percent.

Buoy Series

The Buoy series consists of deep, well drained soils that formed in eolian deposits derived from sedimentary rocks over sandstone. These soils are on hills that formed on uplifted, dissected terraces in areas of marine deposits. Slope ranges from 9 to 75 percent. The mean annual precipitation is about 26 inches (660 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Coarse-loamy over clayey, mixed over smectitic, superactive, thermic Typic Palexeralfs

Typical pedon of Buoy fine sandy loam, in an area of Buoy-Rock outcrop-Ballast complex, 30 to 75 percent slopes, on an east-facing slope of 38 percent, under a cover of coastal sage and wild oats, at an elevation of 224 feet; on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 54 minutes, 29.6 seconds north latitude and 120 degrees, 6 minutes, 14.1 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 0.5 inch (0 to 1 cm); slightly decomposed plant material; abrupt wavy boundary.

A—0.5 inch to 12 inches (1 to 30 cm); light yellowish brown (10YR 6/4) fine sandy loam, dark brown (10YR 3/3) moist; 7 percent clay; moderate fine subangular blocky structure; hard, very friable, nonsticky, nonplastic; common fine roots throughout; common fine and common very fine tubular pores; neutral, pH 7.0 by phenol red; abrupt wavy boundary.

Bt—12 to 18 inches (30 to 45 cm); dark brown (10YR 3/3) loam, dark yellowish brown (10YR 4/4) moist; 25 percent clay; moderate fine subangular blocky structure; moderately hard, friable, slightly sticky, moderately plastic; common fine roots throughout; common fine tubular pores; prominent clay films on all faces of peds and on surfaces along root channels; slightly alkaline, pH 7.5 by phenol red; clear wavy boundary.

2Bt—18 to 33 inches (45 to 85 cm); dark yellowish brown (10YR 4/4) clay, dark brown (7.5YR 3/3) moist; 45 percent clay; strong medium subangular blocky structure; very hard, firm, moderately sticky, moderately plastic; common fine roots throughout; common very fine tubular pores; distinct clay films on all faces of peds; slightly alkaline, pH 7.5 by phenol red; clear wavy boundary.

2Btk1—33 to 41 inches (85 to 105 cm); 40 percent dark yellowish brown (10YR 3/4) and 60 percent red (2.5YR 5/8) clay, dark yellowish brown (10YR 4/4) moist; 50 percent clay; moderate fine subangular blocky structure; firm, very sticky, very plastic; common very fine roots throughout; distinct clay films on surfaces along root channels and on all faces of peds; 5 percent medium distinct irregular light gray (10YR 7/2) carbonate masses throughout; strong effervescence; moderately alkaline, pH 8.0 by phenol red; gradual wavy boundary.

3Btk2—41 to 45 inches (105 to 115 cm); light yellowish brown (2.5Y 6/4) fine sandy loam, light olive brown (2.5Y 5/6) moist; 7 percent clay; massive; common very fine roots throughout; distinct clay films on all faces of peds; finely disseminated carbonates; slight effervescence; moderately alkaline, pH 8.0 by phenol red; abrupt wavy boundary.

3Cr—45 to 47 inches (115 to 120 cm); very hard and brittle sandstone; few very fine roots in cracks.

The mean annual soil temperature at a depth of 20 inches (50 centimeters) is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The depth to bedrock is 40 to 60 inches (100 to 150 centimeters). The particle-size control section is generally 50 centimeters thick when both parts considered contrasting particle-size classes fall within the argillic horizon. When the argillic horizon is not included within the lower part of the upper strongly contrasting particle-size class, the particle-size control section extends from 25 to 100 cm. The content of clay averages less than 18 percent in the upper part of the control section and more than 35 percent in the lower part.

The A horizon has dry color of 10YR 6/4, 6/2, or 7/2. It has moist color of 10YR 6/3, 4/2, 3/3, or 2/2. Texture is fine sandy loam, sandy loam, loam, or gravelly fine sandy loam. The content of clay is 5 to 25 percent. The content of gravel is 0 to 35 percent.

The Bt horizon has dry color of 10YR 7/2, 6/2, 4/4, or 3/3. It has moist color of 10YR 4/4, 4/2, or 3/3. Texture is sandy loam, sandy clay loam, or loam. The content of clay is 5 to 25 percent.

The 2Bt horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 4/4, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2 or 7.5YR 3/3. Texture is sandy clay loam, sandy clay, clay, extremely gravely clay, very gravelly clay loam, very gravelly clay, clay loam, or gravelly clay loam. The content of clay is 38 to 60 percent. The content of gravel is 0 to 85 percent.

The 2Btk horizon (where present) has dry color of 10YR 4/4, 3/4, or 3/3; 2.5YR 5/8; or 2.5Y 5/8, 7/8, or 6/4. It has moist color of 10YR 4/4, 2.5Y 5/8 or 5/6, or 7.5YR 3/3. Texture is sandy clay loam, clay, gravelly clay, clay loam, or fine sandy loam. The content of clay is 38 to 50 percent.

Some pedons do not have a 3Btk horizon.

Cumulic Haploxerolls

Cumulic Haploxerolls consist of very deep, well drained soils that formed in alluvium derived from mixed rock sources. These soils are on flood plains. Slope ranges from 0 to 2 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Cumulic Haploxerolls

Example of a pedon of Cumulic Haploxerolls silt loam, in an area of Cumulic Haploxerolls, 0 to 2 percent slopes, on a slope of 1 percent, under a cover of grasses, at an elevation of 180 feet (55 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 46 seconds north latitude and 119 degrees, 42 minutes, 57 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island B.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted).

A1—0 to 9 inches (0 to 23 cm); dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; 20 percent clay; strong medium subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; many fine and many very fine roots throughout; common fine and common very fine tubular pores; 5 percent 2- to 75-millimeter pebbles; neutral, pH 6.8; clear smooth boundary.

A2—9 to 35 inches (23 to 90 cm); dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; 21 percent clay; moderate coarse and medium subangular blocky structure; moderately hard, very friable, nonsticky, nonplastic; many very fine roots throughout; many coarse and many very fine tubular pores; 5 percent 2- to 75-millimeter pebbles; neutral, pH 6.8; abrupt smooth boundary.

2Bw1—35 to 51 inches (90 to 129 cm); very dark grayish brown (10YR 3/2) fine sandy loam, very dark brown (10YR 2/2) moist; 19 percent clay; moderate coarse and medium subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; many very fine roots throughout; many coarse and many very fine tubular pores; 2 percent 2- to 75-millimeter pebbles; slight effervescence, by HCl, 1 normal; neutral, pH 7.0; abrupt smooth boundary.

3Bw2—51 to 67 inches (129 to 170 cm); grayish brown (10YR 5/2) extremely gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; 4 percent clay; massive; loose when dry and when moist, nonsticky and nonplastic when wet; common fine and common very fine interstitial pores; 1 percent 75- to 250-millimeter cobbles and 65 percent 2- to 75-millimeter pebbles; neutral, pH 6.8.

This pedon is representative but is not completely typical of the Cumulic Haploxerolls in this survey area because of the highly variable nature of these soils.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-July to mid-November and is usually moist the rest of the year. The particle-size control section averages 18 to 35 percent clay and 0 to 30 percent rock fragments. The content of organic matter is 1 to 4 percent to a depth of at least 20 inches (50 centimeters).

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The 2Bw and 3Bw horizons have dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. They have moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2. They are stratified extremely gravelly loamy sand to silt loam.

Delphine Series

The Delphine series consists of well drained soils that formed in schist residuum. These soils are shallow to bedrock (fig. 23). They are on hills (fig. 24). Slope ranges from 30 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Loamy-skeletal, mixed, superactive, thermic, shallow Typic Haploxeralfs

Typical pedon of Delphine very gravelly silt loam, in an area of Delphine-Miasotus-Yardarm association, 30 to 75 percent slopes, on a southeast-facing slope of 31 percent, under a cover of buckwheat and wild oats, at an elevation of 1,350 feet (412 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 54 seconds north latitude and 119 degrees, 45 minutes, 42 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A—0 to 1 inch (0 to 2 cm); brown (7.5YR 5/4) very gravelly silt loam, brown (7.5YR 4/4) moist; 22 percent clay; moderate thin platy structure; slightly hard, very friable, slightly sticky, slightly plastic; 40 percent 2- to 75-millimeter pebbles; slightly acid (pH 6.2); abrupt smooth boundary.

Bt1—1 to 9 inches (2 to 24 cm); yellowish red (5YR 5/6) extremely gravelly silt loam, yellowish red (5YR 4/6) moist; 30 percent clay; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; few thin clay films on faces of peds; 70 percent 2- to 75-millimeter pebbles; neutral, pH 6.9); clear wavy boundary.

Bt2—9 to 14 inches (24 to 36 cm); yellowish red (5YR 5/6) extremely gravelly loam, yellowish red (5YR 4/6) moist; 34 percent clay; weak fine subangular blocky structure; slightly hard, very friable, moderately sticky, moderately plastic; few thin clay films on faces of peds; 70 percent 2- to 75-millimeter pebbles; neutral, pH 7.0); clear wavy boundary.

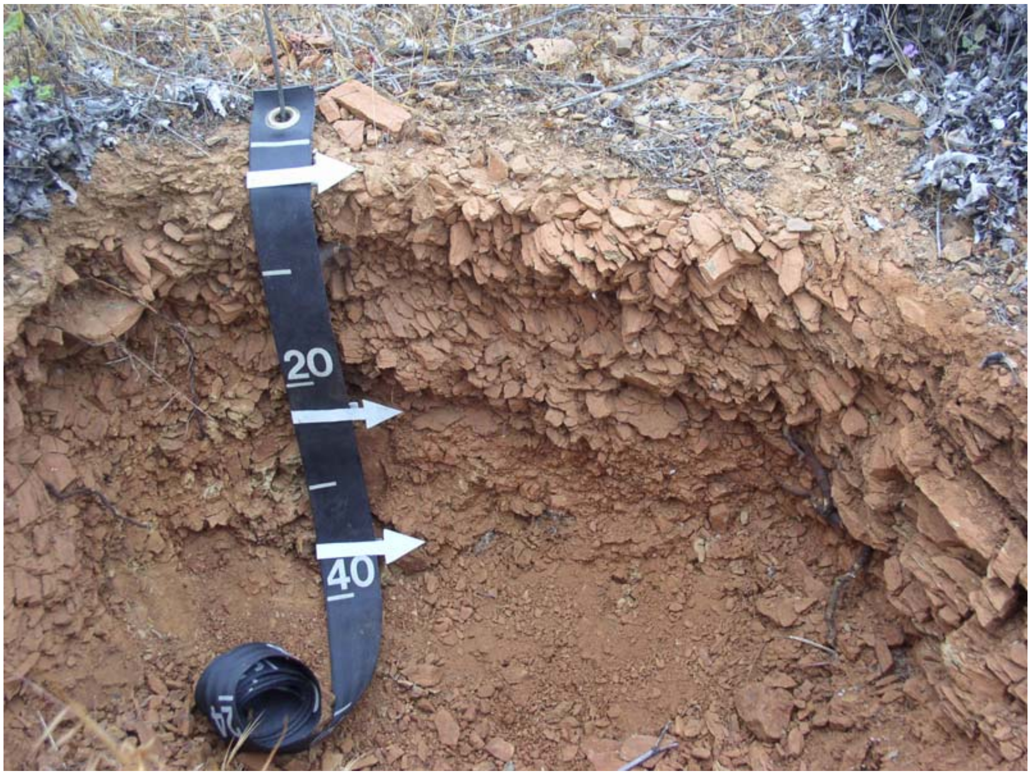

Figure 23.—Profile of Delphine soils, which are shallow to bedrock.

Figure 24.—An area of Delphine soils on the highly eroded side slopes of hills.

Cr—14 to 21 inches (36 to 53 cm); diggable, very fractured schist; fractures 4 to 8 centimeters apart; clear wavy boundary.
R—21 inches (53 to 53 cm); rigid schist with fractures more than 10 centimeters apart.

The mean annual soil temperature is 59 to 71 degrees F (15 to 19 degrees C). The soil moisture control section is dry in all parts from about mid-June to mid-November and is usually moist the rest of the year. The depth to paralithic bedrock is 11 to 19 inches (28 to 48 centimeters). The depth to lithic bedrock is 17 to 22 inches (42 to 56 centimeters). It generally is more than 20 inches (50 centimeters). The particle-size control section averages 18 to 35 percent clay and 35 to 85 percent rock fragments.

The A horizon has dry color of 7.5YR or 5YR 5/4, 5/6, or 4/4. It has moist color of 7.5YR or 5YR 4/4, 4/6, or 3/4.

The Bw and Bt horizons have dry color of 7.5YR or 5YR 5/4 or 5/6. They have moist color of 7.5YR or 5YR 4/4 or 4/6. Texture is extremely gravelly silt loam, extremely gravelly loam, extremely gravelly clay loam, or extremely gravelly silty clay loam.

Fantail Series

The Fantail series consists of moderately well drained soils that formed in shale residuum. These soils are moderately deep to fractured bedrock. They are on hills. Slope ranges from 30 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 66 degrees F (19 degrees C).

Taxonomic classification: Clayey-skeletal, smectitic, thermic Pachic Argixerolls

Typical pedon of the Fantail gravelly loam, in an area of the Fantail-Forestay association, 20 to 75 percent slopes, on an east-facing slope of 63 percent, under a cover of fennel, ripgut, and buckwheat, at an elevation of 1,190 feet (363 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 4 seconds north latitude and 119 degrees, 40 minutes, 8 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island D.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 2 inches (0 to 4 cm); sage brush leaves and sticks; abrupt wavy boundary.
A1—2 to 4 inches (4 to 10 cm); dark gray (10YR 4/1) gravelly loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky, moderately plastic; 25 percent 2- to 75-millimeter pebbles; neutral, pH 7.0 by phenol red; abrupt wavy boundary.
A2—4 to 12 inches (10 to 30 cm); very dark gray (10YR 3/1) gravelly loam, black (10YR 2/1) moist; moderate medium and fine subangular blocky structure; soft, very friable, slightly sticky, moderately plastic; 30 percent 2- to 75-millimeter pebbles; neutral, pH 6.8 by phenol red; gradual wavy boundary.
Bw—12 to 22 inches (30 to 55 cm); grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; hard, friable, moderately sticky, moderately plastic; 38 percent 2- to 75-millimeter pebbles; neutral, pH 6.8 by phenol red; clear wavy boundary.
Bt1—22 to 35 inches (55 to 90 cm); brown (10YR 5/3) very gravelly clay, brown (10YR 4/3) moist; strong coarse subangular blocky structure; hard, friable, very sticky, very plastic; few thin clay films on faces of peds; 40 percent 2- to 75-millimeter pebbles; neutral, pH 6.6 by phenol red; gradual wavy boundary.

Bt2—35 to 39 inches (90 to 98 cm); yellowish brown (10YR 5/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; strong coarse subangular blocky structure; hard, friable, very sticky, very plastic; few thin clay films on faces of peds; 50 percent 2- to 75-millimeter pebbles; neutral, pH 6.6 by phenol red; gradual wavy boundary.

Crt—39 to 51 inches (98 to 130 cm); highly fractured shale; fractures 1 to 2 centimeters apart; many clay seams extending into the fractures.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The depth to bedrock is 16 to 43 inches (40 to 110 centimeters). It is mainly 20 to 40 inches (50 to 100 centimeters). The thickness of the mollic epipedon ranges from 8 to 35 inches (20 to 90 centimeters). It is mainly 20 to 30 inches (50 to 76 centimeters). It is highly variable because of disturbance by animals, mainly wild pigs, and erosion. The particle-size control section averages 40 to 60 percent clay and 35 to 60 percent rock fragments. The content of organic matter is 1 to 4 percent to a depth of at least 20 inches (50 centimeters).

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/1, 3/2, or 3/1. It has moist color of 10YR 3/3, 3/2, 2/2, or 2/1.

The Bw horizon does not occur in pedons that have been highly disturbed by animals, mainly wild pigs.

The Bt horizon has dry color of 10YR 5/4, 5/3, 4/2, or 4/3. It has moist color of 10YR 4/3, 4/4, 3/4, 3/3, 3/2, 3/1, or 2/2. The content of clay ranges from 40 to 60 percent. The content of rock fragments ranges from 35 to 60 percent.

A “thin surface” phase of the Fantail series occurs in areas where the surface layer has been eroded.

Fiale Series

The Fiale series consists of moderately well drained soils that formed in basalt, andesite, and volcanic breccia residuum. These soils are moderately deep to soft bedrock. They are on hills. Slope ranges from 2 to 60 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 66 degrees F (19 degrees C).

Taxonomic classification: Fine, smectitic, thermic Aridic Haploxererts

Typical pedon of Fiale clay loam, in an area of Spinnaker-Tongva-Fiale association, on a southwest-facing slope of 15 percent, under a cover of annual grasses, at an elevation of 700 feet, northeast of Centinela Road; on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 1 minute, 21 seconds north latitude and 119 degrees, 48 minutes, 3 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Surface features: 3 percent gravel, 5 percent cobbles, and 1 percent stones on the surface; surface cracks 1 to 5 centimeters wide and 25 to 61 centimeters apart, in a polygonal pattern.

Oi—0 to 2 inches (0 to 5 cm); slightly decomposed grasses; abrupt smooth boundary.

A—2 to 4 inches (5 to 11 cm); dark gray (10YR 4/1) clay loam, very dark gray (10YR 3/1) moist; 38 percent clay; strong medium subangular blocky structure; moderately hard, friable, moderately sticky, very plastic; many fine and many very fine roots; 5 percent 5- to 75-millimeter pebbles and 5 percent 2- to 5-millimeter pebbles; slightly alkaline, pH 7.6 by phenol red; clear smooth boundary.

Bss1—4 to 15 inches (11 to 38 cm); very dark grayish brown (10YR 3/2) clay, very dark brown (10YR 2/2) moist; 55 percent clay; strong coarse and medium prismatic structure; very hard, firm, very sticky, very plastic; common slickensides; common fine and common very fine roots; 3 percent 2- to 75-millimeter pebbles; neutral, pH 7.2 by phenol red; gradual wavy boundary.

Bss2—15 to 24 inches (38 to 60 cm); dark grayish brown (10YR 4/2) clay, very dark grayish brown (10YR 3/2) moist; 55 percent clay; strong medium and coarse prismatic structure; very hard, firm, very sticky, very plastic; common slickensides; few very fine roots; 10 percent redoximorphic accumulations of iron that are dark yellowish brown (10YR 4/6) and dark yellowish brown (10YR 4/6) moist; 3 percent 2- to 75-millimeter pebbles; neutral, pH 7.0 by phenol red; gradual wavy boundary.

Bss3—24 to 28 inches (60 to 72 cm); very dark gray (10YR 3/1) clay, very dark brown (10YR 2/2) moist; 50 percent clay; strong medium and coarse prismatic structure; very hard, firm, very sticky, very plastic; common slickensides; few very fine roots; 45 percent redoximorphic accumulations of iron that are dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) moist; 3 percent 2- to 75-millimeter pebbles; neutral, pH 6.8 by phenol red; gradual wavy boundary.

BC—28 to 34 inches (72 to 87 cm); dark yellowish brown (10YR 4/6) and olive brown (2.5Y 4/3) sandy clay loam, dark yellowish brown (10YR 4/4) and very dark grayish brown (2.5Y 3/2) moist; 22 percent clay; moderately hard, firm, moderately sticky, moderately plastic; few very fine roots; 3 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.8 by phenol red; gradual wavy boundary.

Cr1—34 to 48 inches (87 to 123 cm); soft, easily diggable andesite.

Cr2—48 inches (123 to cm); hard andesite; fractures 2 to 3 centimeters apart.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days). The depth to bedrock is 20 to 35 inches (50 to 90 centimeters). The particle-size control section averages 40 to 60 percent clay and 5 to 15 percent rock fragments. Surface cracks 1 to 5 centimeters wide extend to a depth of 17 to 40 inches (44 to 100 centimeters) for 180 or more consecutive days when the soils are dry. Common or many slickensides occur in the Bss horizon, at a depth of 2 to 40 inches (5 to 100 centimeters). The thickness of Bss horizon is highly variable because of disturbance by erosion and animals, mostly wild pigs. Reaction is neutral to moderately alkaline.

The A horizon has dry color of 10YR 5/2, 5/3, 4/1, 4/2, 4/3, 3/1, or 3/2. It has moist color of 10YR 4/2, 3/2, 3/1, 2/1, or 2/2.

The Bss horizon has dry color of 10YR 5/2, 5/3, 4/1, 4/2, 3/2, or 3/1. It has moist color of 10YR 3/3, 3/2, 3/1, 2/1, or 2/2. The content of clay ranges from 40 to 60 percent. The content of rock fragments ranges from 3 to 15 percent.

The BC horizon has dry color of 2.5Y or 10YR 5/3, 4/4, or 4/3. It has moist color of 2.5Y or 10YR 4/3, 4/2, 3/3, or 3/2.

Fluventic Haploxerolls

Fluventic Haploxerolls consist of very deep, moderately well drained soils that formed in lacustrine alluvium derived from sandy eolian material. These soils are in areas of dune lakes. Slope ranges from 1 to 4 percent. The mean annual precipitation is about 29 inches (737 millimeters), and the mean annual air temperature is about 17 degrees C (63 degrees F).

Taxonomic classification: Fluventic Haploxerolls

Example of a pedon of Fluventic Haploxerolls, 1 to 4 percent slopes, on a slope of 1 percent, under a cover of grasses, at an elevation of 358 feet; on San Miguel Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 2 minutes, 33.7 seconds north latitude and 120 degrees, 24 minutes, 40.5 seconds west longitude; NAD83; USGS quadrangle: San Miguel Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A1—0 to 8 inches (0 to 20 cm); brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; 23 percent clay; moderate fine subangular blocky structure and single grain; slightly hard, very friable, slightly sticky, slightly plastic; many fine roots; many fine interstitial pores; slight effervescence, by HCl, 1 normal; slightly alkaline, pH 7.7 by phenol red; clear smooth boundary.

A2—8 to 15 inches (20 to 38 cm); yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; 18 percent clay; moderate fine subangular blocky structure and single grain; slightly hard, very friable, slightly sticky, slightly plastic; many fine roots; many fine interstitial pores; slight effervescence, by HCl, 1 normal; slightly alkaline, pH 7.7 by phenol red; clear smooth boundary.

Bw—15 to 30 inches (38 to 78 cm); pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; 4 percent clay; single grain; loose when dry and when moist, nonsticky and nonplastic when wet; many fine roots; many fine interstitial pores; slight effervescence, by HCl, 1 normal; slightly alkaline, pH 7.8 by phenol red; abrupt smooth boundary.

2C1—30 to 31 inches (78 to 80 cm); brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; 50 percent clay; massive; moderately hard, friable, very sticky, very plastic; many fine roots; slight effervescence, by HCl, 1 normal; slightly alkaline, pH 7.6 by phenol red; abrupt smooth boundary.

3C2—31 to 35 inches (80 to 90 cm); pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; 4 percent clay; single grain; loose, nonsticky, nonplastic; many fine roots; violent effervescence, by HCl, 1 normal; slightly alkaline, pH 7.4 by phenol red; abrupt smooth boundary.

4C3—35 to 39 inches (90 to 100 cm); brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; 50 percent clay; massive; moderately hard, friable, very sticky, very plastic; many fine roots; violent effervescence, by HCl, 1 normal; slightly alkaline, pH 7.6 by phenol red; abrupt smooth boundary.

5C4—39 to 60 inches (100 to 152 cm); pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; many fine roots; violent effervescence, by HCl, 1 normal; slightly alkaline, pH 7.4 by phenol red;

This pedon is representative but is not completely typical of the Fluventic Haploxerolls in this survey area because of the highly variable nature of these soils.

The mean annual soil temperature is 59 to 64 degrees F (16 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The particle-size control section is highly stratified and averages 12 to 18 percent clay. Texture ranges from loamy sand to clay throughout the profile. The content of organic matter is 1 to 4 percent to a depth of at least 7 inches (18 centimeters).

The A horizon has dry color of 10YR 5/3 or 5/4. It has moist color of 10YR 3/3 or 4/4.

The Bw horizon has dry color of 10YR 6/3. It has moist color of 10YR 4/3. The content of clay ranges from 2 to 8 percent.

These soils are too highly variable to be mapped at the series level.

Forestay Series

The Forestay series consists of very deep, well drained soils that formed in shale residuum. These soils are on hills that formed in areas of uplifted marine deposits. Slope ranges from 2 to 60 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 57 degrees F (14 degrees C)

Taxonomic classification: Clayey-skeletal, smectitic, mesic Ultic Palexerolls

Typical pedon of Forestay gravelly loam, in an area of Fantail-Forestay association, 20 to 75 percent slopes, on an east-facing slope of 22 percent, under a cover of scrub and live oaks, at an elevation of 1,240 feet (378 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 50 seconds north latitude and 119 degrees, 39 minutes, 58 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was moist throughout. (Colors are for dry soil unless otherwise noted).

Oi—0 to 2 inches (0 to 5 cm); slightly decomposed oak litter; strongly acid, pH 5.3 by pH meter, saturated paste; clear wavy boundary.

A1—2 to 4 inches, (5 to 10 cm); very dark grayish brown (10YR 3/2) gravelly loam, black (10YR 2/1) moist; 26 percent clay; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; 15 percent 2- to 75-millimeter pebbles; base saturation of 48 percent; strongly acid, pH 5.4 by pH meter, saturated paste; clear smooth boundary.

A2—4 to 15 inches, (10 to 38 cm); dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; 22 percent clay; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; 20 percent 2- to 75-millimeter pebbles; base saturation of 73 percent; slightly acid, pH 6.4 by pH meter, saturated paste; clear smooth boundary.

2Bw—15 to 27 inches, (38 to 68 cm); brown (10YR 5/3) very gravelly coarse sandy loam, dark brown (10YR 3/3) moist; 19 percent clay; moderate medium angular blocky structure; soft, very friable, nonsticky, nonplastic; 35 percent 2- to 75-millimeter pebbles; base saturation of 59 percent; strongly acid, pH 5.5 by pH meter, saturated paste; clear smooth boundary.

3Bt1—27 to 35 inches, (68 to 89 cm); very dark gray (10YR 3/1) extremely gravelly clay, black (10YR 2/1) moist; 56 percent clay; moderate medium angular blocky structure; moderately hard, firm, very sticky, very plastic; continuous prominent clay films on all faces of peds and rock fragments; 60 percent 2- to 75-millimeter pebbles; base saturation of 43 percent; extremely acid, pH 4.4 by pH meter, saturated paste; clear smooth boundary.

3Bt2—35 to 45 inches, (89 to 115 cm); very dark gray (10YR 3/1) gravelly clay, black (10YR 2/1) moist; 52 percent clay; moderate medium angular blocky structure; moderately hard, firm, very sticky, very plastic; continuous prominent clay films on all faces of peds and rock fragments; 25 percent 2- to 75-millimeter pebbles; base saturation of 38 percent; extremely acid, pH 4.3 by pH meter, saturated paste; clear smooth boundary.

3Bt3—45 to 60 inches, (115 to 152 cm); very dark gray (10YR 3/1) extremely gravelly clay, black (10YR 2/1) moist; 51 percent clay; moderate medium angular blocky structure; moderately hard, firm, very sticky, very plastic; continuous prominent clay films on all faces of peds and rock fragments; 60 percent 2- to 75-millimeter pebbles; base saturation of 41 percent; extremely acid, pH 4.2 by pH meter, saturated paste.

The mean annual soil temperature is 53 to 59 degrees F (12 to 15 degrees C). The difference in between mean summer and mean winter soil temperature is less than 6 degrees C. The soil moisture control section is dry in all parts from about mid-September to mid-November (about 60 days) and is usually moist the rest of the year.

The depth to shale bedrock (fig. 25) is more than 60 inches (152 centimeters). Depth to an abrupt increase in clay content is 6 to 28 inches (15 to 70 centimeters). This increase is always at least 20 percent (absolute) within a vertical distance of 6 inches (15 centimeters) or 15 percent (absolute) within a distance of 1 inch (2.5 centimeters) at the upper boundary of the argillic horizon. High variability in the depth to clay results from disturbance and erosion caused by animals, mostly wild pigs. Base saturation, by sum of bases, ranges from 38 to 73.

The depth to lithologic discontinuity ranges from 6 to 22 inches, but the discontinuity does not occur in all pedons. The mollic epipedon is always more than 15 inches (38 centimeters) thick, commonly extending into the argillic horizon.

The particle-size control section averages 40 to 60 percent clay and 35 to 60 percent rock fragments. The content of organic matter is 1 to 4 percent to a depth of at least 20 inches (50 centimeters). Reaction is extremely acid to neutral throughout the profile.

The A horizon has dry color of 10YR 4/2 or 3/2. It has moist color of 10YR 3/2, 2/2, or 2/1.

The 3Bt horizon has dry color of 10YR 5/2, 5/3, 4/2, or 3/1. It has moist color of 10YR 3/3, 3/2, 2/1, or 2/2. The content of clay ranges from 30 to 60 percent. Texture is very gravelly clay, gravelly clay, extremely gravelly clay, gravelly clay loam, or very gravelly clay loam.

Frigate Series

The Frigate series consists of well drained soils that formed in material weathered from schist. These soils are moderately deep to soft bedrock. They are on the north-facing side slopes of hills. Slope ranges from 30 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 57 degrees F (14 degrees C).

Taxonomic classification: Loamy-skeletal, mixed, superactive, isomesic Typic Haploxerepts

Typical pedon of Frigate loam, in an area of Frigate-Yardarm association, 30 to 75 percent slopes, on a northeast-facing slope of 45 percent, under a Bishop pine forest, at an elevation of 1,205 feet, in the Christy Pine forest; on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 42.6 seconds north latitude and 119 degrees, 48 minutes, 5.2 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oe—0 to 3 inches (0 to 7 cm); moderately decomposed pine needles; clear smooth boundary.

A1—3 to 4 inches (7 to 10 cm); brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; 10 percent clay; moderate fine and medium granular structure; slightly hard, very friable, slightly sticky, slightly plastic; many very fine, common fine, common medium, and common coarse roots; moderately hydrophobic; 10 percent gravel; slightly acid, pH 6.2 by phenol red; clear smooth boundary.

A2—4 to 8 inches (10 to 21 cm); brown (7.5YR 4/3) and strong brown (7.5YR 5/6) gravelly silt loam, strong brown (7.5YR 4/6) and dark brown (7.5YR 3/3) moist; 13

Figure 25.—Profile of Forestay soils, which formed in material weathered from shale.

percent clay; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; many very fine, few fine, and common medium roots; common discontinuous clay films on faces of peds; 25 percent gravel; moderately acid, pH 6.0 by phenol red; clear wavy boundary.

Bt1—8 to 15 inches (21 to 39 cm); strong brown (7.5YR 5/6) gravelly silt loam, strong brown (7.5YR 4/6) moist; 16 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; common fine, few fine, few medium, and few coarse roots; few vesicular pores; few discontinuous clay films on faces of peds; 25 percent gravel; slightly acid, pH 6.4 by phenol red; clear wavy boundary.

Bt2—15 to 28 inches (39 to 71 cm); yellowish brown (10YR 5/4) extremely gravelly silt loam, brown (7.5YR 4/4) moist; 12 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; few very fine and few medium roots; few vesicular pores; few thin clay bridges between sand grains; 55 percent gravel; moderately acid, pH 5.8 by phenol red; clear wavy boundary.

Bt3—28 to 31 inches (71 to 79 cm); reddish brown (5YR 5/4) very gravelly silt loam, reddish brown (5YR4/4) moist; 18 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; few fine roots; few thin clay bridges between sand grains; 50 percent gravel; moderately acid, pH 5.8 by phenol red; clear wavy boundary.

Cr—31 to 67 inches (79 to 170 cm); soft schist; fractures less than 10 centimeters apart.

R—67 inches (170 cm); very hard schist; fractures more than 10 centimeters apart.

The mean annual soil temperature is 54 to 59 degrees F (12 to 15 degrees C). The difference between mean summer and mean winter soil temperatures is less than 6 degrees C. The soil moisture control section is dry in all parts from about mid-September to mid-November (about 90 days) and is usually moist the rest of the year. The depth to bedrock is 20 to 40 inches (50 to 100 centimeters). The particle-size control section averages 10 to 18 percent clay and 15 to 35 percent rock fragments. Reaction is slightly acid or moderately acid.

The A horizon has dry color of 10YR or 7.5YR 4/3, 5/4, 5/6, 6/2, or 6/3. It has moist color of 10YR or 7.5YR 5/3, 4/3, 4/6, 3/3, or 2/2.

The Bt horizon has dry color of 10YR, 7.5YR, or 5YR 6/3, 6/3, 5/4 or 5/6. It has moist color of 10YR or 7.5YR 5/4, 5/6, 4/6, or 4/4. Texture is silt loam, gravelly silt loam, very gravelly silt loam, very gravelly loam, or extremely gravelly silt loam. This horizon commonly has clay films but does not have the increase in content of clay needed to meet the requirements for an argillic horizon. The content of rock fragments ranges from 5 to 60 percent.

Gunwale Series

The Gunwale series consists of moderately deep, well drained soils that formed in material weathered from diorite and gabbro. These soils are on mountains and hills. Slope ranges from 30 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 57 degrees (14 degrees C).

Taxonomic classification: Fine-loamy, mixed, superactive, isomesic Ultic Haploxeralfs

Typical pedon of Gunwale loam, in an area of Livigne-Gunwale association, 30 to 75 percent slopes, on a north-facing slope of 62 percent, under a cover of Bishop pine, at an elevation of 910 feet (277 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 6 seconds north latitude and 119 degrees, 49 minutes, 2 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 1 inch (0 to 2 cm); slightly decomposed pine needles; abrupt smooth boundary.

Oe—1 to 2 inches (2 to 4 cm); moderately decomposed pine needles; abrupt smooth boundary.

A—2 to 4 inches (4 to 9 cm); brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; 19 percent clay; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; common fine, common medium, and common coarse roots; 5 percent 2- to 75-millimeter pebbles; very strongly acid (pH 5.2); clear wavy boundary.

Bw—4 to 11 inches (9 to 28 cm); pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; 15 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky, slightly plastic; common fine, common medium, and common coarse roots; 5 percent 2- to 75-millimeter pebbles; very strongly acid (pH 5.0); clear wavy boundary.

Bt—11 to 22 inches (28 to 55 cm); yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; 29 percent clay; strong coarse subangular blocky structure; hard, very friable, slightly sticky, slightly plastic; common fine, common medium, and common coarse roots; continuous prominent clay films on all faces of peds; 5 percent 2- to 75-millimeter pebbles; very strongly acid (pH 5.0); clear wavy boundary.

Cr—22 to 32 inches (55 to 82 cm); soft, easily augured and excavated diorite with 90 percent rock structure.

The mean annual soil temperature is 54 to 59 degrees F (12 to 15 degrees C). The difference between mean summer and mean winter soil temperatures is less than 6 degrees C. The soil moisture control section is dry in all parts from about mid-September to mid-November (about 90 days) and is usually moist the rest of the year. The depth to bedrock is 20 to 40 inches (50 to 100 centimeters). The particle-size control section averages 18 to 35 percent clay and 0 to 15 percent rock fragments. Base saturation, by sum of bases, is less than 75 throughout the profile.

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The Bw horizon has dry color of 10YR 6/3 or 5/4. It has moist color of 10YR 4/3 or 4/4.

The Bt horizon has dry color of 10YR 6/3 or 5/4. It has moist color of 10YR 4/3 or 4/4.

Halyard Series

The Halyard series consists of moderately deep, moderately well drained soils that formed in material weathered from basalt, andesite, and volcanic breccia. These soils are on hills and mountains. Slope ranges from 2 to 85 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 66 degrees F (19 degrees C).

Taxonomic classification: Fine, smectitic, thermic Pachic Argixerolls

Typical pedon of Halyard gravelly clay loam, in an area of Halyard-Topdeck-Tongva complex, 15 to 75 percent slopes, on a south-facing slope of 60 percent, under a cover of wild oats and sage, at an elevation of 328 feet; on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 58.7 seconds north latitude and 119 degrees, 43 minutes, 34.1 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 2 inches (0 to 4 cm); slightly decomposed grass; abrupt wavy boundary.

A—2 to 13 inches (4 to 32 cm); dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; 28 percent clay; strong medium granular and moderate coarse and medium subangular blocky structure; moderately hard, friable, moderately sticky, moderately plastic; 1 percent 75- to 250-millimeter cobbles and 15 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.4 by phenol red; clear wavy boundary.

Bt1—13 to 22 inches (32 to 55 cm); dark grayish brown (10YR 4/2) gravelly clay, very dark brown (10YR 2/2) moist; 40 percent clay; massive; moderately hard, very firm, moderately sticky, moderately plastic; continuous distinct clay films on all faces of peds and continuous distinct clay films on rock fragments; 15 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.4 by phenol red; clear wavy boundary.

Bt2—22 to 37 inches (55 to 95 cm); dark brown (10YR 3/3) clay, very dark brown (7.5YR 2.5/3) moist; 45 percent clay; massive; moderately hard, very firm, moderately sticky, moderately plastic; continuous prominent clay films on all faces of peds; 10 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.4 by phenol red; abrupt wavy boundary.

Cr—37 to 38 inches (95 to 100 cm); highly fractured andesite; fractures 2 to 8 centimeters apart.

The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soil moisture control section is dry in all parts from about mid-September to mid-November (about 60 days) and is usually moist the rest of the year. Rock fragments cover 15 to 45 percent of the surface. They are mostly gravel and cobbles, but a few stones and boulders occur in some areas. The depth to bedrock is 20 to 40 inches (50 to 100 centimeters). The particle-size control section averages 40 to 60 percent clay and 5 to 35 percent rock fragments, mostly gravel. The content of organic matter is 1 to 2 percent to a depth of at least 20 inches (50 centimeters). It decreases with increasing depth.

The A horizon (including an A2 horizon in some pedons) has dry color of 10YR 5/4, 4/3, or 4/2 or 7.5YR 4/4 or 4/3. It has moist color of 10YR 3/2 or 2/2 or 7.5YR 3/3, 2.5/3, or 2.5/2.

The Bt1 horizon has dry color of 10YR 4/2 or 4/3, 7.5YR 4/3, 2.5Y 5/4, or 5YR 3/2. It has moist color of 10YR 3/3, 3/2, 2/2; 7.5YR 3/3; 2.5Y 4/3; or 5YR 2.5/2. Texture is clay loam or clay.

The Bt2 horizon has dry color of 10YR 4/6, 4/4, or 3/3 or 2.5Y 6/4, 5/3, or 5/2. It has moist color of 10YR 3/6; 2.5Y 4/3, 3/3, or 2.5/2; or 7.5YR 2.5/3. Texture is dominantly clay, gravelly clay, gravelly clay loam, or clay loam, but in some pedons it is very gravelly clay loam, very gravelly clay, extremely gravelly clay, or extremely gravelly clay loam in the lower part of the horizon.

Hawser Series

The Hawser series consists of very deep, well drained soils that formed in material weathered from sandstone and shale. These soils are on dissected fluviomarine terraces. Slope ranges from 2 to 50 percent. The mean annual precipitation is about 26 inches (660 millimeters), and the mean annual air temperature is about 17 degrees C (63 degrees F).

Taxonomic classification: Very-fine, smectitic, thermic Aridic Haploxererts

Typical pedon of Hawser clay, in an area of Ahoy-Hawser association, on a slope of 4 percent, under a cover of wild oats, at an elevation of 465 feet; on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 24 seconds north latitude and 120 degrees, 8 minutes, 45 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 1 inch (0 to 2 cm); dark grayish brown (10YR 4/2), slightly decomposed plant material, black (10YR 2/1) moist; abrupt wavy boundary.

A—1 to 7 inches (2 to 18 cm); dark grayish brown (10YR 4/2) clay, black (10YR 2/1) moist; 42 percent clay; moderate medium prismatic and strong medium angular blocky structure; very hard, firm, very sticky, very plastic; common very fine roots throughout; very fine tubular pores; few faint slickensides; slightly acid, pH 6.6 by phenol red; diffuse wavy boundary.

Bss1—7 to 18 inches (18 to 45 cm); very dark grayish brown (10YR 3/2) clay, black (10YR 2/1) moist; 50 percent clay; moderate coarse prismatic structure; very hard, firm, very sticky, very plastic; common very fine roots throughout; common distinct slickensides; neutral, pH 6.8 by phenol red; clear wavy boundary.

Bss2—18 to 37 inches (45 to 95 cm); dark grayish brown (10YR 4/2) clay, black (10YR 2/1) moist; 60 percent clay; moist; massive; firm, very sticky, very plastic; common very fine roots throughout; common distinct slickensides; neutral, pH 7.0 by phenol red; diffuse wavy boundary.

Btk1—37 to 41 inches (95 to 105 cm); clay, 50 percent olive brown (2.5Y 4/3) and 50 percent very dark grayish brown (2.5Y 3/2) moist; 60 percent clay; massive; firm, very sticky, very plastic; distinct clay films on all faces of peds; 15 percent fine distinct irregular weakly cemented iron-manganese concretions in the matrix; 5 percent fine distinct irregular extremely weakly cemented white (2.5YR 8/1) carbonate masses in the matrix; slight effervescence; neutral, pH 7.2 by phenol red; clear wavy boundary.

Btk2—41 to 60 inches (105 to 152 cm); clay, 50 percent very dark grayish brown (2.5Y 3/2) and 50 percent olive brown (2.5Y 4/3) moist; 55 percent clay; massive; firm, very sticky, very plastic; 15 percent fine distinct irregular weakly cemented iron-manganese concretions in the matrix; 2 percent fine distinct irregular weakly cemented reddish gray (2.5YR 6/1) carbonate nodules in the matrix, 3 percent medium faint threadlike pale red (2.5YR 7/2) carbonate masses in the matrix, and 10 percent coarse prominent irregular white (10YR 8/1) carbonate masses in the matrix; strong effervescence; neutral, pH 7.2 by phenol red.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The particle-size control section averages more than 60 percent clay. Surface cracks are as much as 10 centimeters (4 inches) wide and 45 centimeters (18 inches) deep and are open 7 to 8 months or more each year.

The A horizon has dry color of 10YR 4/3, 4/2, 4/1, or 3/1. It has moist color of 10YR, 3/2, 2/2, or 2/1 or 2.5Y 4/3. Texture is loam, clay loam, or clay. The content of clay is 22 to 55 percent.

The Bss horizon has dry color of 10YR 4/3, 3/2, or 3/1. It has moist color of 10YR 4/2 or 2/1 or 2.5Y 3/3.

The Bt and Btk horizons (where present) have dry color of 10YR 3/2 or 3/1, 2.5Y 5/3 or 4/2, or 7.5YR 4/6. They have moist color of 10YR 2/1 or 2.5Y 5/3, 4/3, 3/2, or 3/1. Texture is sandy clay, silty clay, or clay.

The BC, C, and Ck horizons (where present) have dry color of 2.5Y 6/4, 5/6, 5/4, 5/3, or 4/2. They have moist color of 2.5Y 6/6, 5/4, 4/6, or 4/3. Texture is fine sandy loam, clay loam, silty clay loam, or clay. The content of clay is 18 to 55 percent.

The Btk and Ck horizons have 0 to 15 percent iron and manganese concentrations and 0 to 10 percent carbonate masses.

Ironshot Series

The Ironshot series consists of very deep, somewhat excessively drained soils that formed in sandy eolian material. These soils are on fluviomarine terraces. Slope ranges from 5 to 15 percent. The mean annual precipitation is about 26 inches (660 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Coarse-loamy, mixed, superactive, thermic Typic Haploxerolls

Typical pedon of Ironshot loam, in an area of Ironshot-Ahoy association, 2 to 15 percent slopes, on a southeast-facing slope of 31 percent, under a cover of buckwheat and wild oats, at an elevation of 466 feet (142 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 7 seconds north latitude and 120 degrees, 4 minutes, 45 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island, East.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A1—0 to 2 inches (0 to 6 cm); brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; 13 percent clay; moderate fine granular structure; slightly hard, very friable, nonsticky, nonplastic; 15 percent well rounded, very strongly cemented, 2- to 75-millimeter ironstone nodules; slightly acid, pH 6.6 by phenol red; abrupt smooth boundary.

A2—2 to 7 inches (6 to 18 cm); brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; 16 percent clay; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; 15 percent well rounded, very strongly cemented, 2- to 75-millimeter ironstone nodules; slightly acid, pH 6.5 by phenol red; clear smooth boundary.

Bw—7 to 14 inches (18 to 36 cm); yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; 14 percent clay; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; 15 percent well rounded, very strongly cemented, 2- to 75-millimeter ironstone nodules; neutral, pH 7.0 by phenol red; abrupt smooth boundary.

C1—14 to 20 inches (36 to 52 cm); very pale brown (10YR 7/3) fine sandy loam, pale brown (10YR 6/3) moist; 8 percent clay; massive; hard, very friable, nonsticky, nonplastic; 5 percent well rounded, very strongly cemented, 2- to 75-millimeter ironstone nodules; slightly alkaline, pH 7.4 by phenol red; clear wavy boundary.

2C2—20 to 31 inches (52 to 79 cm); very pale brown (10YR 7/3) loamy fine sand, pale brown (10YR 6/3) moist; 6 percent clay; massive; slightly hard, very friable, nonsticky, nonplastic; slightly alkaline, pH 7.4 by phenol red; gradual wavy boundary.

3C3—31 to 66 inches (79 to 167 cm); light gray (10YR 7/2) loamy fine sand, light brownish gray (10YR 6/2) moist; 4 percent clay; single grain; loose, nonsticky, nonplastic; slightly alkaline, pH 7.4 by phenol red.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The content of organic matter is 1 to 2 percent to a depth of at least 7 inches (18 centimeters).

The A horizon has dry color of 10YR 5/3 or 4/2 and moist color of 10YR 3/3 or 2/2.

The Bw horizon has dry color of 10YR 5/4 or 5/3. It has moist color of 10YR 4/4 or 3/3. Texture is loamy sand, loamy fine sand, or fine sandy loam. The content of clay is 4 to 16 percent. Fine sand always averages more than 50 percent of the fine-earth fraction.

The C, 2C, and 3C horizons have dry color of 10YR 7/2, 7/3, or 6/2. They have moist color of 10YR 6/2, 6/3, 5/3, or 5/2. Texture is sand, fine sand, loamy fine sand, or sandy loam. The content of clay is 2 to 10 percent.

Lithic Argixerolls

Lithic Argixerolls consist of shallow, well drained soils that formed in sandstone residuum. These soils are on hills. Slope ranges from 15 to 35 percent. The mean annual precipitation is about 26 inches (660 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Lithic Argixerolls

Example of a pedon of Lithic Argixerolls loamy sand, in an area of Buoy-Lithic Argixerolls-Rock outcrop complex, 15 to 35 percent slopes, on a north-facing slope of 28 percent, under a cover of wild oats, at an elevation of 500 feet (152 meters); on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 58 minutes, 37 seconds north latitude and 120 degrees, 2 minutes, 14 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 0.5 inch, (0 to 1 cm); slightly decomposed plant material; abrupt wavy boundary.

A—0.5 to 1 inch (1 to 3 cm); grayish brown (10YR 5/2) loamy sand, dark brown (10YR 3/3) moist; 4 percent clay; moderate fine subangular blocky structure; soft, very friable, nonsticky, nonplastic; common fine and common very fine roots; common very fine tubular and common very fine interstitial pores; neutral, pH 6.6 by phenol red; abrupt wavy boundary.

Bt1—1 to 12 inches (3 to 30 cm); dark grayish brown (10YR 4/2) sandy loam, very dark brown (10YR 2/2) moist; 7 percent clay; moderate medium and fine subangular blocky structure; slightly hard, very friable, very sticky, slightly plastic; common very fine roots; common very fine tubular and common very fine interstitial pores; neutral, pH 6.6 by phenol red; clear wavy boundary.

2Bt2—12 to 16 inches (30 to 40 cm); dark grayish brown (10YR 4/2) clay loam, black (10YR 2/1) moist; 37 percent clay; strong fine subangular blocky structure; moderately hard, firm, moderately sticky, moderately plastic; common very fine tubular pores; patchy faint clay films on surfaces along root channels, on all faces of peds, and on surfaces along pores; neutral, pH 6.6 by phenol red; abrupt wavy boundary.

2R—16 inches to 26 inches (40 to 65 cm); indurated sandstone bedrock that is not fractured.

This pedon is representative but is not completely typical of the Lithic Argixerolls in this survey area because of the highly variable nature of these soils.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The depth to bedrock is 10 to 20 inches (25 to 50 centimeters). The content of organic matter is 1 to 4 percent to a depth of at least 20 inches (50 centimeters).

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The Bt and 2Bt horizons have dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. They have moist color of 10YR 4/2, 4/3, 3/3, 3/2, 2/1, or 2/2. The content of clay ranges from 4 to 20 percent in the Bt horizon and from 27 to 40 in the 2Bt horizon. Texture is sandy loam in the Bt horizon and clay loam in the 2Bt horizon.

A dry phase of Lithic Argixerolls occurs only on Santa Barbara Island, in areas where the mean annual precipitation is about 8 inches and the soils are shallow, formed in residuum from weathered basalt and volcanic breccia, and are moderately alkaline or strongly alkaline.

Lithic Haploxeralfs

Lithic Haploxeralfs consist of shallow, well drained soils that formed in sandstone residuum. These soils are on hills. Slope ranges from 15 to 50 percent. The mean annual precipitation is about 29 inches (737 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Loamy, mixed, superactive, thermic Lithic Haploxeralfs

Example of a pedon of Lithic Haploxeralfs loamy sand, in an area of Lithic Haploxeralfs, 15 to 50 percent slopes, on a north-facing slope of 27 percent, under a cover of corriopsis, at an elevation of 268 feet (82 meters); on Santa Miguel Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 4 minutes, 7.3 seconds north latitude and 120 degrees, 22 minutes, 3.0 seconds west longitude; NAD83; USGS quadrangle: Santa Miguel Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A—0 to 9 inches (0 to 24 cm); yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 3/4) moist; 3 percent clay; single grain; loose when dry and when moist, nonsticky and nonplastic when wet; many fine roots; 10 percent 2- to 75-millimeter pebbles; neutral, pH 6.8 by phenol red; clear wavy boundary.

Bt—9 to 15 inches (24 to 38 cm); dark grayish brown (10YR 4/2) gravelly sandy loam, very dark brown (10YR 2/2) moist; 14 percent clay; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; 5 percent faint clay films on all faces of peds; 15 percent 2- to 75-millimeter pebbles; neutral, pH 6.7 by phenol red; clear wavy boundary.

R—15 to 25 inches (38 to 63 cm); extremely rigid sandstone bedrock.

This pedon is representative but is not completely typical of the Lithic Haploxeralfs in this survey area because of the highly variable nature of these soils.

The depth to bedrock is 10 to 20 inches (25 to 50 centimeters). The mean annual soil temperature is 59 to 64 degrees F (16 to 19 degrees C).

The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year.

The A horizon has dry color of 10YR 5/4. It has moist color of 10YR 3/4.

The Bt horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2. The content of clay ranges from 12 to 20 percent.

These soils are too highly variable to be mapped at the series level.

Livigne Series

The Livigne series consists of shallow, well drained soils that formed in material weathered from diorite and gabbro. These soils are on hills. Slope ranges from 30 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 66 degrees F (19 degrees C).

Taxonomic classification: Loamy, mixed, superactive, thermic, shallow Typic Argixerolls

Typical pedon of Livigne loam, in the area of Livigne-Macool-Rock outcrop association, 30 to 70 percent slopes, on a north-facing slope of 55 percent, under a cover of star thistle, needlegrass, and wild oats, at an elevation of 610 feet (186 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 58 minutes, 49 seconds north latitude and 119 degrees, 45 minutes, 46 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A—0 to 2 inches (0 to 4 cm); grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; 26 percent clay; moderate thin platy structure parting to weak fine subangular blocky; slightly hard, very friable, slightly sticky, slightly plastic; common very fine roots; common very fine tubular pores; 5 percent 2- to 75-millimeter pebbles; neutral, pH 6.7; clear smooth boundary.

Bt—2 to 6 inches (4 to 16 cm); grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; 41 percent clay; moderate medium subangular blocky structure; moderately hard, firm, moderately sticky, moderately plastic; continuous distinct clay films on all faces of peds; common very fine roots; common very fine tubular pores; 5 percent 2- to 75-millimeter pebbles; neutral, pH 6.8; abrupt wavy boundary.

BC—6 to 18 inches (16 to 45 cm); light gray (5Y 7/2) loam, olive (5Y 5/3) moist; 25 percent clay; weak fine subangular blocky structure; hard, very friable, slightly sticky, slightly plastic; common very fine tubular pores; 5 percent 2- to 75-millimeter pebbles; neutral, pH 6.7; abrupt wavy boundary.

Cr—18 to 21 inches (45 to 54 cm); highly weathered, easily diggable diorite and gabbro.

The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The depth to bedrock is 10 to 20 inches (25 to 51 centimeters). The particle-size control section averages 25 to 35 percent clay and 0 to 15 percent rock fragments.

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The Bt horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2. The content of clay ranges from 20 to 50 percent. Texture is loam, clay loam, or clay.

The BC horizon has dry color of 5Y 7/2, 6/2, 5/2, 7/3, 6/3, or 5/3. It has moist color of 5Y 6/2, 6/3, 5/3, 5/2, or 4/2.

Lodestone Series

The Lodestone series consists of moderately deep, moderately well drained soils that formed in material weathered from calcareous shale and limestone. These soils are on hills. Slope ranges from 20 to 65 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Fine, smectitic, thermic Aridic Calcixererts

Typical pedon of the Lodestone clay, in an area of Lodestone-Ballast-Halyard complex, 20 to 55 percent slopes, on a southwest-facing slope of 20 percent, under a cover of mustard, wild oats, and star thistle, at an elevation of 350 feet (107 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34

degrees, 2 minutes, 50 seconds north latitude and 119 degrees, 35 minutes, 8 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was moist at a depth of 38 cm. (Colors are for dry soil unless otherwise noted.)

A—0 to 8 inches (0 to 20 cm); very dark gray (10YR 3/1) clay loam, very dark brown (10YR 2/2) moist; strong medium subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common very fine roots; common very fine tubular pores; slightly alkaline, pH 7.5 by phenol red; clear smooth boundary.

Bss—8 to 24 inches (20 to 60 cm); dark grayish brown (10YR 4/2) clay, very dark grayish brown (10YR 3/2) moist; strong medium and coarse subangular blocky structure; very hard, very firm, very sticky, very plastic; common very fine roots; common very fine tubular pores; distinct pressure faces and slickensides; slight effervescence, by HCl, 1 normal; slightly alkaline, pH 7.6 by phenol red; clear wavy boundary.

Bkss—24 to 30 inches (60 to 75 cm); very dark gray (10YR 3/1) clay, very dark brown (10YR 2/2) moist; strong very coarse and coarse prismatic structure; very hard, very firm, moderately sticky, moderately plastic; common very fine roots; common very fine tubular pores; distinct pressure faces and slickensides; strong effervescence, by HCl, 1 normal; calcium carbonate equivalent of 29 percent; dark yellowish brown (10YR 4/4) and 45 percent yellowish brown (10YR 5/6) redoximorphic accumulations of iron; moderately alkaline, pH 8.2 by phenol red; clear wavy boundary.

R—30 to 31 inches (75 to 76 cm); limestone; violent effervescence, by HCl, 1 normal.

The mean annual soil temperature at a depth of 20 inches ranges from 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The particle-size control section averages 40 to 60 percent clay. Reaction is slightly alkaline to strongly alkaline. The depth to carbonates ranges from 8 to 40 inches (20 to 102 centimeters). The depth to bedrock is 22 to 35 inches (55 to 90 cm). Cracks wider than 5 mm extend from the surface to a depth of 20 inches (50 cm). The cracks close sometime in the period December to March. They are closed for 60 to 90 consecutive days.

The A horizon has dry color of 10YR 5/2, 4/2, or 3/1. It has moist color of 10YR 2/2 or 2/1. Effervescence is none or slight. The content of clay ranges from 35 to 55 percent.

The Bkss1 and Bss1 horizons have dry color of 10YR 4/2, 3/1, or 2/1 or 2.5Y 6/4, 4/6, or 4/4. They have moist color of 10YR 5/6, 4/3, 3/2, 2/2, or 2/1 or 2.5Y 4/3, 3/4, or 2/2. Effervescence is none to violent, increasing with increasing depth. The content of clay ranges from 45 to 65 percent.

The Bkss2 and/or Bss2 horizons (where present) have dry color of 10YR 4/2, 3/2, 3/1, or 2/2 or 2.5YR 5/2 or 4/4. They have moist color of 10YR 8/3 or 2/1 or 2.YR 3/2 or 2/2. Effervescence is slight, strong, or violent. The content of clay ranges from 40 to 55 percent.

The Bk and Btk horizons (where present) have dry color 10YR 8/2, 7/4, 7/2, or 6/4 or 2.5Y 8/2 or 5/2. They have moist color of 10YR 8/1, 6/8, 5/6, or 5/4 or 2.5Y 6/4, 5/6, or 5/2. Effervescence is strong or violent. The content of clay ranges from 35 to 60 percent.

The R horizon is violently effervescent limestone (marl) or calcareous shale. It is brittle and fractured.

A very deep phase of the Lodestone series occurs on Santa Rosa Island. It does not have bedrock within a depth of 60 inches (152 centimeters).

Lospinos Series

The Lospinos series consists of moderately deep, moderately well drained soils that formed in shale residuum derived from uplifted marine deposits. These soils are on hills. Slope ranges from 2 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 66 degrees F (19 degrees C).

Taxonomic classification: Loamy-skeletal, mixed, superactive, thermic Pachic Argixerolls

Typical pedon of Lospinos gravelly loam, on a slope of 9 percent, under a cover of fennel, annual grasses, and buckwheat, at an elevation of 1,353 feet (412 meters); on the Isthmus of Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 51 seconds north latitude and 119 degrees, 39 minutes, 59 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was moist throughout. (Colors are for dry soil unless otherwise noted.)

A—0 to 6 inches (0 to 16 cm); dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; 12 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; common fine and very fine roots; 15 percent 2- to 75-millimeter pebbles; slightly acid, pH 6.5; clear smooth boundary.

Bt1—6 to 15 inches (16 to 38 cm); brown (7.5YR 5/2) very gravelly loam, dark brown (7.5YR 3/2) moist; 20 percent clay; moderate medium and coarse subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; common fine and very fine roots; thin continuous prominent clay films on faces of peds and rock fragments; 35 percent 2- to 75-millimeter pebbles; moderately acid, pH 6.0; gradual wavy boundary.

Bt2—15 to 20 inches (38 to 52 cm); brown (7.5YR 5/2) very gravelly clay loam, dark brown (7.5YR 3/2) moist; 33 percent clay; moderate medium and coarse subangular blocky structure; slightly hard, very friable, moderately sticky, moderately plastic; common fine and very fine roots; thin continuous prominent clay films on faces of peds and rock fragments; 45 percent 2- to 75-millimeter pebbles; moderately acid, pH 6.0; gradual wavy boundary.

Bt3—20 to 24 inches (52 to 61 cm); mixed matrix 90 percent brown (7.5YR 5/3) very gravelly loam, dark brown (7.5YR 3/3) moist, and 10 percent yellowish brown (10YR 5/6) very gravelly loam, dark yellowish brown (10YR 4/6) moist; 25 percent clay; weak medium subangular blocky structure; slightly hard, very friable, moderately sticky, moderately plastic; common fine and common very fine roots; thin continuous prominent clay films on faces of peds and rock fragments; 20 percent 75- to 250-millimeter cobbles and 35 percent 2- to 75-millimeter pebbles; strongly acid, pH 5.5; gradual wavy boundary.

Crt—24 to 31 inches (61 to 79 cm); highly fractured shale; fractures 2 to 8 centimeters apart; few very fine roots; continuous prominent clay films on rock fragments.

The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The depth to bedrock is 21 to 40 inches (53 to 100 centimeters). The particle-size control section averages 18 to 35 percent clay and 35 to 80 percent rock fragments. The content of organic matter is 1 to 4 percent to a depth of at least 20 inches (50 centimeters).

The A horizon has dry color of 10YR 4/2, 4/1, 3/2, or 2/2. It has moist color of 10YR 3/1, 2/2, or 2/1.

The Bt horizon has dry color of 10YR or 7.5YR 5/2, 5/3, or 4/2. It has moist color of 10YR or 7.5YR 4/3, 3/3, 3/2, 3/1, or 2/2. Texture is dominantly very gravelly loam or very gravelly clay loam, but some pedons it is extremely gravelly loam. The content of gravel ranges from 35 to 80 percent, and the content of cobbles ranges from 0 to 30 percent.

Macool Series

The Macool series consists of deep, moderately well drained soils that formed in material weathered from diorite and gabbro (fig. 26). These soils are on hills. Slope ranges from 30 to 70 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 57 degrees F (14 degrees C).

Taxonomic classification: Fine, smectitic, mesic Typic Argixerolls

Typical pedon of Macool loam, in an area of Livigne-Macool-Rock outcrop complex, 30 to 70 percent slopes, on a north-facing slope of 48 percent, under a cover of scrub oak and ceonothus, at an elevation of 680 feet (207 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 49 seconds north latitude and 119 degrees, 45 minutes, 46 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted).

Oi—0 to 1 inch (0 to 2 cm); slightly decomposed oak and ceonothus leaves; abrupt smooth boundary.

A1—1 to 2 inches (2 to 5 cm); very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; 5 percent 2- to 75-millimeter pebbles; neutral, pH 6.6 by pH meter; clear smooth boundary.

A2—2 to 6 inches (5 to 14 cm); grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; 5 percent 2- to 75-millimeter pebbles; neutral, pH 7.0 by pH meter; abrupt broken boundary.

A3—6 to 12 inches (14 to 31 cm); very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; strong medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky, slightly plastic; 5 percent 2- to 75-millimeter pebbles; neutral, pH 7.1 by pH meter; clear wavy boundary.

Bw—12 to 17 inches (31 to 42 cm); brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; strong medium and coarse subangular blocky structure; hard, friable, moderately sticky, slightly plastic; 10 percent 2- to 75-millimeter pebbles; neutral, pH 6.8 by pH meter; clear wavy boundary.

Bt1—17 to 28 inches (42 to 71 cm); 30 percent dark grayish brown (10YR 4/2) and 70 percent yellowish brown (10YR 5/4) clay, 30 percent very dark grayish brown (10YR 3/2) and 70 percent dark yellowish brown (10YR 4/4) moist; strong medium and coarse subangular blocky structure; very hard, firm, very sticky, moderately plastic; thin patchy clay films on faces of peds; 10 percent 2- to 75-millimeter pebbles; neutral, pH 6.8 by pH meter; clear wavy boundary.

Bt2—28 to 30 inches (71 to 77 cm); 30 percent yellowish brown (10YR 5/4) and 70 percent dark grayish brown (10YR 4/2) clay, 30 percent dark yellowish brown (10YR 4/4) and 70 percent very dark grayish brown (10YR 3/2) moist; strong medium and coarse subangular blocky structure; hard, firm, moderately sticky, moderately plastic; thin patchy clay films on faces of peds; 10 percent 2- to 75-millimeter pebbles; neutral, pH 6.8 by pH meter; clear wavy boundary.

Figure 26.—Profile of Mcool soils, which formed in material weathered from diorite and gabbro.

Bt3—30 to 38 inches (77 to 97 cm); yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium and coarse subangular blocky structure; hard, firm, moderately sticky, moderately plastic; thin patchy clay films on faces of peds; 10 percent 2- to 75-millimeter pebbles; neutral, pH 6.6 by pH meter; clear wavy boundary.

BC—38 to 50 inches (97 to 127 cm); light reddish brown (2.5YR 6/3) clay loam, reddish brown (2.5YR 5/3) moist; massive; slightly hard, friable, slightly sticky, slightly plastic; 10 percent 2- to 75-millimeter pebbles; neutral, pH 6.6 by pH meter; gradual wavy boundary.

Cr—50 to 52 inches (127 to 132 cm); soft, highly weathered, easily diggable diorite.

The mean annual soil temperature is 54 to 59 degrees F (12 to 15 degrees C). The soil moisture control section is dry in all parts from about mid-September to mid-November (about 60 days) and is usually moist the rest of the year. The depth to bedrock is 40 to 50 inches (101 to 127 centimeters). The particle-size control section averages 40 to 60 percent clay and 0 to 15 percent rock fragments. The content of organic matter is 1 to 4 percent to a depth of at least 20 inches (50 centimeters).

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The Bt horizon has dry color of 10YR 5/2, 5/3, 5/4, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 4/4, 3/3, 3/2, or 2/2. The content of clay ranges from 27 to 60 percent. Texture is clay loam or clay.

Some pedons do not have a BC horizon.

Miasotus Series

The Miasotus series consists of shallow, well drained soils that formed in material weathered from schist. These soils are on hills. Slope ranges from 30 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 57 degrees (14 degrees C).

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic, shallow Typic Haploxeralfs

Typical pedon of Miasotus sandy loam, in an area of Miasotus-Yardarm association, 30 to 75 percent slopes, on a north-facing slope of 46 percent, in an oak woodland, at an elevation of 890 feet (271 meters), directly north of an abandoned road off South Ridge Road; on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 11 seconds north latitude and 119 degrees, 45 minutes, 29 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oe—0 to 1 inch (0 to 3 cm); moderately decomposed oak litter; clear smooth boundary.

A—1 to 3 inches (3 to 8 cm); brown (7.5YR 4/3) sandy loam, dark brown (7.5YR 3/3) moist; 7 percent clay; weak fine and medium granular structure; slightly hard, very friable, nonsticky, nonplastic; common fine and very fine roots; 4 percent 5- to 75-millimeter and 8 percent 2- to 5-millimeter pebbles; slightly acid, pH 6.2 by phenol red; clear smooth boundary.

Bt1—3 to 6 inches (8 to 15 cm); brown (7.5YR 4/3) and reddish brown (5YR 4/4) loam, dark brown (7.5YR 3/3) and reddish brown (5YR 4/4) moist; 10 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; common fine and very fine roots; common continuous distinct clay films; 7 percent 2- to 5-millimeter and 8 percent 5- to 75-millimeter pebbles; moderately acid, pH 6.0 by phenol red; clear wavy boundary.

Bt2—6 to 9 inches (15 to 24 cm); yellowish red (5YR 4/6) very gravelly clay loam, yellowish red (5YR 4/6) moist; 33 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky, moderately plastic; common fine and very fine roots; many continuous distinct clay films; 15 percent 2- to 5-millimeter and 35 percent 5- to 75-millimeter pebbles; moderately acid, pH 6.1 by phenol red; gradual wavy boundary.

Bt3—9 to 15 inches (24 to 38 cm); yellowish red (5YR 4/6) very gravelly clay loam, red (2.5YR 4/6) moist; 37 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky, moderately plastic;

common very fine to coarse roots; many continuous distinct clay films; 15 percent 2- to 5-millimeter and 40 percent 5- to 75-millimeter pebbles; slightly acid, pH 6.5 by phenol red; gradual wavy boundary.

Cr—15 to 21 inches (38 to 53 cm); highly fractured, easily diggable schist; fractures 2 to 8 centimeters apart.

R—21 inches (53 cm); very rigid schist.

The mean annual soil temperature is 54 to 59 degrees F (12 to 15 degrees C). The soil moisture control section is dry in all parts from about mid-September to mid-November (about 90 days) and is usually moist the rest of the year. The depth to bedrock is 10 to 20 inches (25 to 50 centimeters). The particle-size control section averages 18 to 35 percent clay and 35 to 65 percent rock fragments.

The A horizon has dry color of 7.5YR or 5YR 5/3, 5/2, 4/3, or 4/4. It has moist color of 7.5YR or 5YR 3/3, 3/4, 4/3, or 4/4.

The Bt horizon has dry color of 7.5YR, 5YR, or 2.5YR 5/4, 5/6, 4/3, 4/4, or 4/6. It has moist color of 7.5YR or 5YR 3/6, 3/4, 4/6, or 4/4

Pachic Argixerolls

Pachic Argixerolls consist of deep, well drained soils that formed in material weathered from andesite, basalt, dacite, and volcanic breccia. These soils are on mountains. Slope ranges from 30 to 75 percent. The mean annual precipitation is about 457 millimeters (18 inches), and the mean annual air temperature is about 57 degrees F (14 degrees C).

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Pachic Argixerolls

Example of a pedon of Pachic Argixerolls, in the area of Starboard-Pachic Argixerolls-Rock outcrop complex, 30 to 75 percent slopes, on a northeast-facing slope of 75 percent, in an oak woodland, at an elevation of 370 feet (112 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 18 seconds north latitude and 119 degrees, 42 minutes, 0 seconds west longitude; USGS quadrangle: Santa Cruz Island C.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 4 inches (0 to 10 cm); slightly decomposed oak and ceanothis litter.

A1—4 to 12 inches (10 to 30 cm); dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; 9 percent clay; moderate fine subangular blocky structure; soft, very friable, nonsticky, nonplastic; 25 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.6 by phenol red; clear wavy boundary.

A2—12 to 20 inches (30 to 50 cm); dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; 13 percent clay; strong medium subangular blocky structure; soft, very friable, slightly sticky, slightly plastic; 1 percent 75- to 250-millimeter cobbles and 5 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.4 by phenol red; gradual wavy boundary.

Bt—20 to 41 inches (50 to 105 cm); dark yellowish brown (10YR 4/4) very gravelly clay loam, very dark brown (7.5YR 2.5/2) moist; 28 percent clay; weak fine subangular blocky structure; slightly hard, very friable, moderately sticky, moderately plastic; 10 percent discontinuous faint clay films on all faces of peds; 5 percent 75- to 250-millimeter cobbles and 55 percent 2- to 75-millimeter pebbles; neutral, pH 7.2 by phenol red; gradual wavy boundary.

Cr—41 to 42 inches (105 to 107 cm); rigid and very fractured volcanic rock; fractures 4 to 8 centimeters apart.

This pedon is representative but is not completely typical of the Pachic Argixerolls in this survey area because of the highly variable nature of these soils.

The depth to bedrock is 40 to 60 inches (102 to 152 cm). The mean annual soil temperature is 56 to 61 degrees F (13 to 16 degrees C). The soil moisture control section is dry in all parts from about mid-September to mid-November (about 60 days) and is usually moist the rest of the year. Reaction is neutral or slightly alkaline. The particle-size control section averages 18 to 35 percent clay and 35 to 65 percent rock fragments. The content of organic matter is 1 to 4 percent to a depth of at least 20 inches (50 centimeters).

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The Bt horizon has dry color of 10YR or 7.5YR 5/2, 5/3, 4/2, 4/3, 4/4, 3/3, or 3/2. It has moist color of 10YR or 7.5YR 4/2, 4/3, 3/3, 3/2, 2.5/2, or 2/2. Texture is very gravelly loam or very gravelly clay loam.

Pachic Haploxerolls

Pachic Haploxerolls consist of very deep, well drained soils that formed in alluvium derived from sandstone. These soils are on fluviomarine terraces. Slope ranges from 0 to 9 percent. The mean annual precipitation is about 26 inches (660 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, thermic Pachic Haploxerolls

Example of a pedon of Pachic Haploxerolls loam, in an area of Pachic Haploxerolls, 0 to 4 percent slopes, on a slope of 1 percent, under a cover of coastal sage and wild oats, at an elevation of 80 feet (24 meters); on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 36 seconds north latitude and 120 degrees, 3 minutes, 12 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A1—0 to 2 inches (0 to 4 cm); brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; 12 percent clay; moderate fine granular structure; slightly hard, very friable, nonsticky, nonplastic; slightly acid, pH 6.6 by phenol red; abrupt smooth boundary.

A2—2 to 20 inches (4 to 52 cm); brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; 12 percent clay; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; slightly acid, pH 6.5 by phenol red; clear wavy boundary.

C1—20 to 33 inches (52 to 85 cm); light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; 4 percent clay; moderate fine subangular blocky structure; very hard, very friable, nonsticky, nonplastic; neutral, pH 7.0 by phenol red; clear wavy boundary.

2C2—33 to 41 inches (85 to 103 cm); brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; 12 percent clay; massive; slightly hard, very friable, nonsticky, nonplastic; neutral, pH 7.0 by phenol red; clear wavy boundary.

3C3—41 to 63 inches (103 to 160 cm); light brownish gray (10YR 6/2), stratified gravelly sand, dark grayish brown (10YR 4/2) moist; 2 percent clay; massive; loose, nonsticky, nonplastic; 25 percent 2- to 75-millimeter pebbles; neutral, pH 7.0 by phenol red.

This pedon is representative but is not completely typical of the Pachic Haploxerolls in this survey area because of the highly variable nature of these soils.

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The content of organic matter is 1 to 4 percent to a depth of at least 20 inches (50 centimeters).

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The C, 2C, and 3C horizons have dry color of 10YR 6/2, 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. They have moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

These soils are too highly variable to be mapped at the series level.

Petrocalcic Palexeralfs

Petrocalcic Palexeralfs consist of moderately deep, well drained soils that formed in sandstone residuum. These soils are on marine terraces. Slope ranges from 5 to 15 percent. The mean annual precipitation is about 29 inches (737 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Clayey, smectitic, thermic, shallow Petrocalcic Palexeralfs

Example of a pedon of Petrocalcic Palexeralfs very fine sandy loam, in an area of Petrocalcic Palexeralfs, 5 to 15 percent slopes, on a south-facing slope of 14 percent, under a cover of wild oats, at an elevation of 50 feet (15 meters); on Santa Miguel Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 1 minute, 19 seconds north latitude and 120 degrees, 19 minutes, 58 seconds west longitude; NAD83; USGS quadrangle: Santa Miguel Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A—0 to 0.5 inch (0 to 1 cm); light gray (10YR 7/2) very fine sandy loam, light brownish gray (10YR 6/2) moist; 18 percent clay; weak medium subangular blocky structure; loose when dry and when moist, nonsticky and nonplastic when wet; many fine roots; violent effervescence, by HCl, 1 normal; slightly alkaline, pH 7.4 by phenol red; abrupt smooth boundary.

2Bt1—0.5 inch to 4 inches (1 to 10 cm); dark grayish brown (10YR 4/2) clay, very dark grayish brown (10YR 3/2) moist; 43 percent clay; moderate medium subangular blocky structure; hard, friable, moderately sticky, very plastic; violent effervescence, by HCl, 1 normal; slightly alkaline, pH 7.6 by phenol red; abrupt smooth boundary.

2Bt2—4 to 11 inches (10 to 29 cm); dark grayish brown (10YR 4/2) clay, very dark grayish brown (10YR 3/2) moist; 50 percent clay; moderate medium subangular blocky structure; hard, friable, moderately sticky, very plastic; violent effervescence, by HCl, 1 normal; slightly alkaline, pH 7.8 by phenol red; abrupt wavy boundary.

2Bkm1—11 to 31 inches (29 to 80 cm); very hard, very firm, very strongly cemented, light gray (10YR 7/2) petrocalcic material, light brownish gray (10YR 6/2) moist; brittle; violent effervescence, by HCl, 1 normal; clear wavy boundary.

2Bkm2—31 to 60 inches (80 to 152 cm); moderately cemented, light gray (10YR 7/2) petrocalcic material, light brownish gray (10YR 6/2) moist; firm; violent effervescence, by HCl, 1 normal.

This pedon is representative but is not completely typical of the Petrocalcic Palexeralfs in this survey area because of the highly variable nature of these soils.

The depth to a petrocalcic layer is 10 to 20 inches (25 to 50 centimeters). The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The particle-size control section averages 40 to 60 percent clay.

The A horizon has dry color of 10YR 7/2. It has moist color of 10YR 6/2.

The Bt horizon has dry color of 10YR 4/2. It has moist color of 10YR 3/2. The content of clay ranges from 40 to 60 percent

These soils are too highly variable to be mapped at the series level.

Rudder Series

The Rudder series consists of moderately deep, well drained soils that formed in material weathered from breccia, andesite, and basalt. These soils are on the side slopes of mountains (fig. 27). Slope ranges from 30 to 75 percent. The mean annual precipitation is about 457 millimeters (18 inches), and the mean annual air temperature is about 14 degrees C (57 degrees F).

Taxonomic classification: Coarse-loamy, mixed, superactive, isomesic Typic Haploxerepts

Typical pedon of Rudder gravelly sandy loam, in the area of Rudder-Spinnaker, moist-Rock outcrop complex, on a north-facing slope of 57 percent, under a cover of Bishop pine, at an elevation of 950 feet (290 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 1 second north latitude and 119 degrees, 49 minutes, 18 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 2 inches (0 to 5 cm); slightly decomposed pine needles and sticks; abrupt smooth boundary.

Oe—2 to 4 inches (5 to 9 cm); moderately decomposed pine needles; abrupt smooth boundary.

A1—4 to 8 inches (9 to 20 cm); grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky; 1 percent 75- to 250-millimeter cobbles and 25 percent 2- to 75-millimeter pebbles; extremely acid (pH 4.6); clear wavy boundary.

A2—8 to 22 inches (20 to 55 cm); light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky; 1 percent 75- to 250-millimeter cobbles and 25 percent 2- to 75-millimeter pebbles; extremely acid (pH 4.6); clear wavy boundary.

Bw—22 to 28 inches (55 to 72 cm); light yellowish brown (10YR 6/4) gravelly sandy loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky; 1 percent 75- to 250-millimeter cobbles and 34 percent 2- to 75-millimeter pebbles; extremely acid (pH 4.6); abrupt wavy boundary.

Cr—28 to 32 inches (72 to 81 cm); rigid volcanic breccia with many fractures less than 2 to 8 centimeters apart; abrupt wavy boundary.

R—32 inches (81 to 82 cm); extremely rigid volcanic breccia with fractures more than 10 centimeters apart.

The soil moisture control section is dry in all parts from about mid-September to mid-November (about 90 days) and is usually moist the rest of the year. The mean

Figure 27.—An area of Rudder soils, which are on steep mountain slopes. These soils support pine trees.

annual soil temperature at a depth of 20 inches (50 centimeters) is between 12 and 15 degrees C (54 and 59 degrees F), and the difference between the mean summer temperature and the mean winter temperature is less than 6 degrees C. The depth to bedrock is 32 to 104 centimeters (13 to 41 inches). It is mainly 50 to 100 centimeters (20 to 40 inches). The particle-size control section averages 10 to 18 percent clay and 5 to 35 percent rock fragments.

The A horizon has dry color of 10YR 5/2, 6/2, or 6/3. It has moist color of 10YR 3/2, 4/2, or 4/3.

The Bw horizon has dry color of 10YR 6/3, 6/4, or 5/4. It has moist color of 10YR 5/3, 5/4, 4/3, or 4/4. Texture is gravelly sandy loam or gravelly coarse sandy loam. The horizon has very few or few clay films in some pedons. It is not an argillic horizon.

Spinnaker Series

The Spinnaker series consists of shallow, somewhat excessively drained soils that formed in colluvium and residuum derived from volcanic breccia, andesite, basalt, or dacite. These soils are on mountains and hills. Slope ranges from 15 to 100 percent. The mean annual precipitation is about 457 millimeters (18 inches), and the mean annual air temperature is about 19 degrees C (66 degrees F).

Taxonomic classification: Loamy, mixed, superactive, thermic Lithic Haploxerepts

Typical pedon of Spinnaker loam, on a southwest-facing slope of 45 percent, under a cover of sage, island buckwheat, and needlegrass, at an elevation of 1,625 feet (495 meters), about 1/4 mile west of the end of Centinela Road; on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 1 minute, 52 seconds north latitude and 119 degrees, 48 minutes, 53.7 seconds west longitude; NAD83. Quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 1 inch (0 to 2 cm); slightly decomposed plant material; 60 percent cover of island buckwheat leaves, needlegrass, and fuzzy moss.

A—1 to 2 inches (2 to 4 cm); dark yellowish brown (10YR 4/4) gravelly sandy loam, very dark brown (7.5YR 2.5/3) moist; 4 percent clay; weak very thin platy structure; soft, very friable, nonsticky, nonplastic; common very fine roots; common fine and common very fine interstitial pores; 1 percent 250- to 600-millimeter stones, 10 percent 75- to 250-millimeter cobbles, and 20 percent 2- to 75-millimeter pebbles; neutral, pH 7.2 by phenol red; abrupt wavy boundary.

Bw—2 to 10 inches (4 to 26 cm); brown (7.5YR 4/4) gravelly sandy loam, very dark brown (7.5YR 2.5/3) moist; 9 percent clay; moderate fine subangular blocky structure; soft, very friable, nonsticky, slightly plastic; few very fine roots; common fine and common very fine interstitial pores; 30 percent 2- to 75-millimeter pebbles; neutral, pH 7.0 by phenol red; clear wavy boundary.

Cr1—10 to 17 inches (26 to 42 cm); very soft, loose, highly fractured, very brittle andesite; fractures 2 to 8 centimeters apart.

Cr2—17 to 18 inches (42 to 45 cm); hard to soft, fractured andesite that can be broken apart with a knife and hammer but is difficult to dig with a shovel; fractures 4 to 8 centimeters apart.

R—18 to 19 inches (45 to 47 cm); rigid volcanic andesite.

The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The depth to paralithic material (where present) is 8 to 14 inches (20 to 35 centimeters). The depth to lithic contact is 6 to 18 inches (15 to 46 centimeters).The particle-size control section averages 4 to 18 percent clay and 5 to 35 percent rock fragments.

The A horizon has dry color of 10YR 6/2, 6/3, 5/4, or 4/4. It has moist color of 10YR 4/2, 4/3, 3/2, or 3/3 or 7.5YR 5/2, 3/3, or 2.5/3. Texture is sandy loam, gravelly sandy loam, loam, or gravelly loam.

The Bw horizon has dry color of 10YR 7/2, 6/3, or 5/4 or 7.5YR 4/4. It has moist color of 10YR 5/2, 4/3, or 3/4 or 7.5YR 5/2 or 2.5/3. Texture is sandy loam, gravelly sandy loam, loam, or gravelly loam.

Moist phases occur in areas of slightly higher precipitation.

Starboard Series

The Starboard series consists of moderately deep, well drained soils that formed in volcanic material weathered from basalt, andesite, breccia, and dacite. These soils are on the side slopes of mountains and hills. Slope ranges from 4 to 60 percent. The mean annual precipitation is about 457 millimeters (18 inches), and the mean annual air temperature is about 14 degrees C (57 degrees F).

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Pachic Argixerolls

Typical pedon of Starboard loamy sand, in an area of Spinnaker-Starboard-Rock outcrop association, 30 to 75 percent slopes, on a northwest-facing slope of 50 percent, under a cover of scrub oak and live oak, at an elevation of 1,680 feet (512 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 1 minute, 51.3 seconds north latitude and 119 degrees, 48 minutes, 14.2 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 1 inch (0 to 2 cm); slightly decomposed oak litter; abrupt smooth boundary.

Oe—1 to 4 inches (2 to 10 cm); moderately decomposed oak litter; abrupt wavy boundary.

A1—4 to 7 inches (10 to 18 cm); very dark grayish brown (10YR 3/2) loamy sand, very dark brown (7.5YR 2.5/2) moist; 2 percent clay; moderate fine subangular blocky structure; soft, very friable, nonsticky, nonplastic; common fine and common very fine roots; 5 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.4 by phenol red; abrupt wavy boundary.

A2—7 to 12 inches (18 to 30 cm); dark brown (7.5YR 3/2) loam, very dark brown (10YR 2/2) moist; 12 percent clay; moderate coarse and medium subangular blocky structure; soft, very friable, slightly sticky, slightly plastic; common fine and common very fine roots; 5 percent 2- to 75-millimeter pebbles; neutral, pH 6.8 by phenol red; clear wavy boundary.

Bt1—12 to 20 inches (30 to 50 cm); brown (7.5YR 4/3) clay loam, very dark brown (7.5YR 2.5/2) moist; 31 percent clay; moderate medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky, moderately plastic; continuous faint clay films on all faces of peds; common fine and common very fine roots; distinct continuous clay films on all faces of peds; 5 percent 2- to 75-millimeter pebbles; slightly acid, pH 6.6 by chlorophenol red; clear wavy boundary.

Bt2—20 to 30 inches (50 to 75 cm); brown (7.5YR 4/3) clay loam, very dark brown (7.5YR 2.5/2) moist; 29 percent clay; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky, moderately plastic; continuous distinct clay bridges between sand grains and continuous distinct silt coatings on rock fragments and on all faces of peds; common fine and common very fine roots; 10 percent 2- to 75-millimeter pebbles; slightly acid, pH 6.4 by chlorophenol red; clear wavy boundary.

Bt3—30 to 35 inches (75 to 90 cm); brown (7.5YR 5/3) gravelly loam, dark brown (7.5YR 3/3) moist; 25 percent clay; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky, moderately plastic; continuous distinct clay bridges between sand grains and continuous distinct silt coatings on rock fragments and on all faces of peds; common fine and common very fine roots; 4 percent 75- to 250-millimeter cobbles, 10 percent 2- to 75-millimeter pebbles, and

10 percent weakly cemented 2- to 75-millimeter paragravel; slightly acid, pH 6.6 by chlorophenol red; abrupt irregular boundary.
Cr—35 to 40 inches (90 to 102 cm); brittle and slightly rigid dacite with fractures less than 10 centimeters apart.

The mean annual soil temperature is 54 to 59 degrees F (12 to 15 degrees C). The soil moisture control section is dry in all parts from about mid-September to mid-November (about 60 days) and is usually moist the rest of the year. The depth to bedrock is 20 to 43 inches (50 to 107 centimeters). It is mainly 20 to 40 inches (50 to 100 cm). The particle-size control section averages 18 to 35 percent clay and 0 to 30 percent rock fragments.

The A horizon has dry color of 10YR or 7.5YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR or 7.5YR 4/2, 4/3, 3/3, 3/2, or 2/2. It is gravelly or nongravelly.

The Bt horizon has dry color of 10YR or 7.5YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR or 7.5YR 4/2, 4/3, 3/3, 3/2, 2.5/2, or 2/2.

Tongva Series

The Tongva series consists of well drained soils that formed in andesite and basalt residuum. These soils are moderately deep to soft bedrock. They are on hills. Slopes are 15 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 66 degrees F (19 degrees C).

Taxonomic classification: Fine-loamy, mixed, superactive, thermic Pachic Argixerolls

Typical pedon of Tongva loam, in an area of Halyard-Topdeck-Tongva association, 15 to 75 percent slopes, on a slope of 60 percent, on the side of a hill, at an elevation of 600 feet (183 meters), about 300 yards north of the UCSB research station; on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 59.7 seconds north latitude and 119 degrees, 43 minutes, 24.9 seconds west longitude; NAD 83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oe—0 to 2 inches (0 to 5 centimeters); oak leaves and dead grass.
A—2 to 4 inches (5 to 10 centimeters); very dark gray (10YR 3/1) loam, black (10YR 2/1) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky, nonplastic; few very fine roots; few interstitial pores; 5 percent gravel; neutral, pH 6.6); clear smooth boundary.
Bt1—4 to 15 inches (10 to 36 centimeters); dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; common very fine to very coarse roots; common very fine to medium tubular pores; common very thin clay films on faces of peds and lining pores; 5 percent gravel; neutral, pH 6.7; clear wavy boundary.
Bt2—15 to 30 inches (36 to 75 centimeters); brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; common very fine to very coarse roots; common very fine to medium tubular pores; common very thin clay films on faces of peds and lining pores; 5 percent gravel; neutral, pH 6.8; abrupt smooth boundary.
Crt—30 to 52 inches (75 to 130 centimeters); highly fractured and weathered andesite that can be easily dug with a spade and auger; breaks out as very fine

very weak angular blocky pieces; few very coarse roots; many very thin clay films on soft rock pieces.

The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soils are moist from mid or late November to late June or early July. The depth to paralithic bedrock is 20 to 40 inches (50 to 100 centimeters). The content of organic matter is 2 to 4 percent.

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/2, or 3/1 or 7.5YR 4/4. It has moist color of 10YR 3/3, 3/2, 2/2, or 2/1 or 7.5YR 3/2. The content of clay is 12 to 27 percent. The content of rock fragments generally is 5 to 15 percent, but in some pedons it is 15 to 30 percent in the lower part of the horizon.

The Bt horizon has dry color of 10YR 5/2, 5/3, 4/2, or 4/3 or 7.5YR 5/2. It has moist color of 10YR 3/3, 3/2, or 2/2 or 7.5YR 3/2 or 3/3. Texture is clay loam, loam, gravelly loam, or gravelly clay loam. The content of clay is 18 to 35 percent. The content of rock fragments, dominantly gravel, is 5 to 30 percent.

Topdeck Series

The Topdeck series consists of shallow, well drained soils that formed in colluvium and residuum derived from basalt, breccia, and andesite. These soils are on the side slopes of hills and mountains. Slope ranges from 2 to 100 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 66 degrees F (19 degrees C).

Taxonomic classification: Loamy, mixed, superactive, thermic Lithic Argixerolls

Typical pedon of Topdeck gravelly loam, in an area of Topdeck-Spinnaker-Tongva complex, 30 to 75 percent slopes, on a southwest-facing slope of 50 percent, under a cover of sage, island buckwheat, and needlegrass, at an elevation of 460 feet (140 meters); 200 feet north and upslope of the airfield, across from the windsock on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 24 seconds north latitude and 119 degrees, 40 minutes, 49 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 0.5 inch (0 to 1 cm); slightly decomposed island buckwheat leaves and needlegrass covering 60 percent of the surface; abrupt broken boundary.

A—0.5 inch to 6 inches (1 to 16 cm); dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; 10 percent clay; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky, slightly plastic; 5 percent 75- to 250-millimeter cobbles and 10 percent 2- to 75-millimeter pebbles; neutral, pH 7.2 by phenol red; clear wavy boundary.

Bt1—6 to 12 inches (16 to 30 cm); dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; 25 percent clay; strong fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; many fine and many very fine roots between peds; continuous faint clay films on all faces of peds; 1 percent 75- to 250-millimeter cobbles and 20 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.4 by phenol red; clear wavy boundary.

Bt2—12 to 18 inches (30 to 45 cm); very dark grayish brown (10YR 3/2) gravelly clay loam, very dark brown (10YR 2/2) moist; 38 percent clay; strong fine subangular blocky structure; moderately hard, very friable, slightly sticky, moderately plastic; many fine and many very fine roots between peds; continuous distinct clay films on all faces of peds; 30 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.4 by phenol red; abrupt smooth boundary.

R—18 inches (45 cm); very rigid volcanic rock.

The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soils are dry from mid-June through mid-November. The depth to lithic bedrock is 10 to 20 inches (25 to 50 centimeters). The content of organic matter is 1 to 2 percent throughout the profile. It decreases with increasing depth.

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/2, or 3/1 or 7.5YR 4/4. It has moist color of 10YR 3/3, 3/2, 2/2, or 2/1 or 7.5YR 3/2.

The Bt horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, or 3/2 or 7.5YR 5/2 or 4/2. It has moist color of 10YR 3/3, 3/2, or 2/2 or 7.5YR 3/2 or 3/3. Texture is clay loam, loam, gravelly loam, or gravelly clay loam. The content of clay is 18 to 40 percent. The content of rock fragments, dominantly gravel, is 5 to 30 percent.

Typic Argixerolls

Typic Argixerolls consist of moderately deep, well drained soils that formed in schist residuum. These soils are on hills. Slope ranges from 9 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 66 degrees F (19 degrees C).

Taxonomic classification: Typic Argixerolls

Example of a pedon of Typic Argixerolls sandy loam, in an area of Typic Argixerolls complex, 30 to 75 percent slopes, on a north-facing slope of 65 percent, under a cover of wild oats, at an elevation of 450 feet (137 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 0 seconds north latitude and 119 degrees, 50 minutes, 40 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A—0 to 1 inch (0 to 2 cm); brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; 10 percent clay; weak medium subangular blocky structure; soft, very friable, nonsticky, nonplastic; common fine and common very fine roots; common very fine tubular pores; slightly alkaline, pH 7.6 by phenol red; clear smooth boundary.

Bt1—1 to 20 inches (2 to 50 cm); pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; 19 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; common fine and common very fine roots; common very fine tubular pores; patchy distinct clay bridges between sand grains and patchy distinct clay films on all faces of peds; 20 percent 2- to 75-millimeter pebbles; neutral, pH 7.2 by phenol red; clear wavy boundary.

Bt2—20 to 28 inches (50 to 70 cm); pale brown (10YR 6/3) gravelly sandy clay loam, 40 percent dark yellowish brown (10YR 4/6) and 60 percent very dark grayish brown (10YR 3/2) moist; 35 percent clay; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky, moderately plastic; common fine and common very fine roots; common very fine tubular pores; patchy prominent clay films on rock fragments and continuous prominent clay films on all faces of peds; 25 percent 2- to 75-millimeter pebbles; neutral, pH 7.0 by phenol red; clear wavy boundary.

BCt—28 to 31 inches (70 to 80 cm); pale brown (10YR 6/3) sandy clay, 40 percent very dark grayish brown (10YR 3/2) and 60 percent dark yellowish brown (10YR 4/6) moist; 40 percent clay; moderate medium subangular blocky structure; moderately hard, firm, moderately sticky, moderately plastic; common fine and common very fine roots; common very fine tubular pores; patchy prominent clay films on rock fragments and continuous prominent clay films on all faces of peds;

20 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.8 by phenol red; clear smooth boundary.

Crt—31 to 60 inches (80 to 152 centimeters); weakly cemented volcanic breccia; common thin clay films on rock fragments; fractures 4 to 8 centimeters apart.

This pedon is representative but is not completely typical of the Typic Argixerolls in this survey area because of the highly variable nature of these soils.

The depth to bedrock is 20 to 40 inches (50 to 100 centimeters). The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The content of organic matter is 1 to 4 percent to a depth of at least 7 inches (18 centimeters).

The A horizon has dry color of 10YR 6/3, 5/3, 4/2, 3/3, or 3/2. It has moist color of 10YR 3/3, 3/2, or 2/2.

The Bt horizon has dry color of 10YR 6/3, 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/6, 4/3, 4/2, 3/3, 3/2, or 2/2. The content of clay ranges from 35 to 55 percent.

Typic Argixerolls that are very deep occur on Santa Cruz Island. These soils are more than 60 inches deep over bedrock, have 65 to 90 percent rock fragments in the particle-size control section, and are on alluvial fans with slopes of 0 to 8 percent.

Typic Durixeralfs

Typic Durixeralfs consist of shallow, well drained soils that formed in sandstone residuum. These soils are on hills. Slope ranges from 40 to 80 percent. The mean annual precipitation is about 29 inches (727 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Typic Durixeralfs

Example of a pedon of Typic Durixeralfs fine sandy loam, on a south-facing hill with a slope of 60 percent, under a cover of grasses and shrubs, at an elevation of 279 feet (85 meters); on San Miguel Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 1 minute, 24 seconds north latitude and 120 degrees, 19 minutes, 54 seconds west longitude; NAD83; USGS quadrangle: San Miguel Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A—0 to 1 inch (0 to 2 cm); grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; 14 percent clay; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky, nonplastic; many fine roots; 10 percent 2- to 75-millimeter pebbles; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2 by phenol red; abrupt smooth boundary.

2Btk—1 to 2 inches (2 to 5 cm); brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; 32 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky, moderately plastic; 5 percent faint clay films on all faces of peds; 10 percent 2- to 75-millimeter pebbles; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.4 by phenol red; abrupt smooth boundary.

3Bkqm—2 to 2.33 inches (5 to 6 cm); light gray (10YR 7/2) silica-indurated duripan, light brownish gray (10YR 6/2) moist; rigid, extremely strong, cemented by silica; brittle; violent effervescence, by HCl, 1 normal; abrupt smooth boundary.

3R—2.33 to 6 inches (6 to 15 cm); indurated sandstone bedrock.

This pedon is representative but is not completely typical of the Typic Durixeralfs in this survey area because of the highly variable nature of these soils.

Depth to the silica-indurated duripan is 2 to 3 inches (4 to 8 cm). The depth to bedrock is 2 to 3.5 inches (5 to 9 cm). The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year.

The A horizon has dry color of 10YR 5/3 or 5/2. It has moist color of 10YR 3/3 or 3/2.

The 2Bt horizon has dry color of 5/3 or 5/2. It has moist color of 10YR 3/3 or 3/2. The content of clay ranges from 27 to 35 percent. The content of rock fragments ranges from 5 to 15 percent.

Typic Durixerolls

Typic Durixerolls consist of shallow, well drained soils that formed in sandstone residuum. These soils are on hills. Slope ranges from 5 to 30 percent. The mean annual precipitation is about 29 inches (737 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Typic Durixerolls

Example of a pedon of Typic Durixerolls sandy loam, in an area of Typic Durixerolls, 5 to 15 percent slopes, on a slope of 6 percent, under a cover of wild oats, at an elevation of 372 feet; on San Miguel Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 2 minutes, 31 seconds north latitude and 120 degrees, 24 minutes, 46 seconds west longitude; NAD83; USGS quadrangle: San Miguel Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A1—0 to 1 inch (0 to 3 cm); brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; 7 percent clay; single grain; loose, nonsticky, nonplastic; many fine roots; many fine interstitial pores; neutral, pH 7.2 by phenol red; clear wavy boundary.

A2—1 to 19 inches (3 to 49 cm); brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; 7 percent clay; single grain; loose, nonsticky, nonplastic; neutral, pH 7.2 by phenol red; abrupt wavy boundary.

2Bw—19 to 23 inches (49 to 59 cm); brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; 50 percent clay; strong very coarse angular blocky structure; hard, friable, moderately sticky, moderately plastic; slight effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0 by phenol red; clear wavy boundary.

3Bw—23 to 27 inches (59 to 68 cm); very pale brown (10YR 8/2) fine sandy loam, light gray (10YR 7/2) moist; 14 percent clay; single grain; loose, slightly sticky, slightly plastic; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.4 by phenol red; abrupt wavy boundary.

4Bkqm—27 to 30 inches (68 to 75 cm); very pale brown (10YR 8/2) silica-indurated duripan, light gray (10YR 7/2) moist; strong thin platy structure; rigid, indurated; brittle; violent effervescence, by HCl, 1 normal; abrupt wavy boundary.

4Cr—30 to 60 inches (75 to 152 cm); weathered sandstone bedrock.

This pedon is representative but is not completely typical of the Typic Durixerolls in this survey area because of the highly variable nature of these soils.

Depth to a duripan is 20 to 38 inches (50 to 100 centimeters). The depth to bedrock is 21 to 39 inches (51 to 101 centimeters). The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The particle-size control section averages 40 to 60 percent clay. The content of organic matter is 1 to 4 percent to a depth of at least 7 inches (18 centimeters).

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The 2Bw horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2. The content of clay ranges from 40 to 60 percent.

Loamy phases occur in areas where the Typic Durixerolls have a Bw horizon of loam with 12 to 18 percent clay.

These soils are too highly variable to be mapped at the series level.

Typic Haploxeralfs

Typic Haploxeralfs consist of moderately deep, well drained soils that formed in shale and siltstone residuum. These soils are on hills. Slope ranges from 9 to 75 percent. The mean annual precipitation is about 26 inches (660 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Typic Haploxeralfs

Example of a pedon of Typic Haploxeralfs silt loam, in an area of Windage-Hawser-Typic Haploxeralfs association, on a southeast-facing slope of 5 percent, under a cover of wild oats, at an elevation of 735 feet (224 meters); on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 57 minutes, 24 seconds north latitude and 120 degrees, 3 minutes, 26 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A1—0 to 2 inches (0 to 6 cm); pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; 20 percent clay; moderate fine subangular blocky structure; soft, very friable, moderately sticky, very plastic; common very fine roots; common very fine interstitial and common very fine tubular pores; slightly alkaline, pH 7.6 by phenol red; clear wavy boundary.

A2—2 to 8 inches (6 to 20 cm); pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; 25 percent clay; moderate fine subangular blocky structure; soft, very friable, moderately sticky, very plastic; common very fine roots; common very fine tubular pores; slightly alkaline, pH 7.6 by phenol red; clear wavy boundary.

Bt1—8 to 20 inches (20 to 50 cm); pale brown (10YR 6/3) clay loam, yellowish brown (10YR 5/4) moist; 37 percent clay; moderate medium subangular blocky structure; soft, very friable, moderately sticky, moderately plastic; common very fine roots; patchy distinct clay films on faces of peds; neutral, pH 7.2 by phenol red; clear wavy boundary.

Bt2—20 to 31 inches (50 to 80 cm); pale brown (10YR 6/3) clay, yellowish brown (10YR 5/4) moist; 45 percent clay; moderate medium subangular blocky structure; hard, firm, very sticky, very plastic; common very fine roots; patchy distinct clay films on faces of peds; 15 percent 2- to 75-millimeter pebbles; neutral, pH 7.0 by phenol red; abrupt wavy boundary.

Cr—31 to 60 inches (80 to 152 cm); moderately cemented shale and siltstone bedrock.

This pedon is representative but is not completely typical of the Typic Haploxeralfs in this survey area because of the highly variable nature of these soils.

The depth to bedrock is 20 to 40 inches (50 to 100 centimeters). The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. Reaction is slightly alkaline or neutral. The particle-size control section ranges from 35 to 55 percent clay.

The A horizon has dry color of 10YR 6/2. It has moist color of 10YR 5/4.

The Bt horizon has dry color of 10YR 6/3. It has moist color of 10YR 5/4. The content of clay ranges from 35 to 60 percent

Dry phases of Typic Haploxeralfs occur only on Santa Barbara Island. They have a mean annual precipitation of 8 to 12 inches, are slightly alkaline or moderately alkaline, and range from 27 to 35 percent clay in the particle-size control section.

Typic Natrixeralfs

Typic Natrixeralfs consist of moderately deep, well drained soils that formed in slope alluvium derived from basalt or volcanic breccia mixed with silty marine deposits. These soils are on the side slopes of uplifted fluviomarine terraces. Slope ranges from 2 to 50 percent. The mean annual precipitation is about 8 inches (203 millimeters), and the mean annual air temperature is about 66 degrees F (19 degrees C).

Taxonomic classification: Typic Natrixeralfs

Example of a pedon of Typic Natrixeralfs silt loam, in an area of Typic Natrixeralfs-Typic Haploxeralfs complex, on an east-facing slope of 6 percent, under a cover of wild oats, at an elevation of 302 feet (92 meters); on Santa Barbara Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 28 minutes, 11 seconds north latitude and 119 degrees, 2 minutes, 3 seconds west longitude; NAD83; USGS quadrangle: Santa Barbara Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 2 inches (0 to 4 cm); moderately decomposed plant material; abrupt wavy boundary.

A—2 to 3 inches (4 to 8 cm); light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; 15 percent clay; strong medium prismatic and strong coarse subangular blocky structure; moderately hard, very friable, moderately sticky, slightly plastic; 10 percent 2- to 75-millimeter pebbles; strongly alkaline, pH 9.0 by thymol blue; clear wavy boundary.

Bt1—3 to 6 inches (8 to 16 cm); light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; 20 percent clay; strong medium prismatic and moderate medium subangular blocky structure; hard, very friable, very sticky, moderately plastic; continuous prominent silt coatings on all faces of peds; 10 percent 2- to 75-millimeter pebbles; strongly alkaline, pH 8.8 by thymol blue; clear wavy boundary.

Bt2—6 to 12 inches (16 to 30 cm); light brownish gray (10YR 6/2) silty clay, dark grayish brown (10YR 4/2) moist; 40 percent clay; moderate medium subangular blocky and strong medium prismatic structure; hard, very friable, very sticky, very plastic; continuous prominent clay films on all faces of peds; strongly alkaline, pH 8.6 by thymol blue; clear wavy boundary.

Btk—12 to 22 inches (30 to 55 cm); light brown (7.5YR 6/3) silty clay, brown (7.5YR 4/3) moist; 40 percent clay; massive; soft, very friable, very sticky, very plastic; 5 percent fine prominent irregular carbonate masses in the matrix; strongly alkaline, pH 8.8 by thymol blue; clear wavy boundary.

Btkz—22 to 24 inches (55 to 60 cm); light yellowish brown (2.5Y 6/3) silty clay loam, olive brown (2.5Y 4/3) moist; 30 percent clay; massive; soft, very friable, slightly sticky, moderately plastic; in the matrix, 5 percent fine prominent irregular carbonate masses, 1 percent fine distinct irregular moderately cemented salt masses with clear boundaries, 10 percent fine faint irregular finely disseminated carbonate, and 1 percent fine distinct irregular moderately cemented salt crystals; strongly alkaline, pH 8.8 by thymol blue; abrupt smooth boundary.

Crk—24 to 26 inches (60 to 65 cm); soft bedrock; around rock fragments, 10 percent coarse prominent irregular indurated and cemented carbonate nodules with diffuse boundaries.

This pedon is representative but is not completely typical of the Typic Natrixeralfs in this survey area because of the highly variable nature of these soils.

The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soil moisture control section is dry in all parts from about mid-July to mid-September (about 90 days) and is usually moist the rest of the year. The natric horizon ranges from just below the soil surface to above the lithic or paralithic contact. The depth to paralithic or lithic material is 50 to 100 centimeters (20 to 40 inches).

The A horizon has dry color of 10YR 6/2. It has moist color of 10YR 4/2.

The Bt horizon has dry color of 10YR 6/2, 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The Btk and Btkz horizons have dry color of 7.5YR or 2.5Y 6/3. They have moist color of 7.5YR or 2.5Y 4/3.

Typic Palexerolls

Typic Palexerolls consist of moderately deep, well drained soils that formed in shale residuum. These soils are on hills. Slope ranges from 50 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Clayey-skeletal, smectitic, thermic Typic Palexerolls

Example of a pedon of Typic Palexerolls loam, in an area of Rock outcrop-Buoy-Bereme-Typic Palexerolls complex, on an east-facing slope of 60 percent, under a cover of scrub oak and grasses, at an elevation of 950 feet (290 meters); on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 58 minutes, 51.4 seconds north latitude and 120 degrees, 4 minutes, 14.7 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 2 inches (0 to 5 cm); moderately decomposed plant material.

A1—2 to 5 inches (5 to 12 cm); dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; 4 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; common fine and common very fine roots; common very fine tubular pores; 10 percent 2- to 75-millimeter pebbles; neutral, pH 7.2 by phenol red; abrupt wavy boundary.

A2—5 to 9 inches (12 to 22 cm); light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; 15 percent clay; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; common fine and common very fine roots; common very fine tubular pores; 15 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.4 by phenol red; clear wavy boundary.

Bt1—9 to 19 inches (22 to 49 cm); brown (10YR 4/3) gravelly clay, dark brown (10YR 3/3) moist; 45 percent clay; moderate medium subangular blocky structure; hard, firm, very sticky, very plastic; common fine and common very fine roots; common very fine tubular pores; 10 percent faint clay films on all faces of peds; 5 percent

75- to 250-millimeter cobbles and 15 percent 2- to 75-millimeter pebbles; slightly alkaline, pH 7.4 by phenol red; abrupt irregular boundary.

Bt2—19 to 24 inches (49 to 60 cm); dark brown (10YR 3/3) very cobbly clay, very dark grayish brown (10YR 3/2) moist; 55 percent clay; massive; very hard, firm, very sticky, very plastic; common fine and common very fine roots; common very fine tubular pores; 10 percent faint clay films on all faces of peds; 5 percent 2- to 75-millimeter pebbles and 30 percent 75- to 250-millimeter cobbles; slightly alkaline, pH 7.4 by phenol red; abrupt irregular boundary.

Cr—24 to 60 inches (60 to 152 cm); strongly cemented shale bedrock.

This pedon is representative but is not completely typical of the Typic Palexerolls in this survey area because of the highly variable nature of these soils.

The depth to bedrock is 20 to 40 inches (50 to 100 centimeters). The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The particle-size control section ranges from 40 to 60 percent clay. The content of organic matter is 1 to 4 percent to a depth of at least 7 inches (18 centimeters).

The A horizon has dry color of 10YR 6/2, 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2.

The Bt horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR 4/2, 4/3, 3/3, 3/2, or 2/2. Texture is gravelly clay or very cobbly clay. The content of clay ranges from 40 to 60 percent.

Typic Xerofluvents

Typic Xerofluvents consist of very deep, somewhat excessively drained soils that formed in alluvium derived from metamorphic and sedimentary rocks. These soils are on stream terraces, in river valleys, and on flood plains. Slope ranges from 0 to 8 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Typic Xerofluvents

Example of a pedon of Typic Xerofluvents, in an area Typic Xerofluvents-Riverwash complex, under a cover of mulefat, at an elevation of 200 feet; on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 53 seconds north latitude and 119 degrees, 43 minutes, 29 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island B.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 2 inches (0 to 5 cm); slightly decomposed organic matter; abrupt wavy boundary.

A—2 to 24 inches (5 to 60 cm); brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; 5 percent clay; weak fine subangular blocky structure; loose, nonsticky, nonplastic; many very fine interstitial pores; 10 percent 2- to 75-millimeter pebbles; neutral, pH 6.8; abrupt smooth boundary.

2Bw1—24 to 39 inches (60 to 99 cm); pale brown (10YR 6/3), stratified extremely gravelly sand, brown (10YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; many very fine interstitial pores; 5 percent 75- to 250-millimeter cobbles and 80 percent 2- to 75-millimeter pebbles; neutral, pH 7.0; abrupt smooth boundary.

3Bw2—39 to 72 inches (99 to 183 cm); pale brown (10YR 6/3), stratified extremely cobbly sand, brown (10YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; common fine interstitial pores; 10 percent 250- to 600-

millimeter stones, 30 percent 75- to 250-millimeter cobbles, and 40 percent 2- to 75-millimeter pebbles; neutral, pH 7.2.

This pedon is representative but is not completely typical of the Typic Xerofluvents in this survey area because of the highly variable nature of these soils.

The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soil moisture control section is dry in all parts from about mid-June to mid-November and is usually moist the rest of the year. The particle-size control section averages 2 to 10 percent clay and 35 to 75 percent rock fragments.

The A horizon has dry color of 10YR 6/2, 6/3, 5/3, 5/4, or 4/4. It has moist color of 10YR 4/2, 4/3, 3/2, or 3/3.

The 2Bw and 3Bw horizons have dry color of 10YR 6/2, 6/3, 5/3, 5/4, or 4/4. They have moist color of 10YR 4/2, 4/3, 3/2, or 3/3.

Typic Xerorthents

Typic Xerorthents consist of shallow, somewhat excessively drained soils that formed in material weathered from sandstone. These soils are on hills. Slope ranges from 25 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Typic Xerorthents

Typical pedon of Typic Xerorthents gravelly loam, in an area of Windage-Typic Xerorthents-Buoy association, on a south-facing slope of 70 percent, under a cover of coastal sage, at an elevation of 1,390 feet (424 meters); on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 56 minutes, 8 seconds north latitude and 120 degrees, 8 minutes, 16 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

A1—0 to 5 inches (0 to 13 cm); light yellowish brown (2.5Y 6/3) gravelly loam, olive brown (2.5Y 4/3) moist; 50 percent sand; 8 percent clay; moderate medium subangular blocky structure; soft, very friable, nonsticky, nonplastic; common fine and common very fine roots; common fine and common very fine tubular pores; 30 percent 2- to 75-millimeter pebbles; neutral, pH 7.2 by phenol red; clear wavy boundary.

A2—5 to 10 inches (13 to 25 cm); light yellowish brown (2.5Y 6/3) very gravelly fine sandy loam, olive brown (2.5Y 4/4) moist; 65 percent sand; 8 percent clay; weak fine subangular blocky structure; soft, very friable, nonsticky, nonplastic; common fine and common very fine roots; common fine and common very fine interstitial pores; 40 percent 2- to 75-millimeter pebbles; neutral, pH 7.0 by phenol red; abrupt wavy boundary.

Cr—10 to 60 inches (25 to 152 cm); highly fractured sandstone; fractures 2 to 8 centimeters apart.

This pedon is representative but is not completely typical of the Typic Xerorthents in this survey area because of the highly variable nature of these soils.

The depth to bedrock is 4 to 14 inches (10 to 36 centimeters). The mean annual soil temperature is 59 to 71 degrees F (15 to 22 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year.

The A horizon has dry color of 2.5Y 6/3. It has moist color of 2.5Y 4/3 or 4/4. Texture is gravelly loam or very gravelly fine sandy loam. The content of clay is 4 to

18 percent. The content of rock fragments is 15 to 60 percent. It increases with increasing depth.

Ultic Haploxeralfs

Ultic Haploxeralfs consist of moderately deep, well drained soils that formed in sandstone residuum. These soils are on hills. Slope ranges from 30 to 75 percent. The mean annual precipitation is about 26 inches (660 millimeters), and the mean annual air temperature is about 63 degrees F (17 degrees C).

Taxonomic classification: Ultic Haploxeralfs

Example of a pedon of Ultic Haploxeralfs clay loam, in an area of Typic Xerorthents-Ultic Haploxeralfs-Rock outcrop complex, on a northwest-facing slope of 60 percent, under a cover of Torrey pine, at an elevation of 350 feet (107 meters); on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 59 minutes, 54 seconds north latitude and 119 degrees, 45 minutes, 42 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 4 inches (0 to 9 cm); moderately decomposed plant material.

A—4 to 10 inches (9 to 25 cm); light brownish gray (2.5Y 6/2) loamy sand, olive brown (2.5Y 4/3) moist; 1 percent clay; moderate coarse subangular blocky structure; soft, very friable, nonsticky, nonplastic; common fine and common very fine roots; common very fine tubular pores; 10 percent 5- to 75-millimeter pebbles; strongly acid, pH 5.5; abrupt wavy boundary.

2Bt1—10 to 31 inches (25 to 80 cm); light yellowish brown (2.5Y 6/4) sandy clay, olive brown (2.5Y 4/4) moist; 50 percent clay; moderate medium subangular blocky structure; very hard, friable, very sticky, very plastic; common fine and common very fine roots; common very fine tubular pores; 10 percent prominent clay films on all faces of peds; 10 percent 2- to 75-millimeter pebbles; strongly acid, pH 5.4; gradual wavy boundary.

2Bt2—31 to 39 inches (80 to 98 cm); pale yellow (5Y 7/3) clay, olive brown (2.5Y 4/4) moist; 45 percent sandy clay; moderate medium subangular blocky structure; moderately hard, friable, very sticky, very plastic; common fine and common very fine roots; common very fine tubular pores; 10 percent prominent clay films on all faces of peds; 10 percent 2- to 75-millimeter pebbles; very strongly acid, pH 5.0; abrupt wavy boundary.

2R—39 to 48 inches (98 to 123 cm); indurated sandstone.

This pedon is representative but is not completely typical of the Ultic Haploxeralfs in this survey area because of the highly variable nature of these soils.

The depth to bedrock is 20 to 40 inches (50 to 100 centimeters). The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-November (about 90 days) and is usually moist the rest of the year. The particle-size control section averages 35 to 55 percent clay.

The A horizon has dry color of 2.5Y 6/2. It has moist color of 2.5Y 4/3.

The 2Bt horizon has dry color of 2.5Y or 5Y 6/4 or 7/3. It has moist color of 2.5Y or 5Y 4/4. The content of clay ranges from 35 to 55 percent. The content of rock fragments is 5 to 15 percent. Reaction is strongly acid or very strongly acid.

On the basis of lab data from other pine woodland soils in adjacent areas, base saturation, by sum of bases, is assumed to be less than 75 throughout the solum.

Windage Series

The Windage series consists of very deep, well drained soils that formed in material weathered from shale. These soils are on hills and mountains that formed on uplifted marine terraces. Slope ranges from 20 to 75 percent. The mean annual precipitation is about 660 millimeters (26 inches), and the mean annual air temperature is about 17 degrees C (63 degrees F).

Taxonomic classification: Fine, smectitic, thermic Pachic Argixerolls

Typical pedon of Windage loam, in an area of Windage-Typic Xerorthents-Buoy association, on an east-facing slope of 40 percent, under a cover of wild oats, at an elevation of 1,250 feet; on Santa Rosa Island, Santa Barbara County, California, in the Channel Islands; 33 degrees, 57 minutes, 18 seconds north latitude and 120 degrees, 6 minutes, 17 seconds west longitude; NAD83; USGS quadrangle: Santa Rosa Island.

When described, the soil was dry throughout. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 2 inches (0 to 5 centimeters); slightly decomposed plant material. (O horizon thickness ranges from 0 to 6 cm, 0 to 2 inches)

A—2 to 5 inches (6 to 12 cm); dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; 20 percent clay; weak medium subangular blocky structure; soft, very friable, nonsticky, slightly plastic; common very fine roots throughout; common very fine tubular pores; 5 percent 2- to 75-millimeter shale fragments; neutral, pH 6.8 by phenol red; abrupt wavy boundary.

Bt1—5 to 12 inches (12 to 30 cm); very dark gray (10YR 3/1) clay loam, black (10YR 2/1) moist; 35 percent clay; moderate medium subangular blocky structure; soft, very friable, slightly sticky, moderately plastic; common very fine roots throughout; common very fine tubular pores; faint clay films on surfaces along root channels and very faint clay films on all faces of peds; 5 percent 2- to 75-millimeter shale fragments; neutral, pH 7.2 by phenol red; clear wavy boundary.

Bt2—12 to 24 inches (30 to 60 cm); clay, 20 percent brown (10YR 4/3) and 80 percent very dark gray (10YR 3/1) moist; 45 percent clay; strong coarse angular blocky structure; hard, firm, moderately sticky, very plastic; common very fine roots throughout; common very fine tubular pores; distinct clay films on all faces of peds; 10 percent 2- to 75-millimeter shale fragments; slightly alkaline, pH 7.4 by phenol red; clear wavy boundary.

Bt3—24 to 31 inches (60 to 80 cm); gravelly clay, 40 percent dark yellowish brown (10YR 4/4) and 60 percent very dark grayish brown (10YR 3/2) moist; 55 percent clay; strong coarse angular blocky structure; very hard, firm, very sticky, very plastic; common very fine roots throughout; distinct clay films on all faces of peds; 20 percent 2- to 75-millimeter shale fragments; slightly alkaline, pH 7.4 by phenol red; clear wavy boundary.

Bt4—31 to 37 inches (80 to 95 cm); clay, very dark gray (10YR 3/1) moist; 60 percent clay; massive; very hard, firm, very sticky, very plastic; common very fine roots throughout; distinct clay films on all faces of peds; 5 percent 2- to 75-millimeter shale fragments; slightly alkaline, pH 7.4 by phenol red; clear wavy boundary.

Bt5—37 to 60 inches (95 to 152 cm); clay, light olive brown (2.5Y 5/4) moist; 50 percent clay; strong coarse angular blocky structure; hard, very firm, very sticky, very plastic; distinct clay films on all faces of peds; 10 percent extremely weakly cemented 2- to 75-millimeter shale fragments; slightly alkaline, pH 7.4 by phenol red).

The mean annual soil temperature is 59 to 64 degrees F (15 to 18 degrees C). The soil moisture control section is dry in all parts from about mid-August to mid-

November (about 90 days) and is usually moist the rest of the year. In some pedons the lower part of the B horizon has secondary carbonates. The particle-size control section averages 36 to 53 percent clay.

The A horizon has dry color of 10YR 5/2, 5/3, 4/2, 4/3, or 3/1 or 2.5Y 3/4. It has moist color of 10YR, 3/2, 2/2, or 2/1 or 2.5Y 5/4.

The Bt horizon has dry color of 10YR 6/8, 4/2, or 3/1; 2.5Y 6/8 or 6/4; or 7.5YR 4/6. It has moist color of 10YR 4/4, 4/3, 3/2, 3/1, 2/2, or 2/1; 2.5Y 5/4, 4/3, 3/3, 3/2, or 3/1; 7.5YR 3/6; or 5Y 5/1.

Yardarm Series

The Yardarm series consists of moderately deep, well drained soils that formed in material weathered from schist. These soils are on hills. Slope ranges from 30 to 75 percent. The mean annual precipitation is about 18 inches (457 millimeters), and the mean annual air temperature is about 57 degrees F (14 degrees C).

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argixerolls

Typical pedon of Yardarm silt loam, in an area of Miasotus-Yardarm association, 30 to 75 percent slopes, on a north-facing slope of 30 percent, under a cover of chaparral, at an elevation of 1,186 feet (361 meters); on Santa Cruz Island, Santa Barbara County, California, in the Channel Islands; 34 degrees, 0 minutes, 12 seconds north latitude and 11 degrees, 45 minutes, 28 seconds west longitude; NAD83; USGS quadrangle: Santa Cruz Island.

A1—0 to 2 inches (0 to 6 cm); dark gray (7.5YR 4/1) silt loam, black (7.5YR 2.5/1) moist; 8 percent clay; weak fine granular structure; soft, very friable, nonsticky, nonplastic; common fine and common very fine roots; 2 percent 2- to 75-millimeter pebbles; moderately acid, pH 6.0; clear smooth boundary.

A2—2 to 8 inches (6 to 20 cm); brown (7.5YR 4/2) silt loam, very dark brown (7.5YR 2.5/2) moist; 12 percent clay; weak medium subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; common fine and common very fine roots; 3 percent 2- to 75-millimeter pebbles; slightly acid, pH 6.5; clear smooth boundary.

Bt1—8 to 13 inches (20 to 32 cm); yellowish red (5YR 5/6) gravelly clay loam, yellowish red (5YR 4/6) moist; 34 percent clay; strong medium and coarse subangular blocky structure; moderately hard, very friable, moderately sticky, moderately plastic; common fine and common very fine roots; continuous distinct clay films on all faces of peds; 25 percent 2- to 75-millimeter pebbles; moderately acid, pH 6.0; clear smooth boundary.

Bt2—13 to 24 inches (32 to 61 cm); yellowish red (5YR 5/6) gravelly clay loam, yellowish red (5YR 4/6) moist; 35 percent clay; strong medium and coarse subangular blocky structure; moderately hard, friable, moderately sticky, moderately plastic; common fine and common very fine roots; continuous distinct clay films on all faces of peds; 35 percent 2- to 75-millimeter pebbles; moderately acid, pH 6.0; gradual wavy boundary.

Crt—24 to 28 inches (61 to 71 cm); moderately decomposed schist with fractures less than 10 centimeters apart; few fine and few very fine roots; continuous prominent clay films on rock fragments; gradual wavy boundary.

R—28 inches (71 cm); very hard schist with few or no fractures.

The depth to bedrock is 20 to 40 inches (50 to 100 centimeters). The mean annual soil temperature is 54 to 59 degrees F (12 to 15 degrees C). The soil moisture control section is dry in all parts from about mid-September to mid-November (about 60 days) and is usually moist the rest of the year. Reaction is slightly acid or moderately acid. The particle-size control section averages 18 to 35 percent clay and 15 to 35 percent rock fragments. The content of organic matter is 1 to 4 percent to a depth of at least 7 inches (18 centimeters).

The A horizon has dry color of 10YR, 5YR, or 7.5YR 5/2, 5/3, 4/1, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR, 5YR, or 7.5YR 4/2, 4/3, 3/3, 3/2, 2.5/1 or 2.5/2.

The Bt horizon has dry color of 10YR, 5YR, or 7.5YR 5/2, 5/3, 5/6, 4/2, 4/3, 3/3, or 3/2. It has moist color of 10YR, 5YR, or 7.5YR 4/2, 4/3, 4/6, 3/3, 3/2, or 2/2. Texture is gravelly loam, very gravelly clay loam, or gravelly clay loam.

Formation of the Soils

Soil is generally defined as a natural growing medium for plants and habitat for soil animals and micro-organisms. Soil is a three-dimensional body and is made up of organic and mineral material and air and water. The characteristics and properties of soil are determined by physical and chemical processes that result from the interaction of five soil-forming factors. These factors are:

1. Climate, mainly the temperature and kind and amount of precipitation since the accumulation or exposure of the parent material;
2. Living organisms, mainly the plant cover and the organisms living in and on the soil (including humans);
3. The amount of time that the soil-forming factors have been operating;
4. Parent material, including the texture and structure of the material as well as its mineralogical and chemical composition;
5. Topography, mainly as it affects internal and external soil properties, such as drainage, aeration, susceptibility to erosion, and exposure to the sun and wind (Jenny, 1941).

The influence of any one of these factors varies at each locality, and the soils may differ accordingly from place to place or within short distances.

Soils are classified, mapped, and interpreted on the basis of field verification of various kinds of soil horizons and their arrangement. This process often follows preliminary delineation of soil map units based on landforms, predicted soil characteristics, and knowledge of the area gained by the soil scientists involved in soil mapping. The degree and expression of the soil horizons reflect the extent of the interaction of soil-forming factors with one or more soil-forming processes, including additions, removals, transfers, and transformations (Simonson, 1959). Important diagnostic surface horizons in this survey area include mollic epipedons, and some of the significant diagnostic subsurface horizons include cambic, argillic, natric, and calcic horizons. The Glossary defines these diagnostic horizons.

Climate

This survey area has a Mediterranean climate that is characterized by hot, dry summers and cool, moist winters. Most of the rainfall falls in the period November through April. Warm temperatures and moist soil conditions in spring are conducive to rapid chemical reactions. During periods of rainfall, water carrying dissolved or suspended solids moves through the soils. Weathering is generally limited in the cool winter months, but leaching processes become active with the onset of seasonal rainfall. Weathering is most active in spring and least active in summer and late fall.

The growth of plants in the survey area is rapid early in spring but ceases in June or July because of a lack of moisture in conjunction with increased air temperature. Fog is common throughout the survey area during the entire year (fig. 28). Some areas have more fog than others. The area of Christy Pines on Santa Cruz Island is an example of an area that is often foggy. Soil moisture sensors were installed in these areas. Because of the canopy cover of pines and because of the fog, the

Figure 28.—Fog in an area of the Channel Islands.

differences between mean summer and mean winter soil temperatures are less than 6 degrees C in these areas. Essentially no moisture was found within the soil moisture control sections at any time outside the periods affected by rainfall. Excavations dug by hand showed dry soil profiles even during extended periods of heavy fog on all of the islands.

Topography and relief affect present-day climate variations. As elevation increases, temperature generally decreases and precipitation generally increases. As the amount of precipitation increases, the extent of leaching and the amount of vegetation usually increase, resulting in an increased content of organic matter and the cycling of bases. Fluctuations in temperature and moisture affect the rate of organic-matter decomposition and accumulation and the weathering of minerals. Soils on the older landforms, such as Hawser soils on fluviomarine terraces, have been affected by past climatic conditions different from the current conditions. These “paleosols” formed in the past on a landscape with distinctive morphological features resulting from a soil-forming environment that no longer occurs at the site. The past environment may have been cooler and wetter than the current one.

Living Organisms

The activities of living organisms, including soil flora, fauna, and humans, all influence the formation and morphology of soils. Fungi help to decompose organic matter. Some bacteria convert unavailable nitrogen gas from the soil atmosphere into forms that are available to plants. Bacteria, earthworms, small insects, and rodents, mix soil material through burrowing and tunneling. Abandoned tunnels commonly are filled with loose material from the overlying horizons and transmit water more readily than the surrounding undisturbed soil material. The lack of many of the species of burrowing animals common on the mainland may have affected how the soils formed on the Channel Islands.

Vegetation in the survey area has helped to stabilize the land surfaces. This stability has allowed the other soil-forming factors to affect the soils. Vegetation improves stability by protecting the surface against erosion. Also, plant roots help to develop soil structure and aggregate stability.

Grasslands and shrublands dominate the survey area. In most areas the deposition of organic matter from the plants is greater than the decomposition by micro-organisms. As a result, a thick, dark surface layer called a mollic epipedon has formed.

Pine trees on Santa Cruz Island play an important role in soil formation. Large amounts of organic matter accumulate in a partly decomposed mat on the surface and in the upper part of the A horizon. Tree roots accelerate the decomposition of rocks by entering cracks and creating small rock fragments. Decomposing pine needles create organic acids, which lower the pH and base saturation of the soil. The greater forest plant growth should result in deeper soils; however, the steep slopes and cooler soil temperatures dominate soil formation under the pines, resulting in soils of only moderate depth. The layers of pine needles protect the surface from the erosion caused by rainfall or the wind.

Fennel (*Foeniculum vulgare*), a perennial herb native to southern Europe, arrived on Santa Cruz Island in the late 1800s and has since invaded many plant communities. It moved into disturbed soils, quickly growing to as much as 10 feet in height, and established dense, uniform stands that exclude and outcompete native plants. Feral pigs are the primary cause of fennel dispersal and establishment on the island. Rooting by the pigs creates an ideal seedbed for fennel and other weeds. Fantail soils that have a thin surface layer are typical of the soils in the disturbed areas overgrown with fennel on the Isthmus of Santa Cruz Island. These soils have been churned by the activity of pigs and have had their surface layers partly destroyed by churning and erosion. The Fantail soils in the less disturbed adjacent areas have a much thicker surface layer.

Time

The influence of time is expressed by soil characteristics displayed in soil horizons. Young soils, such as Typic Xerofluvents on flood plains, have few distinctive characteristics and no diagnostic subsurface horizons. Ahoy and other soils that have a mollic epipedon and an argillic horizon are examples of soils that are on relatively stable marine terraces and have had the time to develop distinct profile characteristics.

Parent Material

The northern California Channel Islands, made up of Santa Cruz, Santa Rosa, San Miguel, Anacapa, and Santa Barbara Islands, were formed by the uplifting of the sea floor during the Cretaceous period. These islands have experienced periods of submergence and emergence since that time. The northernmost islands, including Anacapa, Santa Cruz, Santa Rosa, and San Miguel Islands, form an east-west trending mountain range and mark the southwest border of the Transverse Range geomorphic province. These northern islands probably were connected during periods of lower sea levels.

Santa Cruz Island is divided into distinct northern and southern geologic provinces by the east-west trending Santa Cruz Island fault (fig. 29). The fault forms the central valley of Santa Cruz Island. This valley is made up of Quaternary alluvium. Cumulic Haploxerolls are in areas in the valley where organic material has accumulated. On

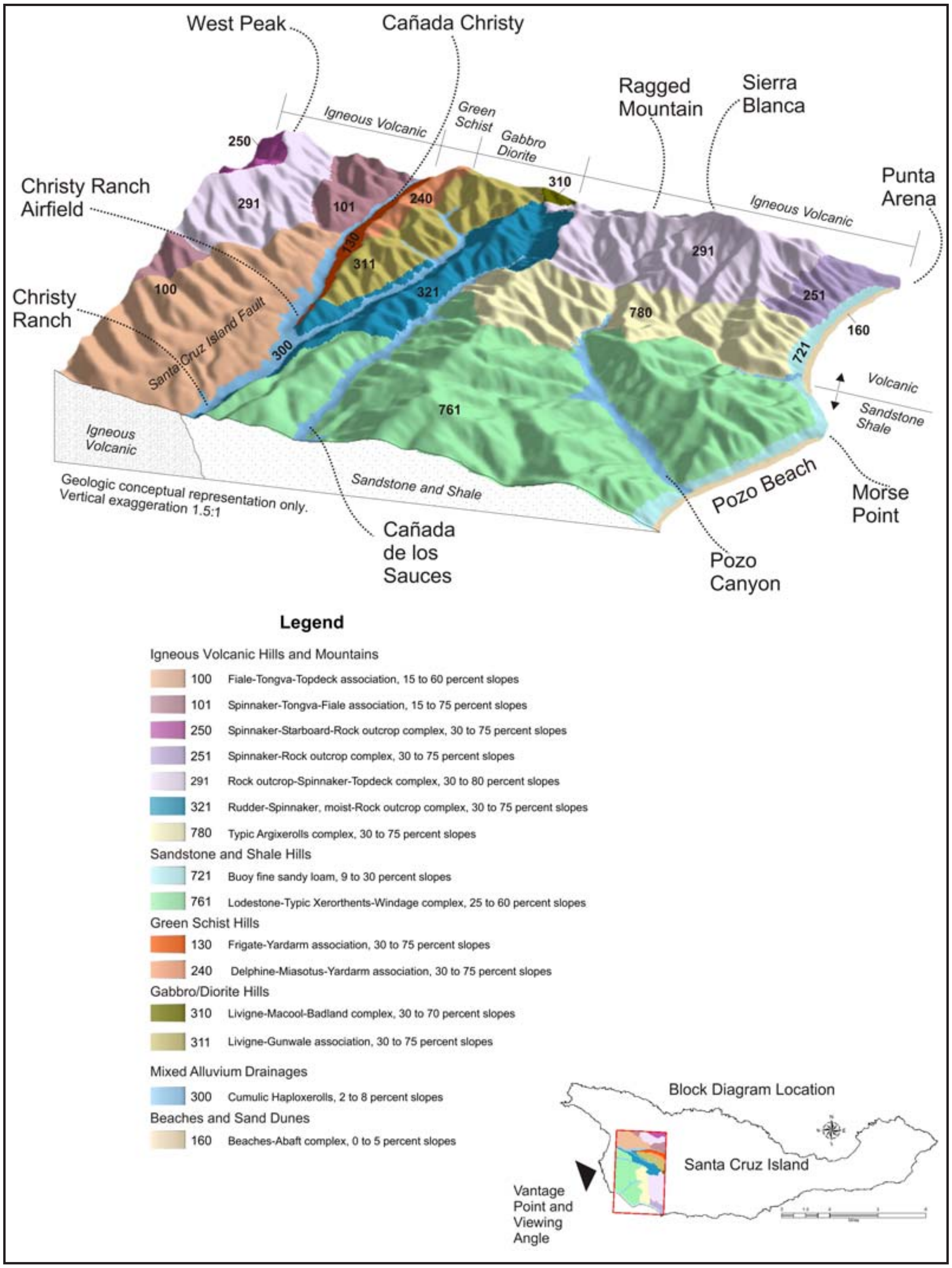

Figure 29.—Looking northeast on Santa Cruz Island. The Santa Cruz Island fault runs east along Canada Christy. The various kinds of parent material are depicted.

the north side of the fault, Miocene volcanic rocks, such as andesite, basalt and breccia, dominate. The highest peak on the island, at about 2,470 feet, occurs in this formation. Topdeck and Spinnaker soils, which are shallow to lithic bedrock, are typical soils in this area.

The Isthmus of Santa Cruz Island lies north of the fault. It connects two larger areas of volcanic rocks. It is made up of Miocene shale. Fantail soils, which are moderately deep to highly weathered shale, and Forestay soils, which are very deep to highly weathered shale, are typical soils in this area,. South of the fault, Mesozoic schist forms an east-west trending range that runs from Valley Anchorage to about Christy Ranch Airfield. In this area, the soils have been highly eroded and badlands occur. Delphine soils are typical of the eroded soils that formed on the recently stabilized erosional remnants of hills. South of the schist, Mesozoic intrusive gabbro and diorite occur on a series of low hills. Macool and Livigne soils formed in areas on these hills where the bedrock is highly weathered. The southernmost part of the island is made up of Miocene volcanic breccia. Highly faulted Cretaceous through Miocene shale, sandstone, and conglomerate occur in the southwest corner of the island. Lodestone and Ballast soils occur in these areas.

Santa Rosa Island is divided into distinct northern and southern geologic provinces by the east-west trending Santa Rosa Island fault. North of the fault, there are several broad, uplifted, wave-cut fluviomarine terraces. These terraces are thought to have formed during the Pleistocene. They are underlain by sandstone and shale. They are deeply incised in a northerly direction by nine major and several minor canyons. Several large stabilized dune fields occur north of the fault.

It is commonly thought that the sandy submarine terrace on the north side of the island was exposed during a period of lower sea levels and that windblown sands accumulated on the higher landscape at Carrington Point. The dunes formed during the late Pleistocene. They are typified by Abaft soils. The blowing sand affected the entire fluviomarine terrace on the north side of Santa Rosa Island to varying degrees, covering the surface with sand in some areas.

The deeply incised, steep canyons that formed on the fluviomarine terraces are of Pleistocene age. This erosion and subsequent relative stabilization of the canyon side slopes resulted in the formation of the Pleistocene-age Buoy and Windage soils where the sandstone is interbedded with siltstone and shale and is more easily weathered. Buoy soils are deep to sandstone, and Windage soils are very deep to shale. The shallower Bereme soils formed on the canyon side slopes in the eastern canyons, in areas where the Miocene tuffaceous sandstone bedrock is more resistant to weathering. Bereme soils have been stable long enough to form a mollic epipedon and an argillic horizon. They probably formed in the late Pleistocene.

After Abaft soils, Ironshot soils show the least development and the most influence from windblown sand. These soils, which are on the fluviomarine terraces, formed in material weathered from sandstone with a large influence from windblown sand. The sandstone in areas where these soils formed has iron nodules that, after weathering out of the bedrock, remain within the soil profile and in some areas on the soil surface. Ahoy soils also are affected by windblown sand but to a lesser degree. Hawser soils on the fluviomarine terraces appear to have been influenced the least by windblown sand.

The far western end of Santa Rosa Island, north of the fault between the farthest west canyon and Sandy Point, is an area of the fluviomarine terraces where most of the soil has been lost to wind erosion. The bedrock is highly siliceous, tuffaceous sandstone. A silica-indurated duripan has formed at the contact between the remnant soil materials and the underlying sandstone. The soils in this area are Typic Durixerolls.

The parts of Santa Rosa Island that are south of the fault are uplifted fluviomarine terraces made up of sandstone and shale that have formed hills and mountains. The very deep Windage and Hawser soils occur in these areas. In areas where the sandstone and shale have eroded away, an underlying layer of Miocene volcanic andesite, basalt, and breccia has been exposed. Topdeck and Fiale soils occur in these areas.

Santa Barbara Island is made up of Miocene volcanic basalt overlain by a series of fluviomarine terraces, which are indicative of periods of submergence and reemergence. Having the lowest precipitation within the survey area, this is the only one of islands with soils that have natric horizons. Typic Natrixeralfs occur on the terraces.

San Miguel Island is made up of uplifted and dissected fluviomarine terraces. Volcanic rock is exposed in eroded areas. Sand dunes, running parallel to the direction of the prevailing winds, dominate the landscape. Because of persistent winds and severe overgrazing, the original soils are lost to wind erosion in many areas.

Topography and Landforms

The overall landscape in the survey area, mainly hills and mountains on the islands, is the result of erosional and constructional processes. These processes occurred in response to changes in climate, fluctuating sea levels, and tectonic activities. Cyclic periods of landscape stability and instability also occurred. Development of the current landscape in the area took place during the Pleistocene and Holocene Epochs. The more highly developed soils occur on stable landforms.

Determining the exact age of most of the soils in the survey area is difficult. The age of soils can be estimated from the age of the geomorphic surface. Buried paleosols or exhumed paleosols can occur on the younger surfaces.

The youngest geomorphic surfaces in the survey area are the flood plains, stream terraces, and river valleys associated with the major streams. Holocene-age Typic Xerofluvents are the youngest soils, having no diagnostic subsoil horizons. Late Pleistocene or early Holocene Cumulic Haploxerolls occurred where these areas were stable enough to begin accumulating organic material.

The soils on hills and mountains and in canyons in the survey area are all at least Pleistocene in age, commonly having an argillic or cambic horizon and a mollic epipedon. The soil depth varies with the ability of the parent materials to weather. Spinnaker and other soils that formed in material weathered from volcanic rocks are shallow, mainly because the bedrock weathers slowly. The soils that formed in material weathered from schist tend to be a bit deeper because the bedrock weathers a little faster. The soils that formed in material weathered from gabbro, diorite, and shale tend to be the deepest because the bedrock weathers faster than the other kinds of bedrock.

Soils on fluviomarine terraces formed after the last time they were submerged by the ocean and are at least late Pleistocene in age.

Different aspects have unique plant communities and associated soils that are readily recognized. Generally, the soils on north aspects have a mesic soil temperature regime if there is sufficient vegetative cover to shade the surface. On all aspects, soils that do not have sufficient cover to shade the surface are thermic. Evidence supporting these conclusions came from the NRCS soil temperature and soil moisture data-gathering sites on Santa Cruz Island. In areas that have a heavy canopy cover and are subject significant cooling during summer by fog, isomesic temperature regimes occur. Map unit 240 (Delphine-Miasotus-Yardarm association, 30 to 70 percent slopes) exemplifies this relationship. The Miasotus and Yardarm soils are on north aspects, have a heavy canopy cover of chaparral, and have a mesic soil temperature regime. The Delphine soil is on south aspects, is sparsely vegetated, and has a thermic soil temperature regime.

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Glossary

AASHTO classification. A system for classifying soils specifically for geotechnical engineering purposes that is related to highway and airfield construction. It is based on particle-size distribution and Atterberg limits.

AASHTO group index (GI). An empirical index number used to evaluate clayey and silty clay material.

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. A low, outspread mass of loose material and/or rock material washed down the sides of mountains and hills. It commonly has gentle slopes and is shaped like an open fan or a segment of a cone. It is deposited by a stream at the place where the stream issues from a narrow mountain valley or where a tributary stream is near or at its junction with the main stream. An alluvial fan is steepest near its apex that points upstream, and it slopes gently and convexly outward with a gradual decrease in gradient.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aridic moisture regime. Soils that have an aridic moisture regime are dry for at least one-half of the year. They commonly occur in areas that have an aridic climate. A few are in areas that have a semiarid climate, but they either have physical properties that keep them dry, such as a crusty surface that virtually precludes the infiltration of water, or have steep slopes with a high rate of runoff. Little, if any, leaching occurs in the soils in this moisture regime, and soluble salts accumulate in the soils if there is a source of salts.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (AWC) (available moisture capacity). The volume of water that should be available to plants if the soil, inclusive of fragments, were at field capacity. It is commonly estimated as the difference between the amount of water at field capacity and the amount at wilting point with adjustments for salinity, fragments, and rooting depth. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 2.5
Low	2.5 to 5.0
Moderate	5.0 to 7.5
High	7.5 to 10.0
Very high	more than 10.0

AWC. See Available water capacity.

Backslope. The hillslope profile position that forms the steepest and generally linear, middle portion of the slope. In profile, backslopes commonly are bounded by a convex shoulder above and a concave footslope below. They may or may not include cliff segments, or free faces. Backslopes are commonly erosional forms produced by mass movement, colluvial action, and running water.

Badland. A landscape that is intricately dissected and is characterized by a very fine drainage network with high drainage density and short, steep slopes with narrow interfluves. Badland develops on surfaces that have little, if any, vegetative cover, are underlain by unconsolidated or poorly cemented material (clay, silt, or sand), and in some areas have soluble minerals such as gypsum and halite.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Basin. Nearly level to gently sloping bottom surface of a wide structural depression between mountain ranges.

Beach terrace. A landform that consists of a wave-cut scarp and wave-built terrace of well-sorted marine and lacustrine sand and gravel. Colloquially, in the western United States, relict shoreline from pluvial lakes, generally restricted to the sides of valleys.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. A general term for the solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Bulk density. A measurement of the oven-dry weight of the soil material that is less than 2 millimeters in diameter per unit volume. Common measurements are taken at $^1/_3$-, $^1/_{10}$-, or 15-bar moisture tension. Bulk density influences plant growth and engineering applications. It is used to convert measurements from a weight basis to a volume basis. Within a family particle-size class, bulk density is an indicator of how well plant roots are able to extend into the soil. Bulk density is used to calculate porosity.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Calcic horizon. A mineral soil horizon of secondary carbonate enrichment that is more than 15 centimeters thick, has a calcium carbonate equivalent of more than 15 percent, and has a calcium carbonate equivalent at least 5 percent higher than the underlying horizon.

Calcium carbonate equivalent. The amount of calcium carbonate in a soil measured by treating the soil sample with hydrochloric acid (HCL). The evolved carbon dioxide (CO_2) is measured, and the amount of carbonate is then calculated as calcium carbonate ($CaCO_3$).

Caliche. A general term for a prominent zone of secondary carbonate accumulation in surficial material of warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Fine crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) material. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other cementing minerals (carbonates, silicate, and sulfate) may be present. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Cambic horizon. A mineral soil horizon that has the texture of loamy very fine sand or finer, has soil structure rather than rock structure, and contains some weatherable minerals. It is characterized by the alteration or removal of mineral material as indicated by mottling or gray color, stronger chroma or redder hue than the underlying horizons, or the removal of carbonates. The cambic horizon lacks cementation or induration and has too few evidences of illuviation to meet the requirements for an argillic horizon.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence of soils on a landscape that are about the same age and formed in similar kinds of parent material under similar climatic conditions but have different characteristics as a result of differences in relief and drainage.

Cathodic protection. Control of the electrolytic corrosion of an underground or underwater metallic structure, such as a pipeline, by the application of an electrical current in such a way that the structure acts as the cathode rather than the anode of an electrolytic cell. (See Coatings for pipelines.)

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity (CEC). The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

CEC. See Cation-exchange capacity.

Cement rock. Shaly limestone used in the manufacture of cement.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

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 depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

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.

Clayey. Sandy clay, silty clay, and clay soil textures.

Claypan. A dense, compact, slowly permeable layer in the subsoil that has a much higher content of clay than the overlying material. A claypan commonly is hard when dry and plastic or sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. See Rock fragments.

Coarse textured soil. Sand or loamy sand.

Coatings for pipelines. Coatings used as a barrier to the flow of electricity and moisture, thereby preventing the formation of corrosion cells.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Unconsolidated, unsorted earth material transported or deposited on side slopes and/or at the base of slopes by mass movement, or direct gravitational action, and by local unconcentrated runoff.

Compaction. The process by which the soil grains are rearranged to decrease void space and bring them into closer contact with one another, thereby increasing bulk density.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter, commonly with a matrix of sand and finer textured material. Cementing agents include silica, calcium carbonate, and iron oxide. Conglomerate is the consolidated equivalent of gravel.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

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.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

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.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Debris flow (mass movement). The process, associated sediment (debris flow deposit), or resultant landform characterized by a very rapid type of flow dominated by sudden downslope movement of a mass of rock, soil, and mud (more than 50 percent particles that are more than 2 millimeters in size) that behaves much like viscous fluid whether it is saturated or relatively dry.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep soil. See Depth, soil.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to bedrock (in tables). Bedrock is too near the surface for the specified use.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedded rock (for example, the long, gently inclined surface of a cuesta).

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 wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat* *poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune. A low mound, ridge, bank, or hill of loose, windblown, granular material (generally sand), either barren or covered with vegetation, that is capable of movement from place to place but always retains its characteristic shape.

Duripan. A subsurface soil horizon that is cemented with illuvial silica, commonly opal or microcrystalline forms, to the degree that less than 50 percent of the volume of air-dry fragments will slake in water or hydrochloric acid.

EC. See Electrical conductivity.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Electrical conductivity (EC). The electrolytic conductivity of an extract from saturated soil paste.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian material. Material transported and deposited by wind, including earth material such as dune sand, sand sheets, loess, and clay.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

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 human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. The term is most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Extrusive. Pertaining to igneous rock and sediment derived from deep-seated molten matter (magma) deposited and cooled on the earth’s surface, including lava flows and tephra deposits.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Family, soil. The most specific hierarchical category in soil taxonomy.

Fan piedmont. The most extensive landform on piedmont slopes that is formed either by the lateral downslope coalescence of mountain-front alluvial fans into one generally smooth slope with or without the transverse undulations of the semiconical alluvial fans or by the accretion of fan aprons.

Fan remnant. A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, fan aprons, inset fans, and fan skirts, that either have been dissected (erosional fan remnants) or partially buried (nonburied fan remnants). An erosional fan remnant has a relatively flat summit that is a relict fan surface. A nonburied fan remnant is a relict surface in its entirety.

Fan terrace. See Fan remnant.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. The nearly level plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is commonly a constructional landform consisting of sediment deposited during overflow and lateral migration of a stream.

Fluvial. Of or pertaining to rivers; produced by river action.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragments. Unattached cemented pieces of bedrock, bedrocklike material, durinodes, concretions, and nodules 2 millimeters in diameter or larger in mineral soils; woody material 20 millimeters in diameter or larger in organic soils.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Granitic. A textural term commonly pertaining to an igneous intrusive rock of felsic to intermediate composition. Referring to granitelike rock, but not necessarily true granite. Commonly applied to granite, quartz monzonite, granodiorite, and diorite.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides cut by the concentrated, but intermittent, flow of water commonly during and immediately following heavy rainfall or following icemelt or snowmelt. A gully generally is an obstacle to wheeled vehicles and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Gypsum content. The percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size.

Halophytic. Pertaining to vegetation that is adapted to salty soils.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hill. A generic term for an area of the land surface that rises as much as 1,000 feet (300 meters) above surrounding lowlands, commonly has restricted summit area relative to surrounding surfaces, and has a well-defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and commonly is dependent on local usage.

Holocene. The epoch of the Quaternary period of geologic time that extends from the end of the Pleistocene (about 10 to 12 thousand years ago) to the present.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. 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.

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.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an 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.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Inset fan. Specific name for the flood plain of an ephemeral stream that is confined between fan remnants, ballenas, basin floor remnants, or closely opposed fan toeslopes of a basin.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. The relatively undissected upland or ridge between two adjacent valleys having streams that flow in the same general direction.

Intermittent stream. A stream, or reach of a stream, that does not flow year-round (commonly is dry for 3 months or more annually), and its channel generally is below the local water table. It flows only when it receives base flow during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Intrusive. Pertaining to igneous rock derived from molten matter (magma) that invaded pre-existing rock and cooled below the surface of the earth.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

K factor. A measurement of potential soil erodibility caused by detachment of soil particles by water.

Lacustrine deposit. Clastic sediment and chemical precipitates deposited in lakes.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Leaching. The removal of soluble material from soil or other material by percolating water.

LEP. See Linear extensibility percent.

Limestone.A sedimentary rock consisting mainly of calcium carbonate (more than 50 percent) dominantly in the form of calcite. Limestone is commonly formed by a combination of organic and inorganic processes and includes chemical and clastic (soluble and insoluble) constituents. Fossils are common in limestone.

Linear extensibility percent (LEP). The linear expression of the volume difference between the water content of the natural soil fabric at $^1/_3$-bar or $^1/_{10}$-bar and oven dryness. The volume change is reported as a percent for the whole soil.

Liquid limit (LL). The moisture content at which the soil passes from a plastic to a liquid state.

LL. See Liquid limit.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, and silty clay loam soil textures.

Loess. Material transported and deposited by wind that consists dominantly of silt-sized clastics.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting mainly of calcium carbonate mixed with clay in approximately equal amounts (35 to 65 percent of each). It is formed primarily under freshwater lacustrine conditions, but some is associated with a more saline environment.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesa. A broad, nearly flat topped and commonly isolated land mass that is bounded by steep slopes or precipitous cliffs and has a nearly horizontal summit that consists of layers of resistant rock and is wider than the height of bounding escarpments. Also used to designate broad structural benches and alluvial terraces at intermediate levels in stepped sequences of platforms bordering canyons and valleys.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement in the earth's crust. Nearly all such rocks are crystalline. Examples are schist, gneiss, quartzite, slate, and marble.

Metasediment. A sediment or sedimentary rock that shows evidence of having been subjected to metamorphism.

Metavolcanic. A volcanic rock that shows evidence of metamorphism but has not been fully metamorphosed into metamorphic rock.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately deep soil. See Depth, soil.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

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. 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).

Mountain. A natural elevation of the land surface that rises more than 1,000 feet (300 meters) above surrounding lowlands, commonly has limited summit area relative to surrounding surfaces, and generally has steep sides (slopes of more than 25 percent) with or without considerable bare-rock surface. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic and/or volcanic activity and by differential erosion.

Mudstone. A blocky or massive, fine grained sedimentary rock indurated by clay and silt in approximately equal amounts. Also, a general term for clay, silt, claystone, siltstone, shale, and argillite that is used only when the amounts of clay and silt are not known or cannot be precisely determined.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

OM. See Organic matter.

Organic matter (OM). Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outcompete. A term describing how aggressive plants can displace native plants.

Paleosol. A soil that formed in a particular area with distinctive morphological features resulting from a soil-forming environment that no longer exists in the area. The pedogenic process was either altered as a result of external environmental changes or interrupted by burial. A paleosol (or component horizon) is classified as relict if it has persisted without major alteration of morphology by the prevailing pedogenic environment. An exhumed paleosol is one that was buried and has been re-exposed by erosion of the mantle. Most paleosols have been affected by some subsequent modification of the morphology of diagnostic horizons and truncation of the profile.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated and chemically weathered mineral and organic material in which the solum of a soil is formed as a result of pedogenic processes.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pediment. A gently sloping erosional surface at the foot of a receding hill or mountain slope. The surface may be essentially bare, exposing earth material that extends beneath adjacent uplands, or it may have a thin mantle of alluvium and colluvium, ultimately in transit from the upland front to the basin or valley lowland. On hill footslope terrain, the mantle is designated “pedisediment.” The term pediment is used in several geomorphic contexts: (1) landscape positions, for example, intermontane basin piedmont or valley border footslope surfaces, or respectively, apron and terrace pediments; (2) type of material eroded, either bedrock or regolith; or (3) a combination of these.

Pedisediment. A layer of sediment eroded from the shoulder and backslope of an erosional slope that is being transported or was transported across a pediment.

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.

Perched water table. The upper surface of unconfined ground water separated from an underlying main body of ground water by an unsaturated zone.

Percolation. The downward movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

PI. See Plasticity index.

Piedmont (adjective). Lying or formed at the base of a mountain or mountain range; for example, a piedmont terrace or a piedmont pediment.

Piedmont (noun). An area, plain, slope, glacier, or other feature at the base of a mountain; for example, a foothill or bajada. In the United States, the Piedmont is a low plateau that extends from New Jersey to Alabama and lies east of the Appalachian Mountains.

Plasticity index (PI). 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.

Plateau. A comparatively flat area of great extent and elevation. Specifically, an extensive land region considerably elevated (more than 100 meters) above adjacent lower lying terrain that is commonly limited on at least one side by an abrupt descent and has a flat or nearly level surface. A relatively large part of a plateau surface is near summit level.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playas consist of fine grained deposits and may or may not have a high water table and may or may not be saline.

Pleistocene. The epoch of the Quaternary period of geologic time following the Pliocene and preceding the Holocene (approximately 2 million to 10 thousand years ago). Also refers to the corresponding (time-stratigraphic) "series" of earth material.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community differs from the potential.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind, proportion, and total production.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

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 degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly 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

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. All unconsolidated earth material above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits. Soil scientists regard as soil only that part of the regolith that has been modified by organisms and soil-forming processes. Most engineers describe the entire regolith, even to a great depth, as “soil.”

Relief. The elevations or inequalities of a land surface, considered collectively.

Remnant. The remaining part of a larger landform or land surface that has been dissected or partially buried.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Riverwash. Barren alluvial areas of unstabilized sand, silt, clay, or gravel reworked frequently by stream activity.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bedrock, excluding lava and rock-lined pits. The kinds of exposed bedrock in this survey area include igneous volcanic rocks, such as breccia, andesite, and basalt; sedimentary rocks, such as sandstone and shale; metavolcanic rocks, such as diorite and gabbro; and metamorphic rocks, such as schist.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

SAR. See Sodium adsorption ratio.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium. Salinity is expressed as the electrical conductivity of a saturation extract at 25 degrees C. Salinity classes, expressed in millimhos per centimeter, are as follows:

Nonsaline	0 to 2
Very slightly saline	2 to 4
Slightly saline	4 to 8
Moderately saline	8 to 16
Strongly saline	more than 16

Saline-sodic soil. A soil that contains sufficient exchangeable sodium to interfere with the growth of most crops and appreciable quantities of soluble salts. The exchangeable sodium ratio is greater than 0.15; the conductivity of the soil solution, when saturated, is greater than 4 decisiemens per meter (at 25 degrees C); and the pH is commonly 8.5 or less when the soil is saturated.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy. Sand and loamy sand soil textures.

Saprolite. Soft, friable, isovolumetrically weathered bedrock that retains the fabric and structure of the parent rock and exhibits extensive intercrystal and intracrystal weathering. In pedology, saprolite has been used to refer to any unconsolidated residual material that underlies the soil and grades to hard bedrock below.

SAR. See Sodium adsorption ratio.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock. A consolidated deposit of clastic particles, chemical precipitates, or organic matter accumulated at or near the surface of the earth under “normal” low temperature and pressure conditions. Sedimentary rock includes the consolidated equivalents of alluvial, colluvial, drift, eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock that formed as a result of the induration of a clay, silty clay, or silty clay loam deposit and has the tendency to split into thin layers (fissility).

Shallow soil. See Depth, soil.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

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. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Moderately sloping	5 to 9 percent
Strongly sloping	9 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 percent and higher

Classes for complex slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 2 percent
Undulating	2 to 5 percent
Gently rolling	5 to 9 percent
Rolling	9 to 15 percent
Hilly	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 percent and higher

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to Ca^{++} + Mg^{++}. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil erodibility factors. The Kw and Kf factors quantify the susceptibility of soil to detachment by water. These erodibility factors predict the long-term average soil loss that results from sheet and rill erosion when various cropping systems and conservation techniques are used. The whole soil is considered in the Kw factor, but only the fine-earth fraction, which is the material less than 2 millimeters in diameter, is considered in the Kf factor.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A sheetlike lag concentration of coarse fragments in surficial sediment. In cross section, the line may be marked only by scattered fragments or it may be a discrete layer of fragments. The fragments are more commonly pebbles or cobbles than stones. A stone line generally overlies material that was subject to weathering, soil formation, and erosion before deposition of the overlying material. Many stone lines appear to be buried erosion pavement originally formed by running water on the land surface and concurrently covered by surficial sediment.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stratified. Referring to geologic deposits that were formed, arranged, or laid down in layers. Layers in soils that are a result of the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Stream terrace. One of a series of platforms in a stream valley that flanks and is more or less parallel to the stream channel, originally formed near the level of the stream, and represents the dissected remnants of an abandoned flood plain, streambed, or valley floor produced during an earlier period of erosion or deposition.

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 grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsidence. The decrease in surface elevation as a result of the drainage of wet soils that have organic layers or semifluid mineral layers.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

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.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

T factor. The soil loss tolerance, which is defined as the maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained. Maintaining the quality of the soil includes maintaining the surface soil as a seedbed for plants, maintaining the atmosphere-soil interface to allow the entry of air and water into the soil and still protect the underlying soil from wind and water erosion, and maintaining the total soil volume as a reservoir for water and plant nutrients, which is preserved by minimizing soil loss.

Talus. Rock fragments of any size or shape (commonly coarse and angular) at the base of a cliff or very steep rock slope; the accumulated mass of such loose, broken rock formed mainly by falling, rolling, or sliding.

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. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Temperature regime, soil. A system that categorizes for taxonomic purposes general, long-term soil temperature conditions at the standard depth of 20 inches or at the surface of the bedrock, whichever is at a shallower depth. The various regimes are defined according to the freezing point of water or to the high and low extremes for significant biological activity. The regimes are defined in “Keys to Soil Taxonomy” (Soil Survey Staff, 1998).

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphologic). A steplike surface bordering a valley floor or shoreline that represents the former position of a flood plain, lake, or seashore. The term is commonly applied to both the relatively flat summit surface (tread) that has been cut or built up by stream or wave action and the steeper descending slope (scarp or riser) that grades to a lower base level of erosion. Practically, terraces are considered to be generally flat alluvial areas above the 100-year flood stage.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tuff. A generic term for any consolidated or cemented deposit that is 50 percent volcanic ash (less than 2 millimeters in size). Various types of tuff can be recognized by their composition; acidic tuff is dominantly acidic particles and basic tuff is dominantly basic particles.

Unified soil classification. A system for classifying mineral and organic soils for engineering purposes based on particle-size characteristics, liquid limit, and plasticity index.

Upland (geomorphologic). A general term for the higher land of a region in contrast to the low-lying, adjacent land, such as a valley or plain; land at a higher elevation than the flood plain or low stream terrace; or land above the footslope zone of the hillslope continuum.

Valley fill. The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) that fills or partly fills a valley.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Vegetative cover. The crown cover of all live plants in relation to the ground surface.

Very deep soil. See Depth, soil.

Very shallow soil. See Depth, soil.

Water table. The upper surface of ground water or the level below which the soil is saturated by water. Also, the top of an aquifer.

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.

WEG. See Wind erodibility group.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wind erodibility group (WEG). A grouping of soils that have similar properties affecting their resistance to wind erosion in cultivated areas.

Windthrow. The uprooting and tipping over of trees by the wind.

Xeric moisture regime. The typical moisture regime in areas of Mediterranean climates, where it is moist and cool in winter and warm and dry in summer. When potential evapotranspiration is at a minimum, the moisture, which falls in winter, is particularly effective in leaching. The mean annual soil temperature is less than 22 degrees C, and the difference between the mean summer and mean winter soil temperature is 6 degrees.

Xerophytic. Pertaining to vegetation that is adapted to dry areas.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1988-2000 on Santa Rosa Island, Bechers Bay; 1981-2004 on San Miguel Island; and 2004-2006 on Anacapa Island)

Month	Temperature			Precipitation	
	Average daily maximum	Average daily minimum	Average number of growing degree days*	Average	Average number of days with 0.10 inch or more
	°F	°F	*Units*	*In*	
SANTA ROSA ISLAND:					
January	63.5	48.2	169	7.48	11
February	62.4	48.6	164	5.99	8
March	63.2	49.4	205	2.93	4
April	64.3	49.6	214	1.95	2
May	66.3	51.8	277	.83	2
June	69.1	53.6	348	.18	1
July	70.2	55.4	382	.00	0
August	72.5	56.7	458	.04	0
September	72.5	56.7	441	.12	0
October	72.8	54.5	428	.38	0
November	65.8	49.2	269	2.16	3
December	64.6	47.8	220	4.42	3
Yearly:					
Average	67.5	51.9	---	---	---
Extreme	95	30	---	---	---
Total	---	---	3,575	26.48	34
SAN MIGUEL ISLAND:					
January	61.0	46.0	140	5.28	5
February	61.4	46.9	128	5.67	12
March	62.6	48.1	130	5.54	4
April	64.5	48.7	194	2.97	4
May	65.7	50.3	213	1.18	1
June	67.8	52.4	289	.24	0
July	70.6	54.7	392	.15	0
August	70.4	55.6	391	.13	0
September	70.4	55.7	345	.38	0
October	69.0	53.4	327	.68	1
November	62.2	48.6	200	2.79	1
December	61.6	47.2	203	4.36	---
Yearly:					
Average	65.8	50.8	---	---	---
Extreme	100	28	---	---	---
Total	---	---	2,952	29.37	---

Table 1.--Temperature and Precipitation--Continued

Month	Temperature			Precipitation	
	Average daily maximum	Average daily minimum	Average number of growing degree days*	Average	Average number of days with 0.10 inch or more
	°F	*°F*	*Units*	*In*	
ANACAPA ISLAND:					
January	62.1	50.8	164	5.36	7
February	62.8	50.1	166	4.28	3
March	64.5	50.7	192	3.10	3
April	67.5	52.0	226	1.27	2
May	70.1	54.7	303	.46	1
June	72.1	57.2	382	.18	0
July	74.3	59.2	465	.15	0
August	74.0	60.3	478	.04	0
September	73.5	60.1	449	.23	0
October	71.3	58.2	395	.52	1
November	64.8	52.2	323	1.53	2
December	63.0	51.0	189	3.24	4
Yearly:					
Average	68.5	54.9	---	---	---
Extreme	94	31	---	---	---
Total	---	---	3,732	20.36	23

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
100	Fiale-Tongva-Topdeck association, 15 to 60 percent slopes	2,746	2.2
101	Spinnaker-Tongva-Fiale association, 15 to 75 percent slopes	2,285	1.8
102	Fiale-Topdeck association, 2 to 8 percent slopes	1,384	1.1
103	Fiale-Topdeck-Rock outcrop complex, 30 to 75 percent slopes	2,711	2.2
120	Miasotus-Yardarm association, 30 to 75 percent slopes	1,630	1.3
130	Frigate-Yardarm association, 30 to 75 percent slopes	469	0.4
150	Halyard-Topdeck-Tongva complex, 15 to 75 percent slopes	1,162	0.9
152	Halyard-Starboard association, 2 to 20 percent slopes	58	*
153	Halyard-Topdeck association, 4 to 15 percent slopes	784	0.6
155	Halyard-Fiale association, 2 to 9 percent slopes	1,104	0.9
160	Beaches-Abaft complex, 0 to 5 percent slopes	1,069	0.9
180	Typic Argixerolls, 0 to 8 percent slopes	238	0.2
190	Typic Xerofluvents-Riverwash complex, 0 to 8 percent slopes	526	0.4
200	Fantail, thin surface-Forestay-Fantail association, 20 to 75 percent slopes	6,436	5.2
210	Lospinos-Forestay complex, 2 to 20 percent slopes	113	*
211	Lospinos loam, 8 to 30 percent slopes	313	0.3
212	Lospinos-Rock outcrop complex, 30 to 75 percent slopes	1,152	0.9
230	Fantail gravelly loam, 30 to 75 percent slopes	97	*
240	Delphine-Miasotus-Yardarm association, 30 to 75 percent slopes	1,252	1.0
241	Delphine-Badland-Miasotus complex, 30 to 75 percent slopes	2,537	2.0
250	Spinnaker-Starboard-Rock outcrop complex, 30 to 75 percent slopes	8,245	6.6
251	Spinnaker-Rock outcrop complex, 30 to 75 percent slopes	2,227	1.8
260	Starboard-Spinnaker-Rock outcrop complex, 30 to 75 percent slopes	1,403	1.1
262	Halyard-Fantail association, 30 to 85 percent slopes	969	0.8
263	Starboard-Pachic Argixerolls-Rock outcrop complex, 30 to 75 percent slopes	372	0.3
270	Topdeck-Rock outcrop-Spinnaker complex, 30 to 75 percent slopes	880	0.7
271	Topdeck-Spinnaker-Tongva complex, 30 to 75 percent slopes	667	0.5
272	Topdeck-Starboard-Rock outcrop complex, 15 to 75 percent slopes	579	0.5
273	Topdeck, overblown-Typic Durixerolls, loamy subsoil, complex, 9 to 30 percent slopes	540	0.4
290	Rock outcrop-Topdeck-Starboard complex, 30 to 80 percent slopes	445	0.4
291	Rock outcrop-Spinnaker-Topdeck complex, 30 to 80 percent slopes	10,639	8.6
292	Rock outcrop-Buoy-Bereme-Typic Palexerolls complex, 15 to 75 percent slopes	2,504	2.0
300	Cumulic Haploxerolls, 2 to 8 percent slopes	1,458	1.2
310	Livigne-Macool-Badland complex, 30 to 70 percent slopes	1,692	1.4
311	Livigne-Gunwale association, 30 to 75 percent slopes	562	0.5
321	Rudder-Spinnaker, moist-Rock outcrop complex, 30 to 75 percent slopes	1,148	0.9
650	Abaft loamy sand, 2 to 9 percent slopes	685	0.6
651	Abaft association, 2 to 25 percent slopes	585	0.5
660	Pachic Haploxerolls, 2 to 9 percent slopes	696	0.6
670	Ironshot-Ahoy association, 2 to 15 percent slopes	1,307	1.1
680	Bereme-Rock outcrop complex, 30 to 75 percent slopes	1,496	1.2
681	Bereme-Rock outcrop complex, 15 to 50 percent slopes	2,685	2.2
690	Typic Xerorthents-Ultic Haploxeralfs-Rock outcrop complex, 30 to 75 percent slopes	38	*
700	Ahoy-Hawser complex, 2 to 30 percent slopes	6,476	5.2
710	Windage-Typic Xerorthents-Buoy complex, 30 to 75 percent slopes	9,271	7.5
711	Windage-Hawser-Typic Haploxeralfs complex, 30 to 65 percent slopes	5,387	4.3
712	Windage-Buoy complex, 30 to 50 percent slopes	4,940	4.0
713	Windage-Ballast complex, 20 to 55 percent slopes	316	0.3
721	Buoy fine sandy loam, 9 to 30 percent slopes	692	0.6
722	Buoy-Rock outcrop complex, 9 to 30 percent slopes	372	0.3
723	Buoy-Lithic Argixerolls-Rock outcrop complex, 15 to 35 percent slopes	442	0.4
724	Buoy-Rock outcrop-Ballast complex, 30 to 75 percent slopes	3,636	2.9
725	Buoy-Typic Haploxeralfs complex, 9 to 30 percent slopes	813	0.7
730	Lodestone-Ballast-Buoy complex, 15 to 65 percent slopes	2,256	1.8
761	Lodestone-Typic Xerorthents-Windage complex, 25 to 60 percent slopes	3,504	2.8
762	Lodestone-Ballast-Halyard complex, 20 to 55 percent slopes	664	0.5
763	Hawser-Lodestone-Buoy complex, 20 to 60 percent slopes	196	0.2

See footnote at end of table.

Table 2.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
780	Typic Argixerolls complex, 30 to 75 percent slopes	827	0.7
800	Ballast-Halyard-Typic Argixerolls complex, 9 to 50 percent slopes	526	0.4
850	Typic Natrixeralfs-Typic Haploxeralfs, dry, complex, 5 to 20 percent slopes	272	0.2
851	Typic Haploxeralfs, dry, Typic Natrixeralfs complex, 20 to 50 percent slopes	135	0.1
852	Lithic Argixerolls, dry-Typic Natrixeralfs complex, 2 to 20 percent slopes	36	*
853	Rock outcrop-Typic Haploxeralfs complex, 50 to 120 percent slopes	204	0.2
860	Topdeck-Halyard association, 4 to 15 percent slopes	166	0.1
861	Rock outcrop-Topdeck-Spinnaker complex, 30 to 75 percent slopes	574	0.5
900	Petrocalcic Palexeralfs, 5 to 15 percent slopes	1,839	1.5
910	Hawser association, 2 to 20 percent slopes	631	0.5
920	Typic Durixerolls, 5 to 15 percent slopes	5,465	4.4
921	Typic Durixerolls, 9 to 30 percent slopes	503	0.4
930	Fluventic Haploxerolls, 1 to 4 percent slopes	85	*
940	Typic Durixeralfs, 40 to 80 percent slopes	1,791	1.4
950	Ahoy-Ironshot association, 5 to 15 percent slopes	1,113	0.9
970	Dune land, 9 to 30 percent slopes	494	0.4
980	Lithic Haploxeralfs, 15 to 50 percent slopes	588	0.5
	Total	124,102	100.0

* Less than 0.1 percent.

Table 3.--Land Capability Classification

(Land capability based on State criteria developed in 1978 and revised in 1992)

Map symbol and soil name	Land capability, nonirrigated
100:	
Fiale	6e
Tongva	6e
Topdeck	6e
101:	
Spinnaker	6e
Tongva	6e
Fiale	6e
102:	
Fiale	3e
Topdeck	6e
103:	
Fiale	6e
Topdeck	6e
Rock outcrop	8
120:	
Miasotus	7e
Yardarm	6e
130:	
Frigate	6e
Yardarm	6e
150:	
Halyard	7e
Topdeck	6e
Tongva	7e
152:	
Halyard	3e
Starboard	4e
153:	
Halyard	3e
Topdeck	6e
155:	
Halyard	3e
Fiale	3e

Table 3.--Land Capability Classification--Continued

Map symbol and soil name	Land capability, nonirrigated
160:	
Beaches	8w
Abaft	4e
180:	
Typic Argixerolls, very deep	3e
190:	
Typic Xerofluvents	3e
Riverwash	8w
200:	
Fantail, thin surface	8e
Forestay	8e
Fantail	8e
210:	
Lospinos	6e
Forestay	3e
Forestay, strongly sloping	6e
211:	
Lospinos	6e
212:	
Lospinos	7e
Rock outcrop	8
230:	
Fantail	8e
240:	
Delphine	7e
Miasotus	7e
Yardarm	7e
241:	
Delphine	7e
Badland	8e
Miasotus	7e
250:	
Spinnaker	7e
Starboard	7e
Rock outcrop	8
251:	
Spinnaker	7e
Rock outcrop	8

Table 3.--Land Capability Classification--Continued

Map symbol and soil name	Land capability, nonirrigated
260:	
Starboard	7e
Spinnaker	7e
Rock outcrop	8
262:	
Halyard	7e
Fantail	8e
263:	
Starboard	7e
Pachic Argixerolls	7e
Rock outcrop	8
270:	
Topdeck	7e
Rock outcrop	8
Spinnaker	7e
271:	
Topdeck	7e
Spinnaker	7e
Tongva	7e
272:	
Topdeck	6e
Starboard	6e
Rock outcrop	8
273:	
Topdeck, overblown	7e
Typic Durixerolls, loamy subsoil	6e
290:	
Rock outcrop	8
Topdeck	7e
Starboard	7e
291:	
Rock outcrop	8
Spinnaker	8e
Topdeck	8e

Table 3.--Land Capability Classification--Continued

Map symbol and soil name	Land capability, nonirrigated
292:	
Rock outcrop	8
Buoy	7e
Bereme	6e
Typic Palexerolls	8e
300:	
Cumulic Haploxerolls	3e
310:	
Livigne	8e
Macool	8e
Badland	8
311:	
Livigne	7e
Gunwale	8e
321:	
Rudder	7e
Spinnaker, moist	7e
Rock outcrop	8
650:	
Abaft	4e
651:	
Abaft	4e
Abaft, moderately steep	4e
660:	
Pachic Haploxerolls	4e
670:	
Ironshot	4e
Ahoy	3e
680:	
Bereme	7e
Rock outcrop	8
681:	
Bereme	7e
Rock outcrop	8
690:	
Typic Xerorthents	7e
Ultic Haploxeralfs	8e
Rock outcrop	8

Table 3.--Land Capability Classification--Continued

Map symbol and soil name	Land capability, nonirrigated
700:	
Ahoy	4e
Hawser, moderately steep	4e
Ahoy, moderately steep	6e
Hawser	4e
710:	
Windage	8e
Typic Xerorthents	7e
Buoy	8e
711:	
Windage	8e
Hawser	8e
Typic Haploxeralfs	8e
712:	
Windage	6e
Buoy	7e
713:	
Windage	7e
Ballast	8e
721:	
Buoy	6e
722:	
Buoy, cobbly	6e
Rock outcrop	8
723:	
Buoy	7e
Lithic Argixerolls	6e
Rock outcrop	8
724:	
Buoy	8e
Rock outcrop	8
Ballast	7e
725:	
Buoy	6e
Typic Haploxeralfs	6e

Table 3.--Land Capability Classification--Continued

Map symbol and soil name	Land capability, nonirrigated
730:	
Lodestone, very deep	7e
Ballast	6e
Buoy	8e
761:	
Lodestone	6e
Typic Xerorthents	7e
Windage	7e
762:	
Lodestone	6e
Ballast	8e
Halyard	8e
763:	
Hawser	6e
Lodestone, very deep	6e
Buoy	8e
780:	
Typic Argixerolls	7e
800:	
Ballast	6e
Halyard	7e
Typic Argixerolls	7e
850:	
Typic Natrixeralfs	4e
Typic Haploxeralfs, dry	6e
851:	
Typic Haploxeralfs, dry	7e
Typic Natrixeralfs	7e
852:	
Lithic Argixerolls, dry	8e
Typic Natrixeralfs	7e
853:	
Rock outcrop	8
Typic Haploxeralfs, dry	7e
860:	
Topdeck	6e
Halyard	3e

Table 3.--Land Capability Classification--Continued

Map symbol and soil name	Land capability, nonirrigated
861:	
Rock outcrop	8
Topdeck	7e
Spinnaker	7e
900:	
Petrocalcic Palexeralfs	6e
910:	
Hawser	3e
Hawser, moderately steep	4e
920:	
Typic Durixerolls	4e
921:	
Typic Durixerolls	6e
930:	
Fluventic Haploxerolls	3e
940:	
Typic Durixeralfs	8e
950:	
Ahoy	4e
Ironshot	3e
970:	
Dune land	8e
980:	
Lithic Haploxeralfs	7e

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation

(Only the soils that are assigned ecological sites are listed in this table. For map units that consist of soils and Rock outcrop, the Rock outcrop is not listed)

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
100:						
Fiale	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Tongva	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)	31
					Santa Cruz Island buckwheat (ERAR6)	25
					Wild oat (AVFA)	12
					Lupine (LUPIN)	6
					Ripgut brome (BRRI8)	6
					Spanish brome (BRMA3)	3
					Foothill stipa (NALE2)	3
					Pricklypear (OPUNT)	3
					Purple needlegrass (NAPU4)	3
					Soft chess (BRHOH)	3
					Coyotebrush (BAPI)	2
					Slender oat (AVBA)	2
					Perennial ryegrass (LOPE)	1
Topdeck	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
101:						
Spinnaker	Shallow Uplands 13-24" p.z., R020XI102CA	900	600	300	Redflower buckwheat (ERGRG5)	37
					Santa Cruz Island buckwheat (ERAR6)	31
					Foothill stipa (NALE2)	9
					Threeawn (ARIST)	6
					Spanish brome (BRMA3)	4
					Island bristleweed (HADE4)	4
					Oat (AVENA)	4
					Dove weed (CRSE11)	1
					Island broom (LODE2)	1
					Pricklypear (OPUNT)	1
					Soft chess (BRHOH)	1
Tongva	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)	31
					Santa Cruz Island buckwheat (ERAR6)	25
					Wild oat (AVFA)	12
					Lupine (LUPIN)	6
					Ripgut brome (BRRI8)	6
					Spanish brome (BRMA3)	3
					Foothill stipa (NALE2)	3
					Pricklypear (OPUNT)	3
					Purple needlegrass (NAPU4)	3
					Soft chess (BRHOH)	3
					Coyotebrush (BAPI)	2
					Slender oat (AVBA)	2
					Perennial ryegrass (LOPE)	1
Fiale	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
102:						
Fiale	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Topdeck	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
103:						
Fiale	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	Lb/acre	Lb/acre		Pct
103:						
Topdeck	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)	31
					Santa Cruz Island buckwheat (ERAR6)	25
					Wild oat (AVFA)	12
					Lupine (LUPIN)	6
					Ripgut brome (BRRI8)	6
					Spanish brome (BRMA3)	3
					Foothill stipa (NALE2)	3
					Pricklypear (OPUNT)	3
					Purple needlegrass (NAPU4)	3
					Soft chess (BRHOH)	3
					Coyotebrush (BAPI)	2
					Slender oat (AVBA)	2
					Perennial ryegrass (LOPE)	1
120:						
Miasotus	Convex Slopes 13-24" p.z., R020XI108CA	1,000	800	600	Spanish brome (BRMA3)	25
					Channel Island scrub oak (QUPA6)	16
					Island manzanita (ARIN2)	16
					Island ceanothus (CEMEI2)	12
					Chamise (ADFA)	8
					Island mountain mahogany (CEMOB)	8
					Ripgut brome (BRRI8)	8
					Southern bush monkeyflower (DILO6)	5
					Climbing bedstraw (GANU)	1
					Soft chess (BRHOH)	1
Yardarm	Concave Slopes 13-24" p.z., R020XI110CA	1,500	1,000	800	Channel Island scrub oak (QUPA6)	37
					Toyon (HEAR5)	20
					Hollyleaf cherry (PRIL)	10
					Lemonade sumac (RHIN2)	10
					Summer holly (CODI3)	10
					Island manzanita (ARIN2)	5
					Bigpod ceanothus (CEMEM2)	2
					Cucamonga manroot (MAMA8)	1
					Climbing bedstraw (GANU)	1
					Foothill stipa (NALE2)	1
					Ripgut brome (BRRI8)	1
					Roundfruit sedge (CAGL7)	1
					Southern bush monkeyflower (DILO6)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
130:						
Frigate	Pinus muricata/Quercus pacifica, F020XI200CA	900	600	300	---	---
Yardarm	Concave Slopes 13-24" p.z., R020XI110CA	1,500	1,000	800	Channel Island scrub oak (QUPA6)	37
					Toyon (HEAR5)	20
					Hollyleaf cherry (PRIL)	10
					Lemonade sumac (RHIN2)	10
					Summer holly (CODI3)	10
					Island manzanita (ARIN2)	5
					Bigpod ceanothus (CEMEM2)	2
					Cucamonga manroot (MAMA8)	1
					Climbing bedstraw (GANU)	1
					Foothill stipa (NALE2)	1
					Ripgut brome (BRRI8)	1
					Roundfruit sedge (CAGL7)	1
					Southern bush monkeyflower (DILO6)	1
150:						
Halyard	Deep Slopes 13-24" p.z., R020XI105CA	2,000	1,500	1,000	Wild oat (AVFA)	23
					Tussockgrass (NASSE)	18
					California sagebrush (ARCA11)	15
					Island mountain mahogany (CEMOB)	11
					Santa Cruz Island buckwheat (ERAR6)	8
					Lemonade sumac (RHIN2)	6
					Island ceanothus (CEMEI2)	5
					Chamise (ADFA)	4
					Channel Island scrub oak (QUPA6)	3
					Spanish brome (BRMA3)	2
					Ripgut brome (BRRI8)	2
					Island broom (LODE2)	1
					Monkeyflower (MIMUL)	1
					Soft chess (BRHOH)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
150:						
Topdeck	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Tongva	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)	31
					Santa Cruz Island buckwheat (ERAR6)	25
					Wild oat (AVFA)	12
					Lupine (LUPIN)	6
					Ripgut brome (BRRI8)	6
					Spanish brome (BRMA3)	3
					Foothill stipa (NALE2)	3
					Pricklypear (OPUNT)	3
					Purple needlegrass (NAPU4)	3
					Soft chess (BRHOH)	3
					Coyotebrush (BAPI)	2
					Slender oat (AVBA)	2
					Perennial ryegrass (LOPE)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
152:						
Halyard	Deep Slopes 13-24" p.z., R020XI105CA	2,000	1,500	1,000	Wild oat (AVFA)	23
					Tussockgrass (NASSE)	18
					California sagebrush (ARCA11)	15
					Island mountain mahogany (CEMOB)	11
					Santa Cruz Island buckwheat (ERAR6)	8
					Lemonade sumac (RHIN2)	6
					Island ceanothus (CEMEI2)	5
					Chamise (ADFA)	4
					Channel Island scrub oak (QUPA6)	3
					Spanish brome (BRMA3)	2
					Ripgut brome (BRRI8)	2
					Island broom (LODE2)	1
					Monkeyflower (MIMUL)	1
					Soft chess (BRHOH)	1
Starboard	Moderately Deep Volcanic Slopes 13-31" p.z., R020XI112CA	800	500	300	Ripgut brome (BRRI8)	37
					Channel Island scrub oak (QUPA6)	24
					California live oak (QUAG)	9
					Toyon (HEAR5)	9
					Summer holly (CODI3)	6
					Cucamonga manroot (MAMA8)	5
					California brome (BRCA5)	4
					Oak (QUERC)	3
					Stickywilly (GAAP2)	3
153:						
Halyard	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
153:						
Topdeck	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
155:						
Halyard	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Fiale	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
155:						
Abaft	Sandy Dunes 13-34" p.z., R020XI101CA	500	250	100	Red sand verbena (ABMA2)	30
					Silver lupine (LUAL4)	30
					Beach-bur (AMCH4)	14
					San Miguel milkvetch (ASMI6)	7
					European searocket (CAMA)	6
					Beach saltbush (ATLE2)	6
					Inland saltgrass (DISP)	3
					Prostrate coastal goldenbush (ISMES)	3
					Beach suncup (CACHC)	1
180:						
Typic Argixerolls, very deep	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
190:						
Typic Xerofluvents	Riparian Areas 13-31" p.z., R020XI103CA	3,000	1,500	1,000	Seep willow (BASA4)	30
					Santa Cruz Island buckwheat (ERAR6)	10
					Beardless wildrye (LETR5)	10
					Oat (AVENA)	10
					Ripgut brome (BRRI8)	10
					Arroyo willow (SALA6)	8
					Coyotebrush (BAPI)	5
					Inland saltgrass (DISP)	4
					Redflower buckwheat (ERGRG5)	3
					California brome (BRCA5)	2
					Black cottonwood (POBAT)	2
					Island broom (LODE2)	2
					Spanish brome (BRMA3)	1
					Spanish clover (LOUNU)	1
					Silver lupine (LUAL4)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
200:						
Fantail, thin surface---	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)--	46
					Ripgut brome (BRRI8)-----------	23
					Santa Cruz Island buckwheat (ERAR6)----------------------	20
					Wild oat (AVFA)----------------	15
					Lupine (LUPIN)-----------------	7
					Redflower buckwheat (ERGRG5)---	6
					Perennial ryegrass (LOPE)------	4
					Purple needlegrass (NAPU4)-----	4
					Coyotebrush (BAPI)-------------	2
					Foothill stipa (NALE2)---------	2
					Slender oat (AVBA)-------------	2
					Soft chess (BRHOH)-------------	2
					Common catchfly (SIGA)---------	1
Forestay----------------	Shaly Slopes 13-24" p.z., R020XI109CA	2,000	1,500	1,000	Channel Island scrub oak (QUPA6)----------------------	29
					Ripgut brome (BRRI8)-----------	26
					Horehound (MAVU)---------------	23
					California live oak (QUAG)-----	6
					Island manzanita (ARIN2)-------	4
					Wild oat (AVFA)----------------	4
					Cucamonga manroot (MAMA8)------	3
					Island broom (LODE2)-----------	3
					Black mustard (BRNI)-----------	2
Fantail-----------------	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)--	46
					Ripgut brome (BRRI8)-----------	23
					Santa Cruz Island buckwheat (ERAR6)----------------------	20
					Wild oat (AVFA)----------------	15
					Lupine (LUPIN)-----------------	7
					Redflower buckwheat (ERGRG5)---	6
					Perennial ryegrass (LOPE)------	4
					Purple needlegrass (NAPU4)-----	4
					Coyotebrush (BAPI)-------------	2
					Foothill stipa (NALE2)---------	2
					Slender oat (AVBA)-------------	2
					Soft chess (BRHOH)-------------	2
					Common catchfly (SIGA)---------	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
210:						
Lospinos----------------	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)--	46
					Ripgut brome (BRRI8)-----------	23
					Santa Cruz Island buckwheat (ERAR6)----------------------	20
					Wild oat (AVFA)----------------	15
					Lupine (LUPIN)-----------------	7
					Redflower buckwheat (ERGRG5)---	6
					Perennial ryegrass (LOPE)------	4
					Purple needlegrass (NAPU4)-----	4
					Coyotebrush (BAPI)-------------	2
					Foothill stipa (NALE2)---------	2
					Slender oat (AVBA)-------------	2
					Soft chess (BRHOH)-------------	2
					Common catchfly (SIGA)---------	1
Forestay----------------	Shaly Slopes 13-24" p.z., R020XI109CA	2,000	1,500	1,000	Channel Island scrub oak (QUPA6)----------------------	29
					Ripgut brome (BRRI8)-----------	26
					Horehound (MAVU)---------------	23
					California live oak (QUAG)-----	6
					Island manzanita (ARIN2)-------	4
					Wild oat (AVFA)----------------	4
					Cucamonga manroot (MAMA8)------	3
					Island broom (LODE2)-----------	3
					Black mustard (BRNI)-----------	2
Forestay, strongly sloping----------------	Shaly Slopes 13-24" p.z., R020XI109CA	2,000	1,500	1,000	Channel Island scrub oak (QUPA6)----------------------	29
					Ripgut brome (BRRI8)-----------	26
					Horehound (MAVU)---------------	23
					California live oak (QUAG)-----	6
					Island manzanita (ARIN2)-------	4
					Wild oat (AVFA)----------------	4
					Cucamonga manroot (MAMA8)------	3
					Island broom (LODE2)-----------	3
					Black mustard (BRNI)-----------	2

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
211:						
Lospinos	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
212:						
Lospinos	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
230:						
Fantail	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
240:						
Delphine	Shallow Uplands 13-24" p.z., R020XI102CA	900	600	300	Redflower buckwheat (ERGRG5)	37
					Santa Cruz Island buckwheat (ERAR6)	31
					Foothill stipa (NALE2)	9
					Threeawn (ARIST)	6
					Spanish brome (BRMA3)	4
					Island bristleweed (HADE4)	4
					Oat (AVENA)	4
					Dove weed (CRSE11)	1
					Island broom (LODE2)	1
					Pricklypear (OPUNT)	1
					Soft chess (BRHOH)	1
Miasotus	Convex Slopes 13-24" p.z., R020XI108CA	1,000	800	600	Spanish brome (BRMA3)	25
					Channel Island scrub oak (QUPA6)	16
					Island manzanita (ARIN2)	16
					Island ceanothus (CEMEI2)	12
					Chamise (ADFA)	8
					Island mountain mahogany (CEMOB)	8
					Ripgut brome (BRRI8)	8
					Southern bush monkeyflower (DILO6)	5
					Climbing bedstraw (GANU)	1
					Soft chess (BRHOH)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
240:						
Yardarm	Concave Slopes 13-24" p.z., R020XI110CA	1,500	1,000	800	Channel Island scrub oak (QUPA6)	37
					Toyon (HEAR5)	20
					Hollyleaf cherry (PRIL)	10
					Lemonade sumac (RHIN2)	10
					Summer holly (CODI3)	10
					Island manzanita (ARIN2)	5
					Bigpod ceanothus (CEMEM2)	2
					Cucamonga manroot (MAMA8)	1
					Climbing bedstraw (GANU)	1
					Foothill stipa (NALE2)	1
					Ripgut brome (BRRI8)	1
					Roundfruit sedge (CAGL7)	1
					Southern bush monkeyflower (DILO6)	1
241:						
Delphine	Shallow Uplands 13-24" p.z., R020XI102CA	900	600	300	Redflower buckwheat (ERGRG5)	37
					Santa Cruz Island buckwheat (ERAR6)	31
					Foothill stipa (NALE2)	9
					Threeawn (ARIST)	6
					Spanish brome (BRMA3)	4
					Island bristleweed (HADE4)	4
					Oat (AVENA)	4
					Dove weed (CRSE11)	1
					Island broom (LODE2)	1
					Pricklypear (OPUNT)	1
					Soft chess (BRHOH)	1
Miasotus	Convex Slopes 13-24" p.z., R020XI108CA	1,000	800	600	Spanish brome (BRMA3)	25
					Channel Island scrub oak (QUPA6)	16
					Island manzanita (ARIN2)	16
					Island ceanothus (CEMEI2)	12
					Chamise (ADFA)	8
					Island mountain mahogany (CEMOB)	8
					Ripgut brome (BRRI8)	8
					Southern bush monkeyflower (DILO6)	5
					Climbing bedstraw (GANU)	1
					Soft chess (BRHOH)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	Lb/acre	Lb/acre		Pct
250:						
Spinnaker	Shallow Uplands 13-24" p.z., R020XI102CA	900	600	300	Redflower buckwheat (ERGRG5)	37
					Santa Cruz Island buckwheat (ERAR6)	31
					Foothill stipa (NALE2)	9
					Threeawn (ARIST)	6
					Spanish brome (BRMA3)	4
					Island bristleweed (HADE4)	4
					Oat (AVENA)	4
					Dove weed (CRSE11)	1
					Island broom (LODE2)	1
					Pricklypear (OPUNT)	1
					Soft chess (BRHOH)	1
Starboard	Moderately Deep Volcanic Slopes 13-31" p.z., R020XI112CA	800	500	300	Ripgut brome (BRRI8)	37
					Channel Island scrub oak (QUPA6)	24
					California live oak (QUAG)	9
					Toyon (HEAR5)	9
					Summer holly (CODI3)	6
					Cucamonga manroot (MAMA8)	5
					California brome (BRCA5)	4
					Oak (QUERC)	3
					Stickywilly (GAAP2)	3
251:						
Spinnaker	Shallow Uplands 13-24" p.z., R020XI102CA	900	600	300	Redflower buckwheat (ERGRG5)	37
					Santa Cruz Island buckwheat (ERAR6)	31
					Foothill stipa (NALE2)	9
					Threeawn (ARIST)	6
					Spanish brome (BRMA3)	4
					Island bristleweed (HADE4)	4
					Oat (AVENA)	4
					Dove weed (CRSE11)	1
					Island broom (LODE2)	1
					Pricklypear (OPUNT)	1
					Soft chess (BRHOH)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
260:						
Starboard	Moderately Deep Volcanic Slopes 13-31" p.z., R020XI112CA	800	500	300	Ripgut brome (BRRI8)	37
					Channel Island scrub oak (QUPA6)	24
					California live oak (QUAG)	9
					Toyon (HEAR5)	9
					Summer holly (CODI3)	6
					Cucamonga manroot (MAMA8)	5
					California brome (BRCA5)	4
					Oak (QUERC)	3
					Stickywilly (GAAP2)	3
Spinnaker	Shallow Uplands 13-24" p.z., R020XI102CA	900	600	300	Redflower buckwheat (ERGRG5)	37
					Santa Cruz Island buckwheat (ERAR6)	31
					Foothill stipa (NALE2)	9
					Threeawn (ARIST)	6
					Spanish brome (BRMA3)	4
					Island bristleweed (HADE4)	4
					Oat (AVENA)	4
					Dove weed (CRSE11)	1
					Island broom (LODE2)	1
					Pricklypear (OPUNT)	1
					Soft chess (BRHOH)	1
262:						
Halyard	Moderately Deep Volcanic Slopes 13-31" p.z., R020XI112CA	800	500	300	Ripgut brome (BRRI8)	37
					Channel Island scrub oak (QUPA6)	24
					California live oak (QUAG)	9
					Toyon (HEAR5)	9
					Summer holly (CODI3)	6
					Cucamonga manroot (MAMA8)	5
					California brome (BRCA5)	4
					Oak (QUERC)	3
					Stickywilly (GAAP2)	3

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
262:						
Fantail	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
263:						
Starboard	Moderately Deep Volcanic Slopes 13-31" p.z., R020XI112CA	800	500	300	Ripgut brome (BRRI8)	37
					Channel Island scrub oak (QUPA6)	24
					California live oak (QUAG)	9
					Toyon (HEAR5)	9
					Summer holly (CODI3)	6
					Cucamonga manroot (MAMA8)	5
					California brome (BRCA5)	4
					Oak (QUERC)	3
					Stickywilly (GAAP2)	3
Pachic Argixerolls	Shaly Slopes 13-24" p.z., R020XI109CA	2,000	1,500	1,000	Channel Island scrub oak (QUPA6)	29
					Ripgut brome (BRRI8)	26
					Horehound (MAVU)	23
					California live oak (QUAG)	6
					Island manzanita (ARIN2)	4
					Wild oat (AVFA)	4
					Cucamonga manroot (MAMA8)	3
					Island broom (LODE2)	3
					Black mustard (BRNI)	2

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
270:						
Topdeck----------------	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)--	31
					Santa Cruz Island buckwheat (ERAR6)----------------------	25
					Wild oat (AVFA)----------------	12
					Lupine (LUPIN)-----------------	6
					Ripgut brome (BRRI8)-----------	6
					Spanish brome (BRMA3)----------	3
					Foothill stipa (NALE2)---------	3
					Pricklypear (OPUNT)------------	3
					Purple needlegrass (NAPU4)-----	3
					Soft chess (BRHOH)-------------	3
					Coyotebrush (BAPI)-------------	2
					Slender oat (AVBA)-------------	2
					Perennial ryegrass (LOPE)------	1
Spinnaker--------------	Shallow Uplands 13-24" p.z., R020XI102CA	900	600	300	Redflower buckwheat (ERGRG5)---	37
					Santa Cruz Island buckwheat (ERAR6)----------------------	31
					Foothill stipa (NALE2)---------	9
					Threeawn (ARIST)---------------	6
					Spanish brome (BRMA3)----------	4
					Island bristleweed (HADE4)-----	4
					Oat (AVENA)--------------------	4
					Dove weed (CRSE11)-------------	1
					Island broom (LODE2)-----------	1
					Pricklypear (OPUNT)------------	1
					Soft chess (BRHOH)-------------	1
271:						
Topdeck----------------	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)--	31
					Santa Cruz Island buckwheat (ERAR6)----------------------	25
					Wild oat (AVFA)----------------	12
					Lupine (LUPIN)-----------------	6
					Ripgut brome (BRRI8)-----------	6
					Spanish brome (BRMA3)----------	3
					Foothill stipa (NALE2)---------	3
					Pricklypear (OPUNT)------------	3
					Purple needlegrass (NAPU4)-----	3
					Soft chess (BRHOH)-------------	3
					Coyotebrush (BAPI)-------------	2
					Slender oat (AVBA)-------------	2
					Perennial ryegrass (LOPE)------	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
271:						
Spinnaker	Shallow Uplands 13-24" p.z., R020XI102CA	900	600	300	Redflower buckwheat (ERGRG5)	37
					Santa Cruz Island buckwheat (ERAR6)	31
					Foothill stipa (NALE2)	9
					Threeawn (ARIST)	6
					Spanish brome (BRMA3)	4
					Island bristleweed (HADE4)	4
					Oat (AVENA)	4
					Dove weed (CRSE11)	1
					Island broom (LODE2)	1
					Pricklypear (OPUNT)	1
					Soft chess (BRHOH)	1
Tongva	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)	31
					Santa Cruz Island buckwheat (ERAR6)	25
					Wild oat (AVFA)	12
					Lupine (LUPIN)	6
					Ripgut brome (BRRI8)	6
					Spanish brome (BRMA3)	3
					Foothill stipa (NALE2)	3
					Pricklypear (OPUNT)	3
					Purple needlegrass (NAPU4)	3
					Soft chess (BRHOH)	3
					Coyotebrush (BAPI)	2
					Slender oat (AVBA)	2
					Perennial ryegrass (LOPE)	1
272:						
Topdeck	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)	31
					Santa Cruz Island buckwheat (ERAR6)	25
					Wild oat (AVFA)	12
					Lupine (LUPIN)	6
					Ripgut brome (BRRI8)	6
					Spanish brome (BRMA3)	3
					Foothill stipa (NALE2)	3
					Pricklypear (OPUNT)	3
					Purple needlegrass (NAPU4)	3
					Soft chess (BRHOH)	3
					Coyotebrush (BAPI)	2
					Slender oat (AVBA)	2
					Perennial ryegrass (LOPE)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
272:						
Starboard	Moderately Deep Volcanic Slopes 13-31" p.z., R020XI112CA	800	500	300	Ripgut brome (BRRI8)	37
					Channel Island scrub oak (QUPA6)	24
					California live oak (QUAG)	9
					Toyon (HEAR5)	9
					Summer holly (CODI3)	6
					Cucamonga manroot (MAMA8)	5
					California brome (BRCA5)	4
					Oak (QUERC)	3
					Stickywilly (GAAP2)	3
273:						
Topdeck, overblown	Gentle Calcareous Slopes 21-34" p.z., R020XI119CA	4,000	2,000	500	Prostrate coastal goldenbush (ISMES)	28
					Sea fig (CACH38)	28
					Silver lupine (LUAL4)	18
					Ripgut brome (BRRI8)	5
					San Miguel milkvetch (ASMI6)	4
					Giant coreopsis (COGI)	3
					Golden-yarrow (ERCO25)	3
					Inland saltgrass (DISP)	3
					Spanish brome (BRMA3)	2
					Dunedelion (MAIN)	2
					Beardless wildrye (LETR5)	1
					Cliff desertdandelion (MASAI)	1
					Coyotebrush (BAPI)	1
					Western blue-eyed grass (SIBE)	1
					Wild oat (AVFA)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
273:						
Typic Durixerolls, loamy subsoil	Gentle Calcareous Slopes 21-34" p.z., R020XI119CA	4,000	2,000	500	Prostrate coastal goldenbush (ISMES)	28
					Sea fig (CACH38)	28
					Silver lupine (LUAL4)	18
					Ripgut brome (BRRI8)	5
					San Miguel milkvetch (ASMI6)	4
					Giant coreopsis (COGI)	3
					Golden-yarrow (ERCO25)	3
					Inland saltgrass (DISP)	3
					Spanish brome (BRMA3)	2
					Dunedelion (MAIN)	2
					Beardless wildrye (LETR5)	1
					Cliff desertdandelion (MASAI)	1
					Coyotebrush (BAPI)	1
					Western blue-eyed grass (SIBE)	1
					Wild oat (AVFA)	1
290:						
Topdeck	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)	31
					Santa Cruz Island buckwheat (ERAR6)	25
					Wild oat (AVFA)	12
					Lupine (LUPIN)	6
					Ripgut brome (BRRI8)	6
					Spanish brome (BRMA3)	3
					Foothill stipa (NALE2)	3
					Pricklypear (OPUNT)	3
					Purple needlegrass (NAPU4)	3
					Soft chess (BRHOH)	3
					Coyotebrush (BAPI)	2
					Slender oat (AVBA)	2
					Perennial ryegrass (LOPE)	1
Starboard	Moderately Deep Volcanic Slopes 13-31" p.z., R020XI112CA	800	500	300	Ripgut brome (BRRI8)	37
					Channel Island scrub oak (QUPA6)	24
					California live oak (QUAG)	9
					Toyon (HEAR5)	9
					Summer holly (CODI3)	6
					Cucamonga manroot (MAMA8)	5
					California brome (BRCA5)	4
					Oak (QUERC)	3
					Stickywilly (GAAP2)	3

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
291:						
Spinnaker	Shallow Uplands 13-24" p.z., R020XI102CA	900	600	300	Redflower buckwheat (ERGRG5)	37
					Santa Cruz Island buckwheat (ERAR6)	31
					Foothill stipa (NALE2)	9
					Threeawn (ARIST)	6
					Spanish brome (BRMA3)	4
					Island bristleweed (HADE4)	4
					Oat (AVENA)	4
					Dove weed (CRSE11)	1
					Island broom (LODE2)	1
					Pricklypear (OPUNT)	1
					Soft chess (BRHOH)	1
Topdeck	Clayey Slopes 13-31" p.z., (R020XI116CA)	---	---	---	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
292:						
Buoy	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
292:						
Bereme	Shallow Slopes 13-31" p.z., R020XI106CA	1,000	600	300	Chamise (ADFA)	84
					Channel Island scrub oak (QUPA6)	8
					Coyotebrush (BAPI)	2
					Toyon (HEAR5)	2
					Trefoil (LOTUS)	2
					Island bush monkeyflower (DIPA10)	1
					Southern bush monkeyflower (DILO6)	1
Typic Palexerolls	Shaly Slopes 13-24" p.z., R020XI109CA	2,000	1,500	1,000	Channel Island scrub oak (QUPA6)	29
					Ripgut brome (BRRI8)	26
					Horehound (MAVU)	23
					California live oak (QUAG)	6
					Island manzanita (ARIN2)	4
					Wild oat (AVFA)	4
					Cucamonga manroot (MAMA8)	3
					Island broom (LODE2)	3
					Black mustard (BRNI)	2
300:						
Cumulic Haploxerolls	Riparian Areas 13-31" p.z., R020XI103CA	3,000	1,500	1,000	Santa Cruz Island buckwheat (ERAR6)	10
					Beardless wildrye (LETR5)	10
					Oat (AVENA)	10
					Ripgut brome (BRRI8)	10
					Arroyo willow (SALA6)	8
					Coyotebrush (BAPI)	5
					Inland saltgrass (DISP)	4
					Redflower buckwheat (ERGRG5)	3
					California brome (BRCA5)	2
					Black cottonwood (POBAT)	2
					Island broom (LODE2)	2
					Spanish brome (BRMA3)	1
					Spanish clover (LOUNU)	1
					Silver lupine (LUAL4)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
310:						
Livigne	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
Macool	Deep Slopes 13-24" p.z., R020XI105CA	2,000	1,500	1,000	Wild oat (AVFA)	23
					Tussockgrass (NASSE)	18
					California sagebrush (ARCA11)	15
					Island mountain mahogany (CEMOB)	11
					Santa Cruz Island buckwheat (ERAR6)	8
					Lemonade sumac (RHIN2)	6
					Island ceanothus (CEMEI2)	5
					Chamise (ADFA)	4
					Channel Island scrub oak (QUPA6)	3
					Spanish brome (BRMA3)	2
					Ripgut brome (BRRI8)	2
					Island broom (LODE2)	1
					Monkeyflower (MIMUL)	1
					Soft chess (BRHOH)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
311:						
Livigne	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
Gunwale	Pinus muricata/Quercus pacifica, F020XI200CA	900	600	300	---	---
321:						
Rudder	Pinus muricata/Quercus pacifica, F020XI200CA	900	600	300	---	---
Spinnaker, moist	Shallow Slopes 13-31" p.z., R020XI106CA	1,000	600	300	Chamise (ADFA)	84
					Channel Island scrub oak (QUPA6)	8
					Coyotebrush (BAPI)	2
					Toyon (HEAR5)	2
					Trefoil (LOTUS)	2
					Island bush monkeyflower (DIPA10)	1
					Southern bush monkeyflower (DILO6)	1
650:						
Abaft	Sandy Dunes 13-34" p.z., R020XI101CA	500	250	100	Red sand verbena (ABMA2)	30
					Silver lupine (LUAL4)	30
					Beach-bur (AMCH4)	14
					San Miguel milkvetch (ASMI6)	7
					European searocket (CAMA)	6
					Beach saltbush (ATLE2)	6
					Inland saltgrass (DISP)	3
					Prostrate coastal goldenbush (ISMES)	3
					Beach suncup (CACHC)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
651:						
Abaft	Sandy Dunes 13-34" p.z., R020XI101CA	500	250	100	Red sand verbena (ABMA2)	30
					Silver lupine (LUAL4)	30
					Beach-bur (AMCH4)	14
					San Miguel milkvetch (ASMI6)	7
					European searocket (CAMA)	6
					Beach saltbush (ATLE2)	6
					Inland saltgrass (DISP)	3
					Prostrate coastal goldenbush (ISMES)	3
					Beach suncup (CACHC)	1
Abaft, moderately steep	Sandy Dunes 13-34" p.z., R020XI101CA	3,500	2,500	1,500	Silver lupine (LUAL4)	50
					Sea fig (CACH38)	26
					Ripgut brome (BRRI8)	14
					California goosefoot (CHCA3)	2
					Coyotebrush (BAPI)	2
					Prostrate coastal goldenbush (ISMES)	2
					Menzie's fiddleneck (AMME)	1
					Cobwebby thistle (CIOC)	1
					Inland saltgrass (DISP)	1
					Sand verbena (ABRON)	1
660:						
Pachic Haploxerolls	Marine Terraces 21-34" p.z., R020XI118CA	1,600	1,300	1,000	Inland saltgrass (DISP)	40
					Ripgut brome (BRRI8)	36
					Beardless wildrye (LETR5)	20
					Wild oat (AVFA)	2
					Purple needlegrass (NAPU4)	1
670:						
Ironshot	Marine Terraces 21-34" p.z., R020XI118CA	1,600	1,300	1,000	Inland saltgrass (DISP)	40
					Ripgut brome (BRRI8)	36
					Beardless wildrye (LETR5)	20
					Wild oat (AVFA)	2
					Purple needlegrass (NAPU4)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
670:						
Ahoy	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
680:						
Bereme	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
681:						
Bereme	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
690:						
Typic Xerorthents	Pinus torreyana var. insularis/Nassella pulchra, F020XI201CA	600	300	100	---	---
Ultic Haploxeralfs	Pinus torreyana var. insularis/Nassella pulchra, F020XI201CA	600	300	100	---	---
700:						
Ahoy	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Hawser, moderately steep	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
700:						
Ahoy, moderately steep--	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)-------------	65
					Purple needlegrass (NAPU4)-----	10
					Ripgut brome (BRDI3)-----------	10
					Coyotebrush (BAPI)-------------	3
					Foothill stipa (NALE2)---------	3
					Darnel ryegrass (LOTE2)--------	2
					Thistle (CIRSI)----------------	2
					Burclover (MEPO3)--------------	1
					Fiddleneck (AMSIN)-------------	1
					Filaree (ERODI)----------------	1
					Smooth catsear (HYGL2)---------	1
					Soft brome (BRHO2)-------------	1
Hawser------------------	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)-------------	65
					Purple needlegrass (NAPU4)-----	10
					Ripgut brome (BRDI3)-----------	10
					Coyotebrush (BAPI)-------------	3
					Foothill stipa (NALE2)---------	3
					Darnel ryegrass (LOTE2)--------	2
					Thistle (CIRSI)----------------	2
					Burclover (MEPO3)--------------	1
					Fiddleneck (AMSIN)-------------	1
					Filaree (ERODI)----------------	1
					Smooth catsear (HYGL2)---------	1
					Soft brome (BRHO2)-------------	1
710:						
Windage-----------------	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)-------------	65
					Purple needlegrass (NAPU4)-----	10
					Ripgut brome (BRDI3)-----------	10
					Coyotebrush (BAPI)-------------	3
					Foothill stipa (NALE2)---------	3
					Darnel ryegrass (LOTE2)--------	2
					Thistle (CIRSI)----------------	2
					Burclover (MEPO3)--------------	1
					Fiddleneck (AMSIN)-------------	1
					Filaree (ERODI)----------------	1
					Smooth catsear (HYGL2)---------	1
					Soft brome (BRHO2)-------------	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
710:						
Typic Xerorthents	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
Buoy	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
711:						
Windage	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
711:						
Hawser	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Typic Haploxeralfs	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
712:						
Windage	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
712:						
Buoy-------------------	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)--	46
					Ripgut brome (BRRI8)-----------	23
					Santa Cruz Island buckwheat (ERAR6)----------------------	20
					Wild oat (AVFA)----------------	15
					Lupine (LUPIN)-----------------	7
					Redflower buckwheat (ERGRG5)---	6
					Perennial ryegrass (LOPE)------	4
					Purple needlegrass (NAPU4)-----	4
					Coyotebrush (BAPI)-------------	2
					Foothill stipa (NALE2)---------	2
					Slender oat (AVBA)-------------	2
					Soft chess (BRHOH)-------------	2
					Common catchfly (SIGA)---------	1
713:						
Windage----------------	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)-------------	65
					Purple needlegrass (NAPU4)-----	10
					Ripgut brome (BRDI3)-----------	10
					Coyotebrush (BAPI)-------------	3
					Foothill stipa (NALE2)---------	3
					Darnel ryegrass (LOTE2)--------	2
					Thistle (CIRSI)----------------	2
					Burclover (MEPO3)--------------	1
					Fiddleneck (AMSIN)-------------	1
					Filaree (ERODI)----------------	1
					Smooth catsear (HYGL2)---------	1
					Soft brome (BRHO2)-------------	1
Ballast----------------	Clayey Slopes 13-31" p.z., R020XI116CA	1,600	1,300	1,000	Inland saltgrass (DISP)--------	40
					Ripgut brome (BRRI8)-----------	36
					Beardless wildrye (LETR5)------	20
					Wild oat (AVFA)----------------	2
					Purple needlegrass (NAPU4)-----	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
721:						
Buoy-------------------	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)--	46
					Ripgut brome (BRRI8)-----------	23
					Santa Cruz Island buckwheat (ERAR6)----------------------	20
					Wild oat (AVFA)----------------	15
					Lupine (LUPIN)-----------------	7
					Redflower buckwheat (ERGRG5)---	6
					Perennial ryegrass (LOPE)------	4
					Purple needlegrass (NAPU4)-----	4
					Coyotebrush (BAPI)-------------	2
					Foothill stipa (NALE2)---------	2
					Slender oat (AVBA)-------------	2
					Soft chess (BRHOH)-------------	2
					Common catchfly (SIGA)---------	1
722:						
Buoy, cobbly-----------	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)--	46
					Ripgut brome (BRRI8)-----------	23
					Santa Cruz Island buckwheat (ERAR6)----------------------	20
					Wild oat (AVFA)----------------	15
					Lupine (LUPIN)-----------------	7
					Redflower buckwheat (ERGRG5)---	6
					Perennial ryegrass (LOPE)------	4
					Purple needlegrass (NAPU4)-----	4
					Coyotebrush (BAPI)-------------	2
					Foothill stipa (NALE2)---------	2
					Slender oat (AVBA)-------------	2
					Soft chess (BRHOH)-------------	2
					Common catchfly (SIGA)---------	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
723:						
Buoy	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
Lithic Argixerolls	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
724:						
Buoy	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
724:						
Ballast	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
725:						
Buoy	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
Typic Haploxeralfs	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
730:						
Lodestone, very deep----	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)-------------	65
					Purple needlegrass (NAPU4)-----	10
					Ripgut brome (BRDI3)-----------	10
					Coyotebrush (BAPI)-------------	3
					Foothill stipa (NALE2)---------	3
					Darnel ryegrass (LOTE2)--------	2
					Thistle (CIRSI)----------------	2
					Burclover (MEPO3)--------------	1
					Fiddleneck (AMSIN)-------------	1
					Filaree (ERODI)----------------	1
					Smooth catsear (HYGL2)---------	1
					Soft brome (BRHO2)-------------	1
Ballast-----------------	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)-------------	65
					Purple needlegrass (NAPU4)-----	10
					Ripgut brome (BRDI3)-----------	10
					Coyotebrush (BAPI)-------------	3
					Foothill stipa (NALE2)---------	3
					Darnel ryegrass (LOTE2)--------	2
					Thistle (CIRSI)----------------	2
					Burclover (MEPO3)--------------	1
					Fiddleneck (AMSIN)-------------	1
					Filaree (ERODI)----------------	1
					Smooth catsear (HYGL2)---------	1
					Soft brome (BRHO2)-------------	1
Buoy--------------------	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)--	46
					Ripgut brome (BRRI8)-----------	23
					Santa Cruz Island buckwheat (ERAR6)----------------------	20
					Wild oat (AVFA)----------------	15
					Lupine (LUPIN)-----------------	7
					Redflower buckwheat (ERGRG5)---	6
					Perennial ryegrass (LOPE)------	4
					Purple needlegrass (NAPU4)-----	4
					Coyotebrush (BAPI)-------------	2
					Foothill stipa (NALE2)---------	2
					Slender oat (AVBA)-------------	2
					Soft chess (BRHOH)-------------	2
					Common catchfly (SIGA)---------	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
761:						
Lodestone	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Typic Xerorthents	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1
Windage	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	Lb/acre	Lb/acre		Pct
763:						
Hawser	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Lodestone, very deep	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Buoy	Loamy Slopes 13-31" p.z., R020XI100CA	4,000	3,000	1,500	California sagebrush (ARCA11)	46
					Ripgut brome (BRRI8)	23
					Santa Cruz Island buckwheat (ERAR6)	20
					Wild oat (AVFA)	15
					Lupine (LUPIN)	7
					Redflower buckwheat (ERGRG5)	6
					Perennial ryegrass (LOPE)	4
					Purple needlegrass (NAPU4)	4
					Coyotebrush (BAPI)	2
					Foothill stipa (NALE2)	2
					Slender oat (AVBA)	2
					Soft chess (BRHOH)	2
					Common catchfly (SIGA)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	Lb/acre	Lb/acre		Pct
780:						
Typic Argixerolls-------	Loamy Volcanic Slopes 13-24" p.z., R020XI113CA	1,600	1,100	500	California sagebrush (ARCA11)--	31
					Santa Cruz Island buckwheat (ERAR6)----------------------	25
					Wild oat (AVFA)----------------	12
					Lupine (LUPIN)-----------------	6
					Ripgut brome (BRRI8)-----------	6
					Spanish brome (BRMA3)----------	3
					Foothill stipa (NALE2)---------	3
					Pricklypear (OPUNT)------------	3
					Purple needlegrass (NAPU4)-----	3
					Soft chess (BRHOH)-------------	3
					Coyotebrush (BAPI)-------------	2
					Slender oat (AVBA)-------------	2
					Perennial ryegrass (LOPE)------	1
800:						
Ballast-----------------	Clayey Slopes 13-31" p.z., R020XI116CA	1,600	1,300	1,000	Inland saltgrass (DISP)--------	40
					Ripgut brome (BRRI8)-----------	36
					Beardless wildrye (LETR5)------	20
					Wild oat (AVFA)----------------	2
					Purple needlegrass (NAPU4)-----	1
Halyard-----------------	Deep Slopes 13-24" p.z., R020XI105CA	2,000	1,500	1,000	Wild oat (AVFA)----------------	23
					Tussockgrass (NASSE)-----------	18
					California sagebrush (ARCA11)--	15
					Island mountain mahogany (CEMOB)---------------------	11
					Santa Cruz Island buckwheat (ERAR6)----------------------	8
					Lemonade sumac (RHIN2)---------	6
					Island ceanothus (CEMEI2)------	5
					Chamise (ADFA)-----------------	4
					Channel Island scrub oak (QUPA6)----------------------	3
					Spanish brome (BRMA3)----------	2
					Ripgut brome (BRRI8)-----------	2
					Island broom (LODE2)-----------	1
					Monkeyflower (MIMUL)-----------	1
					Soft chess (BRHOH)-------------	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
800:						
Typic Argixerolls	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
900:						
Petrocalcic Palexeralfs	Marine Terraces 21-34" p.z., R020XI118CA	1,600	1,300	1,000	Inland saltgrass (DISP)	40
					Ripgut brome (BRRI8)	36
					Beardless wildrye (LETR5)	20
					Wild oat (AVFA)	2
					Purple needlegrass (NAPU4)	1
910:						
Hawser	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Normal year	Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
910:						
Hawser, moderately steep------------------	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)-------------	65
					Purple needlegrass (NAPU4)-----	10
					Ripgut brome (BRDI3)-----------	10
					Coyotebrush (BAPI)-------------	3
					Foothill stipa (NALE2)---------	3
					Darnel ryegrass (LOTE2)--------	2
					Thistle (CIRSI)----------------	2
					Burclover (MEPO3)--------------	1
					Fiddleneck (AMSIN)-------------	1
					Filaree (ERODI)----------------	1
					Smooth catsear (HYGL2)---------	1
					Soft brome (BRHO2)-------------	1
920:						
Typic Durixerolls-------	Gentle Calcareous Slopes 21-34" p.z., R020XI119CA	4,000	2,000	500	Prostrate coastal goldenbush (ISMES)----------------------	28
					Sea fig (CACH38)---------------	28
					Silver lupine (LUAL4)----------	18
					Ripgut brome (BRRI8)-----------	5
					San Miguel milkvetch (ASMI6)---	4
					Giant coreopsis (COGI)---------	3
					Golden-yarrow (ERCO25)---------	3
					Inland saltgrass (DISP)--------	3
					Spanish brome (BRMA3)----------	2
					Dunedelion (MAIN)--------------	2
					Beardless wildrye (LETR5)------	1
					Cliff desertdandelion (MASAI)--	1
					Coyotebrush (BAPI)-------------	1
					Western blue-eyed grass (SIBE)-	1
					Wild oat (AVFA)----------------	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Potential natural vegetation	Species composition by weight
		Lb/acre	Lb/acre	Lb/acre		Pct
921:						
Typic Durixerolls-------	Gentle Calcareous Slopes 21-34" p.z., R020XI119CA	4,000	2,000	500	Prostrate coastal goldenbush (ISMES)------------------------	28
					Sea fig (CACH38)---------------	28
					Silver lupine (LUAL4)----------	18
					Ripgut brome (BRRI8)-----------	5
					San Miguel milkvetch (ASMI6)---	4
					Giant coreopsis (COGI)---------	3
					Golden-yarrow (ERCO25)---------	3
					Inland saltgrass (DISP)--------	3
					Spanish brome (BRMA3)----------	2
					Dunedelion (MAIN)--------------	2
					Beardless wildrye (LETR5)------	1
					Cliff desertdandelion (MASAI)--	1
					Coyotebrush (BAPI)-------------	1
					Western blue-eyed grass (SIBE)-	1
					Wild oat (AVFA)----------------	1
930:						
Fluventic Haploxerolls--	Marine Terraces 21-34" p.z., R020XI118CA	1,600	1,300	1,000	Inland saltgrass (DISP)--------	40
					Ripgut brome (BRRI8)-----------	36
					Beardless wildrye (LETR5)------	20
					Wild oat (AVFA)----------------	2
					Purple needlegrass (NAPU4)-----	1
940:						
Typic Durixeralfs-------	Gentle Calcareous Slopes 21-34" p.z., R020XI119CA	4,000	2,000	500	Prostrate coastal goldenbush (ISMES)------------------------	28
					Sea fig (CACH38)---------------	28
					Silver lupine (LUAL4)----------	18
					Ripgut brome (BRRI8)-----------	5
					San Miguel milkvetch (ASMI6)---	4
					Giant coreopsis (COGI)---------	3
					Golden-yarrow (ERCO25)---------	3
					Inland saltgrass (DISP)--------	3
					Spanish brome (BRMA3)----------	2
					Dunedelion (MAIN)--------------	2
					Beardless wildrye (LETR5)------	1
					Cliff desertdandelion (MASAI)--	1
					Coyotebrush (BAPI)-------------	1
					Western blue-eyed grass (SIBE)-	1
					Wild oat (AVFA)----------------	1

Table 4.--Rangeland Ecological Sites, Rangeland Productivity, and Potential Natural Vegetation--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Potential natural vegetation	Species composition by weight
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
950:						
Ahoy	Clayey Slopes 13-31" p.z., R020XI116CA	3,000	1,200	700	Slender oat (AVBA)	65
					Purple needlegrass (NAPU4)	10
					Ripgut brome (BRDI3)	10
					Coyotebrush (BAPI)	3
					Foothill stipa (NALE2)	3
					Darnel ryegrass (LOTE2)	2
					Thistle (CIRSI)	2
					Burclover (MEPO3)	1
					Fiddleneck (AMSIN)	1
					Filaree (ERODI)	1
					Smooth catsear (HYGL2)	1
					Soft brome (BRHO2)	1
Ironshot	Marine Terraces 21-34" p.z., R020XI118CA	1,600	1,300	1,000	Inland saltgrass (DISP)	40
					Ripgut brome (BRRI8)	36
					Beardless wildrye (LETR5)	20
					Wild oat (AVFA)	2
					Purple needlegrass (NAPU4)	1
970:						
Dune land	Sandy Dunes 13-34" p.z., R020XI101CA	500	250	100	Red sand verbena (ABMA2)	30
					Silver lupine (LUAL4)	30
					Beach-bur (AMCH4)	14
					San Miguel milkvetch (ASMI6)	7
					European searocket (CAMA)	6
					Beach saltbush (ATLE2)	6
					Inland saltgrass (DISP)	3
					Prostrate coastal goldenbush (ISMES)	3
					Beach suncup (CACHC)	1
980:						
Lithic Haploxeralfs	Rocky Bluffs 24-34" p.z., R020XI121CA	1,200	800	400	Dudleya (DUDLE)	40
					Prostrate coastal goldenbush (ISMES)	36
					Giant coreopsis (COGI)	10
					Sea fig (CACH38)	10
					San Miguel milkvetch (ASMI6)	2
					Golden-yarrow (ERCO25)	1
					Redflower buckwheat (ERGRR)	1

Table 5.--Index of Plant Common and Scientific Names and Plant Symbols

Local common name	Scientific name	Plant symbol
arroyo willow	Salix lasiolepis	SALA6
beach saltbush	Atriplex leucophylla	ATLE2
beach suncup	Camissonia cheiranthifolia ssp. cheiranthifolia	CACHC
beach-bur	Ambrosia chamissonis	AMCH4
beardless wildrye	Leymus triticoides	LETR5
bigpod ceanothus	Ceanothus megacarpus var. megacarpus	CEMEM2
bishop pine	Pinus muricata	PIMU
black cottonwood	Populus balsamifera ssp. trichocarpa	POBAT
black mustard	Brassica nigra	BRNI
bluedicks	Dichelostemma capitatum	DICA14
broadleaf filaree	Erodium botrys	ERBO
burclover	Medicago polymorpha	MEPO3
California brome	Bromus carinatus	BRCA5
California cottonrose	Filago californica	FICA2
California goosefoot	Chenopodium californicum	CHCA3
California live oak	Quercus agrifolia	QUAG
California sagebrush	Artemisia californica	ARCA11
chamise	Adenostoma fasciculatum	ADFA
Channel Island scrub oak	Quercus pacifica	QUPA6
cliff desertdandelion	Malacothrix saxatilis var. implicata	MASAI
climbing bedstraw	Galium nuttallii	GANU
coast oak	Quercus parvula	QUPA8
coastal woodfern	Dryopteris arguta	DRAR3
cobwebby thistle	Cirsium occidentale	CIOC
common barley	Hordeum vulgare	HOVU
common catchfly	Silene gallica	SIGA
common sowthistle	Sonchus oleraceus	SOOL
common yarrow	Achillea millefolium	ACMI2
coyotebrush	Baccharis pilularis	BAPI
Cucamonga manroot	Marah macrocarpus	MAMA8
cudweed	Gnaphalium	GNAPH
curved sicklegrass	Parapholis incurva	PAIN
Darnel ryegrass	Lolium temulentum	LOTE2
dove weed	Croton setigerus	CRSE11
dudleya	Dudleya	DUDLE
dunedelion	Malacothrix incana	MAIN
European searocket	Cakile maritima	CAMA
feltleaf ceanothus	Ceanothus arboreus	CEAR
fiddleneck	Amsinckia	AMSIN
filaree	Erodium spp.	ERODI
foothill stipa	Nassella lepida	NALE2
giant coreopsis	Coreopsis gigantea	COGI
golden-yarrow	Eriophyllum confertiflorum	ERCO25
golden-yarrow	Eriophyllum confertiflorum var. confertiflorum	ERCOC12
hollyleaf cherry	Prunus ilicifolia	PRIL
horehound	Marrubium vulgare	MAVU
inland saltgrass	Distichlis spicata	DISP
island bristleweed	Hazardia detonsa	HADE4
island broom	Lotus dendroideus	LODE2
island bush monkeyflower	Diplacus parviflorus	DIPA10
island ceanothus	Ceanothus megacarpus var. insularis	CEMEI2
island manzanita	Arctostaphylos insularis	ARIN2
island mountain mahogany	Cercocarpus montanus var. blancheae	CEMOB
lemonade sumac	Rhus integrifolia	RHIN2
lupine	Lupinus spp.	LUPIN
Menzie's fiddleneck	Amsinckia menziesii	AMME
monkeyflower	Mimulus	MIMUL
mule's fat	Baccharis salicifolia	BASA4
oak	Quercus spp.	QUERC
oat	Avena	AVENA
perennial ryegrass	Lolium perenne	LOPE
phacelia	Phacelia spp.	PHACE
pricklypear	Opuntia ssp.	OPUNT
prostrate coastal goldenbush	Isocoma menziesii var. sedoides	ISMES
purple needlegrass	Nassella pulchra	NAPU4

Table 5.--Index of Plant Common and Scientific Names and Plant Symbols--Continued

Local common name	Scientific name	Plant symbol
rattail fescue	Vulpia myuros	VUMY
red sand verbena	Abronia maritima	ABMA2
redflower buckwheat	Eriogonum grande var. grande	ERGRG5
redflower buckwheat	Eriogonum grande var. rubescens	ERGRR
ripgut brome	Bromus diandrus	BRDI3
ripgut brome	Bromus rigidus	BRRI8
roundfruit sedge	Carex globosa	CAGL7
San Miguel milkvetch	Astragalus miguelensis	ASMI6
sand verbena	Abronia	ABRON
Santa Cruz Island buckwheat	Eriogonum arborescens	ERAR6
Santa Cruz Island Torrey pine	Pinus torreyana var. insularis	PITOI2
sea fig	Carpobrotus chilensis	CACH38
seaside fleabane	Erigeron glaucus	ERGL3
seep willow	Baccharis salicifolia	BASA4
silver lupine	Lupinus albifrons	LUAL4
slender oat	Avena barbata	AVBA
smallflower melicgrass	Melica imperfecta	MEIM
smooth catsear	Hypochaeris glabra	HYGL2
soft brome	Bromus hordeaceus	BRHO2
soft chess	Bromus hordeaceus ssp. hordeaceus	BRHOH
southern bush monkeyflower	Diplacus longiflorus	DILO6
Spanish brome	Bromus madritensis	BRMA3
Spanish clover	Lotus unifoliolatus var. unifoliolatus	LOUNU
spikemoss	Selaginella	SELAG
springbeauty	Claytonia	CLAYT
stickywilly	Galium aparine	GAAP2
summer holly	Comarostaphylis diversifolia	CODI3
thistle	Cirsium spp.	CIRSI
threeawn	Aristida ssp.	ARIST
toyon	Heteromeles arbutifolia	HEAR5
trefoil	Lotus	LOTUS
tussockgrass	Nassella	NASSE
western blue-eyed grass	Sisyrinchium bellum	SIBE
wild oat	Avena fatua	AVFA

Table 6a.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
100:							
Fiale-------------------	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Tongva------------------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Topdeck-----------------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
101:							
Spinnaker---------------	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
Tongva------------------	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Fiale-------------------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
102:							
Fiale-------------------	65	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Slopes 2 to 6%	0.74
						Permeability of .06-.6"/hr	0.46

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Value	Picnic areas: Limitations	Value	Playgrounds: Limitations	Value
102:							
Topdeck	20	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
						Slopes 2 to 6%	0.74
103:							
Fiale	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Surface clay >= 40%	1.00	Surface clay >= 40%	1.00	Surface clay >= 40%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Topdeck	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
						Surface fragments (<3") >25%	0.99
Rock outcrop	15	Not rated		Not rated		Not rated	
120:							
Miasotus	70	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
Yardarm	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
						Bedrock 20-40" and slope >2%	0.50
130:							
Frigate	70	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Camp areas: Value	Picnic areas: Limitations	Picnic areas: Value	Playgrounds: Limitations	Playgrounds: Value
130:							
Yardarm	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Bedrock 20-40" and slope >2%	0.50
150:							
Halyard	45	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Topdeck	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Tongva	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Bedrock 20-40" and slope >2%	0.50
						Dusty	0.50
152:							
Halyard	60	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Slopes >6%	1.00
		Slopes 8 to 15%	0.37			Permeability of .06-.6"/hr	0.46
Starboard	25	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09	Slopes >6%	1.00
153:							
Halyard	45	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Dusty	0.50
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09	Permeability of .06-.6"/hr	0.46

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
153:							
Topdeck	40	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09	Slopes >6%	1.00
155:							
Halyard	45	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Slopes 2 to 6%	0.86
						Permeability of .06-.6"/hr	0.46
Fiale	40	Limitations		Limitations		Limitations	
		Surface clay >= 40%	1.00	Surface clay >= 40%	1.00	Surface clay >= 40%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Slopes 2 to 6%	0.86
						Permeability of .06-.6"/hr	0.46
160:							
Beaches	75	Not rated		Not rated		Not rated	
Abaft	15	Limitations		Limitations		Limitations	
		Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55
						Slopes 2 to 6%	0.02
180:							
Typic Argixerolls, very deep	95	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
						Slopes 2 to 6%	0.50
190:							
Typic Xerofluvents	70	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Flooding >= rare	1.00	Ponding (any duration)	1.00	Flooding > occasional	1.00
		Ponding (any duration)	1.00	Frequent flooding	0.50	Ponding (any duration)	1.00
Riverwash	15	Not rated		Not rated		Not rated	

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Camp areas: Value	Picnic areas: Limitations	Picnic areas: Value	Playgrounds: Limitations	Playgrounds: Value
200:							
Fantail, thin surface---	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
Forestay----------------	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
Fantail-----------------	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
210:							
Lospinos----------------	55	No limitations		No limitations		Limitations	
						Surface fragments (<3") >25%	1.00
						Slopes 2 to 6%	0.74
Forestay----------------	15	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
						Slopes 2 to 6%	0.74
Forestay, strongly sloping----------------	15	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Slopes >6%	1.00
		Slopes 8 to 15%	0.96	Slopes 8 to 15%	0.96	Surface fragments (<3") >25%	1.00
211:							
Lospinos----------------	90	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") 25-50%	0.54	Fragments (<3") 25-50%	0.54	Surface fragments (<3") >25%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
212:							
Lospinos----------------	70	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") 25-50%	0.16	Fragments (<3") 25-50%	0.16	Surface fragments (<3") >25%	1.00

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Value	Picnic areas: Limitations	Value	Playgrounds: Limitations	Value
212:							
Rock outcrop	25	Not rated		Not rated		Not rated	
230:							
Fantail	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
240:							
Delphine	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00		
						Bedrock depth <20”	1.00
Miasotus	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Surface fragments (<3") >25%	1.00
		Fragments (<3") 25-50%	0.95	Fragments (<3") 25-50%	0.95		
			0.95			Bedrock depth <20”	1.00
Yardarm	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
						Bedrock 20-40" and slope >2%	0.50
241:							
Delphine	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00		
						Bedrock depth <20”	1.00
Badland	20	Not rated		Not rated		Not rated	
Miasotus	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
						Surface fragments (<3") 10-25%	0.56

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Camp areas: Value	Picnic areas: Limitations	Picnic areas: Value	Playgrounds: Limitations	Playgrounds: Value
250:							
Spinnaker	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
Starboard	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
251:							
Spinnaker	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
		Fragments (<3") 25-50%	0.84	Fragments (<3") 25-50%	0.84	Surface fragments (<3") >25%	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
260:							
Starboard	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
Spinnaker	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
262:							
Halyard	55	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Surface fragments (<3") >25%	1.00
		Fragments (<3") 25-50%	0.12	Fragments (<3") 25-50%	0.12	Permeability of .06-.6"/hr	0.46

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Value	Picnic areas: Limitations	Value	Playgrounds: Limitations	Value
262:							
Fantail	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
263:							
Starboard	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
Pachic Argixerolls	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Organic surface layer >= 4" thick	1.00	Organic surface layer >= 4" thick	1.00	Organic surface layer >= 4" thick	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
270:							
Topdeck	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25%	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Spinnaker	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
271:							
Topdeck	45	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
271:							
Spinnaker	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
Tongva	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
272:							
Topdeck	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
						Fragments >3" 5 to 30%	0.32
Starboard	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
273:							
Topdeck, overblown	45	Limitations		Limitations		Limitations	
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Slopes >6%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Bedrock depth <20"	1.00
		Fragments (<3") 25-50%	0.12	Fragments (<3") 25-50%	0.12	Surface fragments (<3") >25%	1.00
Typic Durixerolls, loamy subsoil	40	Limitations		Limitations		Limitations	
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Slopes >6%	1.00
		Depth to pan <= 20"	1.00	Depth to pan <= 20"	1.00	Bedrock depth <20"	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Surface fragments (<3") 10-25%	0.14
290:							
Rock outcrop	50	Not rated		Not rated		Not rated	

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Value	Picnic areas: Limitations	Value	Playgrounds: Limitations	Value
290:							
Topdeck	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
Starboard	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
291:							
Rock outcrop	40	Not rated		Not rated		Not rated	
Spinnaker	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
Topdeck	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
292:							
Rock outcrop	25	Not rated		Not rated		Not rated	
Buoy	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
Bereme	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Typic Palexerolls	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
300:							
Cumulic Haploxerolls----	85	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	Slopes 2 to 6%	0.74
						Dusty	0.50
310:							
Livigne-----------------	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Macool------------------	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Badland-----------------	15	Not rated		Not rated		Not rated	
311:							
Livigne-----------------	45	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
Gunwale-----------------	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
321:							
Rudder------------------	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
						Bedrock 20-40" and slope >2%	0.50
Spinnaker, moist--------	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
Rock outcrop------------	15	Not rated		Not rated		Not rated	

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Value	Picnic areas: Limitations	Value	Playgrounds: Limitations	Value
650:							
Abaft	85	Limitations		Limitations		Limitations	
		Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55	Slopes 2 to 6%	0.74
						Surface sand fractions 70-90% by wt.	0.55
651:							
Abaft	45	Limitations		Limitations		Limitations	
		Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55	Slopes 2 to 6%	0.86
						Surface sand fractions 70-90% by wt.	0.55
							0.55
Abaft, moderately steep	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55
660:							
Pachic Haploxerolls	85	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	Slopes 2 to 6%	0.74
						Dusty	0.50
670:							
Ironshot	60	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	Slopes >6%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Dusty	0.50
Ahoy	25	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	Slopes 2 to 6%	0.86
						Dusty	0.50
680:							
Bereme	65	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
681:							
Bereme	65	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
						Surface fragments (<3") 10-25%	0.92
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Value	Picnic areas: Limitations	Value	Playgrounds: Limitations	Value
690:							
Typic Xerorthents	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Fragments (<3") 25-50%	0.68	Fragments (<3") 25-50%	0.68	Surface fragments (<3") >25%	1.00
Ultic Haploxeralfs	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
						Bedrock 20-40" and slope >2%	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
700:							
Ahoy	30	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
						Slopes 2 to 6%	0.98
Hawser, moderately steep	30	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Slopes >6%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Ahoy, moderately steep	15	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Slopes >6%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Surface fragments (<3") >25%	1.00
Hawser	15	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Slopes 2 to 6%	0.98
						Permeability of .06-.6"/hr	0.46
710:							
Windage	55	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Value	Picnic areas: Limitations	Value	Playgrounds: Limitations	Value
710:							
Typic Xerorthents	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Fragments (<3") 25-50%	0.68	Fragments (<3") 25-50%	0.68	Surface fragments (<3") >25%	1.00
Buoy	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
711:							
Windage	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Hawser	30	Not rated		Not rated		Not rated	
Typic Haploxeralfs	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
712:							
Windage	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Buoy	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
713:							
Windage	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
713:							
Ballast	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Bedrock 20-40" and slope >2%	0.50
721:							
Buoy	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25%	1.00
		Fragments (<3") 25-50%	0.26	Fragments (<3") 25-50%	0.26	Dusty	0.50
			0.26				
722:							
Buoy, cobbly	55	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
						Surface fragments (<3") 10-25%	0.14
Rock outcrop	35	Not rated		Not rated		Not rated	
723:							
Buoy	45	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
Lithic Argixerolls	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20"	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
724:							
Buoy	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Value	Picnic areas: Limitations	Value	Playgrounds: Limitations	Value
724:							
Ballast	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Bedrock 20-40" and slope >2%	0.50
						Permeability of .06-.6"/hr	0.46
725:							
Buoy	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
						Surface fragments (<3") 10-25%	0.86
Typic Haploxeralfs	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
730:							
Lodestone, very deep	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
						Surface fragments (<3") 10-25%	0.44
Ballast	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Bedrock 20-40" and slope >2%	0.50
						Permeability of .06-.6"/hr	0.46
Buoy	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Surface sand fractions 70-90% by wt.	0.01	Surface sand fractions 70-90% by wt.	0.01	Surface fragments (<3") 10-25%	0.14
						Surface sand fractions 70-90% by wt.	0.01
761:							
Lodestone	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Bedrock 20-40" and slope >2%	0.50
						Permeability of .06-.6"/hr	0.46

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Value	Picnic areas: Limitations	Value	Playgrounds: Limitations	Value
761:							
Typic Xerorthents	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Fragments (<3") 25-50%	0.68	Fragments (<3") 25-50%	0.68	Surface fragments (<3") >25%	1.00
Windage	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
762:							
Lodestone	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Bedrock 20-40" and slope >2%	0.50
						Permeability of .06-.6"/hr	0.46
Ballast	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Bedrock 20-40" and slope >2%	0.50
Halyard	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability of .06-.6"/hr	0.49	Permeability of .06-.6"/hr	0.49	Permeability of .06-.6"/hr	0.49
763:							
Hawser	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Lodestone, very deep	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Buoy	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Camp areas: Value	Picnic areas: Limitations	Picnic areas: Value	Playgrounds: Limitations	Playgrounds: Value
780:							
Typic Argixerolls-------	75	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
800:							
Ballast-----------------	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Halyard-----------------	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Typic Argixerolls-------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Bedrock 20-40" and slope >2%	0.50
						Permeability of .06-.6"/hr	0.46
850:							
Typic Natrixeralfs------	50	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		SAR >12	1.00	Slopes 8 to 15%	0.26	Slopes >6%	1.00
		Slopes 8 to 15%	0.26				
Typic Haploxeralfs, dry	45	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Slopes 8 to 15%	0.26	Slopes 8 to 15%	0.26	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
851:							
Typic Haploxeralfs, dry	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
Typic Natrixeralfs------	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		SAR >12	1.00				

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Limitations	Camp areas: Value	Picnic areas: Limitations	Picnic areas: Value	Playgrounds: Limitations	Playgrounds: Value
852:							
Lithic Argixerolls, dry	55	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
		Slopes 8 to 15%	0.37	Slopes 8 to 15%	0.37	Slopes >6%	1.00
Typic Natrixeralfs------	35	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		SAR >12	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
		Bedrock depth <20"	1.00	Permeability of .06-.6"/hr	0.46	Slopes >6%	1.00
853:							
Rock outcrop------------	45	Not rated		Not rated		Not rated	
Typic Haploxeralfs, dry	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
860:							
Topdeck-----------------	45	Limitations		Limitations		Limitations	
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09	Slopes >6%	1.00
Halyard-----------------	40	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Dusty	0.50
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09	Permeability of .06-.6"/hr	0.46
861:							
Rock outcrop------------	40	Not rated		Not rated		Not rated	
Topdeck-----------------	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Surface fragments (<3") >25%	1.00

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
861:							
Spinnaker---------------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Fragments (<3") >50%	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Bedrock depth <20"	1.00	Bedrock depth <20"	1.00	Bedrock depth <20”	1.00
900:							
Petrocalcic Palexeralfs	85	Limitations		Limitations		Limitations	
		Depth to pan <= 20"	1.00	Depth to pan <= 20"	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
910:							
Hawser------------------	65	Limitations		Limitations		Limitations	
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Slopes 2 to 6%	0.86
						Permeability of .06-.6"/hr	0.46
Hawser, moderately steep	20	Limitations		Limitations		Limitations	
		Slopes 8 to 15%	0.99	Slopes 8 to 15%	0.99	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46	Permeability of .06-.6"/hr	0.46
920:							
Typic Durixerolls-------	85	Limitations		Limitations		Limitations	
		Depth to pan between 20 and 40"	0.74	Depth to pan between 20 and 40"	0.74	Slopes >6%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16		
921:							
Typic Durixerolls-------	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Depth to pan between 20 and 40"	0.32	Depth to pan between 20 and 40"	0.32		
930:							
Fluventic Haploxerolls--	85	Limitations		Limitations		Limitations	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
						Slopes 2 to 6%	0.14
940:							
Typic Durixeralfs-------	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Depth to pan <= 20"	1.00	Depth to pan <= 20"	1.00	Surface fragments (<3") 10-25%	0.14

Table 6a.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitations	Value	Limitations	Value	Limitations	Value
950:							
Ahoy--------------------	70	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	Slopes >6%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Dusty	0.50
Ironshot----------------	15	Limitations		Limitations		Limitations	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes >6%	1.00
970:							
Dune land---------------	90	Not rated		Not rated		Not rated	
980:							
Lithic Haploxeralfs-----	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Surface sand fractions 70-90% by wt.	0.52	Surface sand fractions 70-90% by wt.	0.52	Surface sand fractions 70-90% by wt.	0.52

The interpretation for *camp areas* evaluates the following soil properties at variable depths in the soil: flooding; ponding; wetness; slope; depth to bedrock; depth to a cemented pan; fragments less than, equal to, or more than 3 inches in size; sodium content (SAR); salinity (EC); a clayey surface layer; Unified classes for a high content of organic matter (PT, OL, and OH); soil dustiness; and permeability (Ksat) that is too rapid, allowing seepage in some climates.

The interpretation for *picnic areas* evaluates the following soil properties at variable depths in the soil: flooding, ponding, wetness, slope, depth to bedrock, depth to a cemented pan, salinity (EC), pH, soil dustiness, fragments more than 3 inches in size, surface fragments more than 10 inches in size, the amount of sand or clay in the surface layer, Unified classes for a high content of organic matter (PT, OL, and OH), and permeability (Ksat) that is too rapid, allowing seepage in some climates.

The interpretation for *playgrounds* evaluates the following soil properties at variable depths in the soil: flooding, ponding, wetness, slope, depth to bedrock, depth to a cemented pan, surface fragments more than 10 inches in size, fragments equal to or less than 3 inches in size, Unified classes for a high content of organic matter (PT, OL, and OH), soil dustiness, sand or clay content in the surface layer, pH, salinity (EC), and permeability (Ksat) that is too rapid, allowing seepage in some climates.

Table 6b.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
100:							
Fiale	60	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Slopes >25%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.14
Tongva	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.92
		Dusty	0.50				
Topdeck	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
						AWC <2” to 40”	1.00
		Dusty	0.50				
101:							
Spinnaker	35	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Slopes >25%	1.00	Slopes 25 to 40%	0.78	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Tongva	35	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
				Dusty	0.50	Bedrock depth 20 to 40"	0.94
		Slopes >25%	1.00			AWC 2-4” to 40"	0.01
		Dusty	0.50				
Fiale	15	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Slopes 25 to 40%	0.22	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.84
		Slopes >25%	1.00				

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
102:							
Fiale	65	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.92
						AWC 2-4" to 40"	0.19
Topdeck	20	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
						Gravel-size fragments >50%	1.00
						AWC <2” to 40”	1.00
103:							
Fiale	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface clay >= 40%	1.00	Slopes >15%	1.00
		Surface clay >= 40%	1.00	Slopes >40%	1.00	Clay in surface >= 40%	1.00
						Bedrock depth <20”	0.99
Topdeck	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
						Slopes >15%	1.00
						AWC 2-4" to 40"	0.43
Rock outcrop	15	Not rated		Not rated		Not rated	
120:							
Miasotus	70	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Yardarm	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.97
130:							
Frigate	70	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.35

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
130:							
Yardarm	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.90
		Dusty	0.50			AWC 2-4" to 40"	0.23
150:							
Halyard	45	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.02
Topdeck	25	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Slopes 25 to 40%	0.94	Bedrock depth <20"	1.00
		Slopes >25%	1.00	Dusty	0.50	Slopes >15%	1.00
		Dusty	0.50			AWC 2-4" to 40"	0.94
Tongva	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.90
		Dusty	0.50			AWC 2-4" to 40"	0.03
152:							
Halyard	60	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
						Slopes 8 to 15%	0.37
						Bedrock depth 20 to 40"	0.14
Starboard	25	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.98
						AWC 2-4" to 40"	0.13
153:							
Halyard	45	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes 8 to 15%	0.09
		Dusty	0.50				

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
153:							
Topdeck	40	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20"	1.00
		K factor >.35 and slopes >8%	1.00			Gravel-size fragments >50%	1.00
						AWC 2-4" to 40"	0.88
155:							
Halyard	45	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.02
Fiale	40	Limitations		Limitations		Limitations	
		Surface clay >= 40%	1.00	Surface clay >= 40%	1.00	Clay in surface >= 40%	1.00
						Bedrock depth 20 to 40"	0.77
						AWC 2-4" to 40"	0.01
160:							
Beaches	75	Not rated		Not rated		Not rated	
Abaft	15	Limitations		Limitations		Limitations	
		Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55	AWC 2-4" to 40"	0.69
180:							
Typic Argixerolls, very deep	95	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
						AWC 2-4" to 40"	0.41
190:							
Typic Xerofluvents	70	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Ponding (any duration)	1.00
		Ponding (any duration)	1.00	Ponding (any duration)	1.00	Gravel-size fragments >50%	1.00
		Frequent flooding	0.50	Frequent flooding	0.50	Frequent flooding	0.90
Riverwash	15	Not rated		Not rated		Not rated	
200:							
Fantail, thin surface	40	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						AWC <2" to 40"	1.00

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
200:							
Forestay----------------	25	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Slopes >25%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						AWC 2-4" to 40"	0.95
Fantail-----------------	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						AWC 2-4" to 40"	0.99
210:							
Lospinos----------------	55	No limitations		No limitations		Limitations	
						AWC 2-4" to 40"	0.97
						Bedrock depth 20 to 40"	0.90
						Gravel-size fragments 25-50%	0.01
Forestay----------------	15	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
						AWC <2” to 40”	1.00
Forestay, strongly sloping----------------	15	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00			AWC <2” to 40”	1.00
						Slopes 8 to 15%	0.96
211:							
Lospinos----------------	90	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	Slopes >15%	1.00
		Slopes 15 to 25%	0.32			AWC 2-4" to 40"	0.85
						Bedrock depth 20 to 40"	0.61
212:							
Lospinos----------------	70	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						AWC <2” to 40”	0.99
						Bedrock depth 20 to 40"	0.98
Rock outcrop------------	25	Not rated		Not rated		Not rated	
230:							
Fantail-----------------	85	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						AWC <2” to 40”	1.00

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
240:							
Delphine	50	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Miasotus	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15%	1.00
						AWC <2” to 40”	1.00
Yardarm	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.10
241:							
Delphine	50	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Badland	20	Not rated		Not rated		Not rated	
Miasotus	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
						Slopes >15%	1.00
						AWC <2” to 40”	1.00
250:							
Spinnaker	50	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Starboard	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.08
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
251:							
Spinnaker---------------	60	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
						Slopes >15%	1.00
						AWC <2” to 40”	1.00
Rock outcrop------------	25	Not rated		Not rated		Not rated	
260:							
Starboard---------------	40	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.50
Spinnaker---------------	30	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Rock outcrop------------	15	Not rated		Not rated		Not rated	
262:							
Halyard-----------------	55	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments 25-50%	0.11
						Bedrock depth 20 to 40"	0.10
Fantail-----------------	30	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						AWC <2” to 40”	1.00
263:							
Starboard---------------	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00				
Pachic Argixerolls------	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Organic surface layer >= 4" thick	1.00	Gravel-size fragments >50%	1.00
		Organic surface layer >= 4” thick	1.00	Slopes >40%	1.00	Organic surface layer >= 4" thick	1.00

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
263:							
Rock outcrop	15	Not rated		Not rated		Not rated	
270:							
Topdeck	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15%	1.00
						AWC <2” to 40”	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Spinnaker	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
271:							
Topdeck	45	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Spinnaker	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Tongva	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						Bedrock depth 20 to 40"	0.32
272:							
Topdeck	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
						Slopes >15%	1.00
						AWC <2” to 40”	1.00
Starboard	35	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Slopes 25 to 40%	0.94	Gravel-size fragments >50%	1.00
		Slopes >25%	1.00			Bedrock depth 20 to 40"	0.68
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
273:							
Topdeck, overblown------	45	Limitations		No limitations		Limitations	
		Slopes 15 to 25%	0.32			Bedrock depth <20”	1.00
						Slopes >15%	1.00
						AWC 2-4" to 40"	0.98
Typic Durixerolls, loamy subsoil----------------	40	Limitations		No limitations		Limitations	
		Slopes 15 to 25%	0.32			Bedrock depth <20”	1.00
						Depth to pan <20”	1.00
						Slopes >15%	1.00
290:							
Rock outcrop------------	50	Not rated		Not rated		Not rated	
Topdeck-----------------	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Starboard---------------	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.68
291:							
Rock outcrop------------	40	Not rated		Not rated		Not rated	
Spinnaker---------------	30	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Topdeck-----------------	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
292:							
Rock outcrop------------	25	Not rated		Not rated		Not rated	
Buoy--------------------	25	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Slopes >25%	1.00	Slopes 25 to 40%	0.50	Gravel-size fragments >50%	1.00
						AWC 2-4" to 40"	0.58

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
292:							
Bereme	20	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth <20”	1.00
		Slopes >25%	1.00			Slopes >15%	1.00
		Dusty	0.50			AWC 2-4" to 40"	0.99
							0
Typic Palexerolls	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00			AWC <2” to 40”	1.00
300:							
Cumulic Haploxerolls	85	Limitations		Limitations		No limitations	
		Dusty	0.50	Dusty	0.50		
310:							
Livigne	40	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
		Dusty	0.50			AWC 2-4" to 40"	0.43
Macool	30	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00				
Badland	15	Not rated		Not rated		Not rated	
311:							
Livigne	45	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
						Slopes >15%	1.00
						AWC 2-4" to 40"	0.65
Gunwale	40	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.98

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Paths and trails: Value	Off-road motorcycle trails: Limitations	Off-road motorcycle trails: Value	Lawns, landscaping, and golf fairways: Limitations	Lawns, landscaping, and golf fairways: Value
321:							
Rudder	40	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						AWC 2-4" to 40"	0.87
Spinnaker, moist	30	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
650:							
Abaft	85	Limitations		Limitations		Limitations	
		Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55	AWC 2-4" to 40"	0.69
651:							
Abaft	45	Limitations		Limitations		Limitations	
		Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55	AWC 2-4" to 40"	0.69
Abaft, moderately steep	40	Limitations		Limitations		Limitations	
		Surface sand fractions 70-90% by wt.	0.55	Surface sand fractions 70-90% by wt.	0.55	Slopes >15%	1.00
						AWC 2-4" to 40"	0.69
		Slopes 15 to 25%	0.08				
660:							
Pachic Haploxerolls	85	Limitations		Limitations		No limitations	
		Dusty	0.50	Dusty	0.50		
670:							
Ironshot	60	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes 8 to 15%	0.16
		Dusty	0.50				
Ahoy	25	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	AWC 2-4" to 40"	0.13
680:							
Bereme	65	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
						Slopes >15%	1.00
						AWC <2” to 40”	1.00

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
680:							
Rock outcrop------------	20	Not rated		Not rated		Not rated	
681:							
Bereme------------------	65	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes 25 to 40%	0.50	Bedrock depth <20″	1.00
						Slopes >15%	1.00
						AWC <2″ to 40″	1.00
Rock outcrop------------	20	Not rated		Not rated		Not rated	
690:							
Typic Xerorthents-------	40	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20″	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15%	1.00
						AWC <2″ to 40″	1.00
Ultic Haploxeralfs------	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						AWC <2″ to 40″	1.00
Rock outcrop------------	15	Not rated		Not rated		Not rated	
700:							
Ahoy--------------------	30	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
Hawser, moderately steep	30	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
		Slopes 15 to 25%	0.18			Slopes >15%	1.00
Ahoy, moderately steep--	15	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
		Slopes 15 to 25%	0.50			AWC <2″ to 40″	1.00
						Slopes >15%	1.00
Hawser------------------	15	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
710:							
Windage-----------------	55	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00				

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
710:							
Typic Xerorthents-------	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15%	1.00
						AWC <2” to 40”	1.00
Buoy--------------------	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00			AWC 2-4" to 40"	0.91
711:							
Windage-----------------	40	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00				
Hawser------------------	30	Not rated		Not rated		Not rated	
Typic Haploxeralfs------	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.32
		Dusty	0.50				
712:							
Windage-----------------	60	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
Buoy--------------------	25	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	AWC 2-4" to 40"	0.87
		Dusty	0.50				
713:							
Windage-----------------	50	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes 25 to 40%	0.94	Slopes >15%	1.00

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
713:							
Ballast	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes 25 to 40%	0.94	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.92
						AWC 2-4" to 40"	0.01
		Dusty	0.50				
721:							
Buoy	85	Limitations		Limitations		Limitations	
		Dusty	0.50	Dusty	0.50	Slopes >15%	1.00
		Slopes 15 to 25%	0.41			AWC 2-4" to 40"	0.98
						Gravel-size fragments 25-50%	0.26
722:							
Buoy, cobbly	55	Limitations		No limitations		Limitations	
		Slopes 15 to 25%	0.41			Slopes >15%	1.00
						AWC 2-4" to 40"	0.86
Rock outcrop	35	Not rated		Not rated		Not rated	
723:							
Buoy	45	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Slopes >25%	1.00			Gravel-size fragments >50%	1.00
						AWC <2" to 40"	0.99
Lithic Argixerolls	25	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20"	1.00
		Slopes >25%	1.00			Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
724:							
Buoy	50	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						AWC 2-4" to 40"	0.58
Rock outcrop	20	Not rated		Not rated		Not rated	
Ballast	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Bedrock depth 20 to 40"	0.01

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Paths and trails: Value	Off-road motorcycle trails: Limitations	Off-road motorcycle trails: Value	Lawns, landscaping, and golf fairways: Limitations	Lawns, landscaping, and golf fairways: Value
725:							
Buoy--------------------	60	Limitations		No limitations		Limitations	
		Slopes 15 to 25%	0.41			Slopes >15%	1.00
						AWC 2-4" to 40"	0.99
Typic Haploxeralfs------	20	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
						Bedrock depth 20 to 40"	0.32
		Dusty	0.50				
		Slopes 15 to 25%	0.41				
730:							
Lodestone, very deep----	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
Ballast-----------------	30	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes 25 to 40%	0.94	Slopes >15%	1.00
						Bedrock depth 20 to 40"	0.82
Buoy--------------------	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		Surface sand fractions 70-90% by wt.	0.01	Surface sand fractions 70-90% by wt.	0.01	AWC 2-4" to 40"	0.96
761:							
Lodestone---------------	35	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes 25 to 40%	0.78	Slopes >15%	1.00
						Bedrock depth 20 to 40"	0.50
Typic Xerorthents-------	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20"	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15%	1.00
						AWC <2" to 40"	1.00
Windage-----------------	20	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
762:							
Lodestone---------------	40	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes 25 to 40%	0.50	Slopes >15%	1.00
						Bedrock depth 20 to 40"	0.50

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
762:							
Ballast	30	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.94
						AWC 2-4" to 40"	0.02
		Dusty	0.50				
Halyard	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.01
		Dusty	0.50				
763:							
Hawser	50	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Slopes >25%	1.00	Slopes 25 to 40%	0.78	Gravel-size fragments >50%	1.00
Lodestone, very deep	25	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes 25 to 40%	0.22	Slopes >15%	1.00
						Calcium carbonate >40%	1.00
Buoy	15	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Slopes >40%	1.00	Gravel-size fragments >50%	1.00
						AWC 2-4" to 40"	0.90
		Slopes >25%	1.00				
780:							
Typic Argixerolls	75	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Bedrock depth 20 to 40"	0.32
						AWC 2-4" to 40"	0.12
800:							
Ballast	50	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes 25 to 40%	0.18	Slopes >15%	1.00
						Bedrock depth 20 to 40"	0.68
Halyard	25	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
				Slopes 25 to 40%	0.18	Bedrock depth 20 to 40"	0.54
		Slopes >25%	1.00	Slopes 25 to 40%			
		Dusty	0.50				

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
800:							
Typic Argixerolls-------	15	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Slopes 25 to 40%	0.18	Bedrock depth <20”	1.00
						Slopes >15%	1.00
		Slopes >25%	1.00			AWC 2-4" to 40"	0.31
850:							
Typic Natrixeralfs------	50	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00			SAR > 12	1.00
						AWC <2” to 40”	1.00
Typic Haploxeralfs, dry	45	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00			Slopes 8 to 15%	0.74
851:							
Typic Haploxeralfs, dry	60	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Slopes 25 to 40%	0.78	Gravel-size fragments >50%	1.00
		Slopes >25%	1.00				
Typic Natrixeralfs------	30	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Slopes 25 to 40%	0.78	Gravel-size fragments >50%	1.00
						SAR >12	1.00
		Slopes >25%	1.00				
852:							
Lithic Argixerolls, dry	55	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Gravel-size fragments >50%	1.00
						AWC <2” to 40”	1.00
Typic Natrixeralfs------	35	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Gravel-size fragments >50%	1.00
						SAR >12	1.00

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
853:							
Rock outcrop-----------	45	Not rated		Not rated		Not rated	
Typic Haploxeralfs, dry	40	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Gravel-size fragments >50%	1.00
		K factor >.35 and slopes >8%	1.00				
860:							
Topdeck----------------	45	Limitations		Limitations		Limitations	
		Surface fragments <3" >65%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Gravel-size fragments >50%	1.00
						AWC 2-4" to 40"	0.88
Halyard----------------	40	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes 8 to 15%	0.09
		Dusty	0.50				
861:							
Rock outcrop-----------	40	Not rated		Not rated		Not rated	
Topdeck----------------	30	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		Dusty	0.50	Dusty	0.50	Slopes >15%	1.00
						AWC <2” to 40”	1.00
Spinnaker--------------	15	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface fragments <3" >65%	1.00	Bedrock depth <20”	1.00
		Surface fragments <3" >65%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Gravel-size fragments >50%	1.00
900:							
Petrocalcic Palexeralfs	85	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Depth to pan <20”	1.00
						AWC <2” to 40”	1.00
		Dusty	0.50			Slopes 8 to 15%	0.16

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitations	Value	Limitations	Value	Limitations	Value
910:							
Hawser------------------	65	No limitations		No limitations		No limitations	
Hawser, moderately steep	20	No limitations		No limitations		Limitations	
						Slopes 8 to 15%	0.99
920:							
Typic Durixerolls-------	85	No limitations		No limitations		Limitations	
						AWC 2-4" to 40"	0.85
						Depth to pan 20 to <40”	0.74
						Bedrock depth 20 to 40"	0.50
921:							
Typic Durixerolls-------	85	Limitations		No limitations		Limitations	
		Slopes 15 to 25%	0.88			Slopes >15%	1.00
						AWC 2-4" to 40"	0.76
						Depth to pan 20 to <40”	0.32
930:							
Fluventic Haploxerolls--	85	Limitations		Limitations		Limitations	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
						AWC 2-4" to 40"	0.19
940:							
Typic Durixeralfs-------	85	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
						Depth to pan <20”	1.00
						Slopes >15%	1.00
950:							
Ahoy--------------------	70	Limitations		Limitations		Limitations	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	AWC 2-4" to 40"	0.30
						Slopes 8 to 15%	0.16
		Dusty	0.50				
Ironshot----------------	15	No limitations		No limitations		Limitations	
						Slopes 8 to 15%	0.16
						AWC 2-4" to 40"	0.05
970:							
Dune land---------------	90	Not rated		Not rated		Not rated	

Table 6b.--Recreational Development--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitations	Value	Off-road motorcycle trails: Limitations	Value	Lawns, landscaping, and golf fairways: Limitations	Value
980:							
Lithic Haploxeralfs-----	85	Limitations		Limitations		Limitations	
		Slopes >25%	1.00	Surface sand fractions 70-90% by wt.	0.52	Bedrock depth <20”	1.00
		Surface sand fractions 70-90% by wt.	0.52			Slopes >15%	1.00
				Slopes 25 to 40%	0.50	AWC <2” to 40	1.00

The interpretation for *paths and trails* evaluates the following soil properties at variable depths in the soil: flooding; ponding; wetness; slope; fragments less than, equal to, or more than 3 inches in size; clay and sand content in the surface layer; surface fragments more than or equal to 10 inches in size; Unified classes for a high content of organic matter (PT, OL, and OH); soil dustiness; and the hazard of water erosion.

The interpretation for *off-road motorcycle trails* evaluates the following soil properties at variable depths in the soil: flooding; ponding; wetness; slope; soil dustiness; fragments less than, equal to, or more than 3 inches in size; sand or clay content in the surface layer; and the Unified classes for a high content of organic matter (PT, OL, and OH).

The interpretation for *lawns, landscaping, and golf fairways* evaluates the following soil properties at variable depths in the soil: flooding; ponding; wetness; slope; depth to bedrock; depth to a cemented pan; fragments more than, equal to, or less than 3 inches in size; Unified classes for a high content of organic matter (PT, OL, and OH); soil dustiness; sand or clay content in the surface layer; surface fragments more than or equal to 10 inches in size; pH; salinity (EC); sodium content (SAR); calcium carbonates; and sulfur content

Table 7a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
100:							
Fiale	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.13		
Tongva	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.92		
Topdeck	15	Limitations		Limitations		Limitations	
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00	Bedrock (hard) <20" depth	1.00
101:							
Spinnaker	35	Limitations		Limitations		Limitations	
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Slopes >15%	1.00	Bedrock (hard) <40" depth	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (soft) <20" depth	1.00	Bedrock (hard) <20" depth	1.00
Tongva	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Bedrock (soft) from 20 to 40"	0.93	Shrink-swell (LEP 3-6)	0.50
				Shrink-swell (LEP 3-6)	0.50		
Fiale	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.84		

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
102:							
Fiale	65	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.92	Slopes from 4 to 8%	0.26
Topdeck	20	Limitations		Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00	Bedrock (hard) <20" depth	1.00
		Organic matter (PT, OL, or OH)	1.00	Shrink-swell (LEP 3-6)	0.50	Organic matter (PT, OL, or OH)	1.00
		Shrink-swell (LEP 3-6)	0.50			Shrink-swell (LEP 3-6)	0.50
103:							
Fiale	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) <20" depth	0.99		
Topdeck	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Shrink-swell (LEP >6)	1.00	Bedrock (hard) <20" depth	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40" depth	1.00	Shrink-swell (LEP >6)	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
120:							
Miasotus	70	Limitations		Limitations		Limitations	
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40" depth	1.00	Shrink-swell (LEP >6)	1.00
Yardarm	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.68	Bedrock (hard) <40" depth	1.00	Bedrock (hard) from 20 to 40"	0.68
130:							
Frigate	70	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
				Bedrock (soft) from 20 to 40"	0.35		

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
130:							
Yardarm	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.64	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.64
150:							
Halyard	45	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.02		
Topdeck	25	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Bedrock (hard) <20” depth	1.00
Tongva	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.54	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.54
152:							
Halyard	60	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.37	Slopes 8 to 15%	0.37	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.13		
Starboard	25	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.09	Bedrock (soft) from 20 to 40"	0.98	Shrink-swell (LEP >6)	1.00
				Slopes 8 to 15%	0.09		
153:							
Halyard	45	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09	Shrink-swell (LEP >6)	1.00

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
153:							
Topdeck	40	Limitations		Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40" depth	1.00	Bedrock (hard) <20" depth	1.00
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09	Shrink-swell (LEP >6)	1.00
155:							
Halyard	45	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.02	Slopes from 4 to 8%	0.38
Fiale	40	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.77	Slopes from 4 to 8%	0.38
160:							
Beaches	75	Limitations		Limitations		Limitations	
		Flooding >= rare	1.00	Flooding >= rare	1.00	Flooding >= rare	1.00
Abaft	15	No limitations		No limitations		No limitations	
180:							
Typic Argixerolls, very deep	95	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes from 4 to 8%	0.02
190:							
Typic Xerofluvents	70	Limitations		Limitations		Limitations	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Flooding >= rare	1.00	Flooding >= rare	1.00	Flooding >= rare	1.00
						Slopes from 4 to 8%	0.02
Riverwash	15	Not rated		Not rated		Not rated	
200:							
Fantail, thin surface	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Organic matter (PT, OL, or OH)	1.00	Bedrock (soft) from 20 to 40"	0.54	Organic matter (PT, OL, or OH)	1.00

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
200:							
Forestay----------------	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Fantail-----------------	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
				Bedrock (soft) from 20 to 40"	0.01		
210:							
Lospinos----------------	55	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.90	Slopes from 4 to 8%	0.26
Forestay----------------	15	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Organic matter (PT, OL, or OH)	1.00			Organic matter (PT, OL, or OH)	1.00
						Slopes from 4 to 8%	0.26
Forestay, strongly sloping----------------	15	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Organic matter (PT, OL, or OH)	1.00	Slopes 8 to 15%	0.96	Shrink-swell (LEP >6)	1.00
		Slopes 8 to 15%	0.96			Organic matter (PT, OL, or OH)	1.00
211:							
Lospinos----------------	90	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.61		
212:							
Lospinos----------------	70	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.98		

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
212:							
Rock outcrop-----------	25	Not rated		Not rated		Not rated	
230:							
Fantail----------------	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Organic matter (PT, OL, or OH)	1.00	Bedrock (soft) from 20 to 40"	0.54	Organic matter (PT, OL, or OH)	1.00
240:							
Delphine---------------	50	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	0.99	Bedrock (soft) <20” depth	1.00	Bedrock (hard) <20” depth	0.99
Miasotus---------------	20	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP >6)	1.00
Yardarm----------------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (hard) <40” depth	0.99		
241:							
Delphine---------------	50	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP >6)	1.00
Badland----------------	20	Not rated		Not rated		Not rated	
Miasotus---------------	15	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP >6)	1.00
250:							
Spinnaker--------------	50	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (soft) <20” depth	1.00	Bedrock (hard) <20” depth	1.00

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
250:							
Starboard	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.08		
Rock outcrop	20	Not rated		Not rated		Not rated	
251:							
Spinnaker	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00	Bedrock (hard) <20" depth	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
260:							
Starboard	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
				Bedrock (soft) from 20 to 40"	0.50		
Spinnaker	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00	Bedrock (hard) <20" depth	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
262:							
Halyard	55	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.10		
Fantail	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.50		

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
263:							
Starboard	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Pachic Argixerolls	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
270:							
Topdeck	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00	Bedrock (hard) <20" depth	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Rock outcrop	35	Not rated		Not rated		Not rated	
Spinnaker	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00	Bedrock (hard) <20" depth	1.00
271:							
Topdeck	45	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Shrink-swell (LEP >6)	1.00	Bedrock (hard) <20" depth	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40" depth	1.00	Shrink-swell (LEP >6)	1.00
Spinnaker	20	Limitations		Limitations		Limitations	
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Slopes >15%	1.00	Bedrock (hard) <40" depth	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (soft) <20" depth	1.00	Bedrock (hard) <20" depth	1.00
Tongva	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.32		

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
272:							
Topdeck	35	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Bedrock (hard) <20” depth	1.00
Starboard	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Bedrock (soft) from 20 to 40"	0.68	Shrink-swell (LEP 3-6)	0.50
				Shrink-swell (LEP 3-6)	0.50		
Rock outcrop	15	Not rated		Not rated		Not rated	
273:							
Topdeck, overblown	45	Limitations		Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Bedrock (hard) <20” depth	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Typic Durixerolls, loamy subsoil	40	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Bedrock (soft) <20” depth	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
290:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Topdeck	20	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (soft) <20” depth	1.00	Bedrock (hard) <20” depth	1.00
Starboard	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Bedrock (soft) from 20 to 40"	0.68	Shrink-swell (LEP 3-6)	0.50
				Shrink-swell (LEP 3-6)	0.50		

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
291:							
Rock outcrop-----------	40	Not rated		Not rated		Not rated	
Spinnaker--------------	30	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (soft) <20” depth	1.00	Bedrock (hard) <20” depth	1.00
Topdeck----------------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Shrink-swell (LEP >6)	1.00	Bedrock (hard) <20” depth	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP >6)	1.00
292:							
Rock outcrop-----------	25	Not rated		Not rated		Not rated	
Buoy-------------------	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Bereme-----------------	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Bedrock (hard) <20” depth	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Typic Palexerolls-------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Organic matter (PT, OL, or OH)	1.00	Bedrock (soft) from 20 to 40"	0.92	Organic matter (PT, OL, or OH)	1.00
300:							
Cumulic Haploxerolls----	85	Limitations		Limitations		Limitations	
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
						Slopes from 4 to 8%	0.26
310:							
Livigne----------------	40	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
310:							
Macool------------------	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
Badland-----------------	15	Not rated		Not rated		Not rated	
311:							
Livigne-----------------	45	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) <20” depth	1.00	Shrink-swell (LEP >6)	1.00
Gunwale-----------------	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.98		
321:							
Rudder------------------	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.29
				Bedrock (soft) from 20 to 40"	0.61		
Spinnaker, moist--------	30	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (soft) <20” depth	1.00	Bedrock (hard) <20” depth	1.00
Rock outcrop------------	15	Not rated		Not rated		Not rated	
650:							
Abaft-------------------	85	No limitations		No limitations		Limitations	
						Slopes from 4 to 8%	0.26
651:							
Abaft-------------------	45	No limitations		No limitations		Limitations	
						Slopes from 4 to 8%	0.38
Abaft, moderately steep	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
660:							
Pachic Haploxerolls-----	85	No limitations		No limitations		Limitations	
						Slopes from 4 to 8%	0.26
670:							
Ironshot----------------	60	Limitations		Limitations		Limitations	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes >8%	1.00
Ahoy--------------------	25	No limitations		No limitations		Limitations	
						Slopes from 4 to 8%	0.38
680:							
Bereme------------------	65	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00	Bedrock (hard) <20" depth	1.00
Rock outcrop------------	20	Not rated		Not rated		Not rated	
681:							
Bereme------------------	65	Limitations		Limitations		Limitations	
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Slopes >15%	1.00	Bedrock (hard) <40" depth	1.00	Slopes >8%	1.00
		Bedrock (hard) <20" depth	1.00	Bedrock (soft) <20" depth	1.00	Bedrock (hard) <20" depth	1.00
Rock outcrop------------	20	Not rated		Not rated		Not rated	
690:							
Typic Xerorthents-------	40	Limitations		Limitations		Limitations	
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00	Slopes >8%	1.00
Ultic Haploxeralfs------	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.01	Bedrock (hard) <40" depth	1.00	Bedrock (hard) from 20 to 40"	0.01
Rock outcrop------------	15	Not rated		Not rated		Not rated	
700:							
Ahoy--------------------	30	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes from 4 to 8%	0.50

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
700:							
Hawser, moderately steep	30	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00
Ahoy, moderately steep--	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Hawser------------------	15	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes from 4 to 8%	0.50
710:							
Windage-----------------	55	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
Typic Xerorthents-------	20	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00	Slopes >8%	1.00
Buoy--------------------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
711:							
Windage-----------------	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
Hawser------------------	30	Not rated		Not rated		Not rated	
Typic Haploxeralfs------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.32		
712:							
Windage-----------------	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
712:							
Buoy--------------------	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
713:							
Windage-----------------	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
Ballast-----------------	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.92	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.92
721:							
Buoy--------------------	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
722:							
Buoy, cobbly------------	55	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Rock outcrop------------	35	Not rated		Not rated		Not rated	
723:							
Buoy--------------------	45	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
Lithic Argixerolls------	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Shrink-swell (LEP >6)	1.00	Bedrock (hard) <20” depth	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP >6)	1.00
Rock outcrop------------	15	Not rated		Not rated		Not rated	
724:							
Buoy--------------------	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Rock outcrop------------	20	Not rated		Not rated		Not rated	

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
724:							
Ballast----------------	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.01	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.01
725:							
Buoy-------------------	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
Typic Haploxeralfs------	20	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.32		
730:							
Lodestone, very deep----	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
Ballast----------------	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.50	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.50
Buoy-------------------	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
761:							
Lodestone--------------	35	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.50	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.50
Typic Xerorthents-------	20	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00	Slopes >8%	1.00

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
761:							
Windage	20	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP >6)	1.00
762:							
Lodestone	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.50	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.50
Ballast	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.01	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.01
Halyard	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.01		
763:							
Hawser	50	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
Lodestone, very deep	25	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
Buoy	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
780:							
Typic Argixerolls	75	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
				Bedrock (soft) from 20 to 40"	0.32		

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitations	Value	Limitations	Value	Limitations	Value
800:							
Ballast-----------------	50	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.68		
Halyard-----------------	25	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.54		
Typic Argixerolls-------	15	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP >6)	1.00
		Bedrock (hard) from 20 to 40"	0.68	Slopes >15%	1.00	Bedrock (hard) from 20 to 40"	0.68
850:							
Typic Natrixeralfs------	50	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Organic matter (PT, OL, or OH)	1.00	Bedrock (soft) from 20 to 40"	0.92	Shrink-swell (LEP >6)	1.00
		Slopes 8 to 15%	0.26	Slopes 8 to 15%	0.26	Organic matter (PT, OL, or OH)	1.00
Typic Haploxeralfs, dry	45	Limitations		Limitations		Limitations	
		Slopes 8 to 15%	0.74	Slopes 8 to 15%	0.74	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
				Bedrock (hard) from 40 to 60"	0.50		
851:							
Typic Haploxeralfs, dry	60	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
				Bedrock (hard) from 40 to 60"	0.50		

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
851:							
Typic Natrixeralfs------	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
		Organic matter (PT, OL, or OH)	1.00			Organic matter (PT, OL, or OH)	1.00
852:							
Lithic Argixerolls, dry	55	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Shrink-swell (LEP >6)	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) <20” depth	1.00	Bedrock (hard) <20” depth	1.00
Typic Natrixeralfs------	35	Limitations		Limitations		Limitations	
		Bedrock (soft) <20” depth	1.00	Shrink-swell (LEP >6)	1.00	Bedrock (soft) <20” depth	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Bedrock (hard) from 20 to 40"	0.99	Bedrock (soft) <20” depth	1.00	Shrink-swell (LEP >6)	1.00
853:							
Rock outcrop-----------	45	Not rated		Not rated		Not rated	
Typic Haploxeralfs, dry	40	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
				Bedrock (hard) from 40 to 60"	0.50		
860:							
Topdeck----------------	45	Limitations		Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00	Bedrock (hard) <20” depth	1.00
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09	Shrink-swell (LEP >6)	1.00
Halyard----------------	40	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09	Shrink-swell (LEP >6)	1.00

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
861:							
Rock outcrop------------	40	Not rated		Not rated		Not rated	
Topdeck-----------------	30	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Bedrock (hard) <20” depth	1.00
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50
Spinnaker---------------	15	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Bedrock (hard) <20” depth	1.00
900:							
Petrocalcic Palexeralfs	85	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Shrink-swell (LEP >6)	1.00
910:							
Hawser------------------	65	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes from 4 to 8%	0.38
Hawser, moderately steep	20	Limitations		Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.99	Slopes 8 to 15%	0.99	Shrink-swell (LEP >6)	1.00
920:							
Typic Durixerolls-------	85	Limitations		Limitations		Limitations	
		Slopes 8 to 15%	0.16	Bedrock (soft) from 20 to 40"	0.50	Slopes >8%	1.00
				Slopes 8 to 15%	0.16		
921:							
Typic Durixerolls-------	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
				Bedrock (soft) from 20 to 40"	0.18		
930:							
Fluventic Haploxerolls--	85	Limitations		Limitations		Limitations	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00

Table 7a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitations	Value	Dwellings with basements: Limitations	Value	Small commercial buildings: Limitations	Value
940:							
Typic Durixeralfs-------	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Shrink-swell (LEP >6)	1.00	Bedrock (hard) <20” depth	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP >6)	1.00
950:							
Ahoy--------------------	70	Limitations		Limitations		Limitations	
		Shrink-swell (LEP 3-6)	0.50	Shrink-swell (LEP 3-6)	0.50	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Shrink-swell (LEP 3-6)	0.50
Ironshot----------------	15	Limitations		Limitations		Limitations	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes >8%	1.00
970:							
Dune land---------------	90	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
980:							
Lithic Haploxeralfs-----	85	Limitations		Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Bedrock (hard) <20” depth	1.00

The interpretation for *dwellings without basements* evaluates the following soil properties, some at variable depths in the soil: flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell expressed as linear extensibility percent (LEP), organic Unified classes for low soil strength (PT, OL, and OH), depth to hard or soft bedrock, depth to a thick or thin cemented pan, and fragments more than 3 inches in size.

The interpretation for *dwellings with basements* evaluates the following soil properties, some at variable depths in the soil: flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell potential expressed as linear extensibility percent (LEP), organic Unified classes for low strength (PT, OL, and OH), depth to hard or soft bedrock, depth to a thick or thin cemented pan, and fragments more than 3 inches in size.

The interpretation for *small commercial buildings* evaluates the following soil properties, some at variable depths in the soil: flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell potential expressed as linear extensibility percent (LEP), depth to hard or soft bedrock, depth to a thick or thin cemented pan, and fragments more than 3 inches in size.

Table 7b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitation	Value
100:					
Fiale	60	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Clay from 40 to 60%	0.50
Tongva	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) from 20 to 40"	0.92
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10
Topdeck	15	Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00
101:					
Spinnaker	35	Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00
Tongva	35	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Caving potential	1.00
		AASHTO GI 5-8 (soil strength)	0.22	Bedrock (soft) from 20 to 40"	0.93
Fiale	15	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Bedrock (soft) from 20 to 40"	0.84
102:					
Fiale	65	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) from 20 to 40"	0.92
				Clay from 40 to 60%	0.50

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitation	Value
102:					
Topdeck	20	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
103:					
Fiale	35	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	0.99
Topdeck	35	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Rock outcrop	15	Not rated		Not rated	
120:					
Miasotus	70	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (soft) <20” depth	1.00	Bedrock (soft) <20” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
Yardarm	15	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Bedrock (hard) from 20 to 40"	0.68	Caving potential	1.00
130:					
Frigate	70	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
				Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.35
Yardarm	20	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Bedrock (hard) from 20 to 40"	0.64	Caving potential	1.00
150:					
Halyard	45	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Clay from 40 to 60%	0.12

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitation	Value
150:					
Topdeck	25	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00
Tongva	15	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		AASHTO GI 5-8 (soil strength)	0.78	Caving potential	1.00
152:					
Halyard	60	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.88
		Slopes 8 to 15%	0.37	Slopes 8 to 15%	0.37
Starboard	25	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.98
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09
153:					
Halyard	45	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.88
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09
Topdeck	40	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (hard) <20” depth	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00	Slopes 8 to 15%	0.09
155:					
Halyard	45	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.12
				Bedrock (soft) from 20 to 40"	0.02
Fiale	40	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.88
				Bedrock (soft) from 20 to 40"	0.77

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Local roads and streets: Value	Shallow excavations: Limitation	Shallow excavations: Value
160:					
Beaches----------------------------	75	Limitations		Limitations	
		Flooding >= occasional	1.00	Frequent or occasional flooding	0.50
				Low caving potential	0.10
Abaft------------------------------	15	No limitations		Limitations	
				Caving potential	1.00
180:					
Typic Argixerolls, very deep------	95	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
190:					
Typic Xerofluvents----------------	70	Limitations		Limitations	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Flooding >= occasional	1.00	Caving potential	1.00
				Frequent or occasional flooding	0.50
Riverwash-------------------------	15	Not rated		Not rated	
200:					
Fantail, thin surface-------------	40	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Caving potential	1.00
				Clay from 40 to 60%	0.88
Forestay--------------------------	25	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Caving potential	1.00
				Clay from 40 to 60%	0.91
Fantail---------------------------	20	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Caving potential	1.00
				Clay > 60%	1.00
210:					
Lospinos--------------------------	55	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.90
Forestay--------------------------	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.70

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitation	Value
210:					
Forestay, strongly sloping	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes 8 to 15%	0.96	Slopes 8 to 15%	0.96
				Clay from 40 to 60%	0.70
211:					
Lospinos	90	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
				Bedrock (soft) from 20 to 40"	0.61
212:					
Lospinos	70	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.98
Rock outcrop	25	Not rated		Not rated	
Fantail	85	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.54
240:					
Delphine	50	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (soft) <20” depth	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (hard) <20” depth	0.99	Slopes >15%	1.00
Miasotus	20	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (soft) <20” depth	1.00	Bedrock (soft) <20” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
Yardarm	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
				Bedrock (hard) <40” depth	0.99

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitation	Value
241:					
Delphine	50	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (soft) <20” depth	1.00	Bedrock (soft) <20” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
Badland	20	Not rated		Not rated	
Miasotus	15	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (soft) <20” depth	1.00	Bedrock (soft) <20” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
250:					
Spinnaker	50	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00
Starboard	20	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.08
Rock outcrop	20	Not rated		Not rated	
251:					
Spinnaker	60	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
				Low caving potential	0.10
Rock outcrop	25	Not rated		Not rated	
260:					
Starboard	40	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.50
Spinnaker	30	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Rock outcrop	15	Not rated		Not rated	

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitation	Value
262:					
Halyard	55	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Caving potential	1.00
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.88
Fantail	30	Limitations		Limitations	
		Slopes >15%	1.00	Clay > 60%	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
263:					
Starboard	35	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Pachic Argixerolls	35	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
Rock outcrop	15	Not rated		Not rated	
270:					
Topdeck	35	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Rock outcrop	35	Not rated		Not rated	
Spinnaker	15	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
				Low caving potential	0.10
271:					
Topdeck	45	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Spinnaker	20	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitation	Value
271:					
Tongva	20	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		AASHTO GI 5-8 (soil strength)	0.22	Bedrock (soft) from 20 to 40"	0.32
272:					
Topdeck	35	Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00
Starboard	35	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.68
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Rock outcrop	15	Not rated		Not rated	
273:					
Topdeck, overblown	45	Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Typic Durixerolls, loamy subsoil	40	Limitations		Limitations	
		Bedrock (soft) <20" depth	1.00	Bedrock (soft) <20" depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
				Low caving potential	0.10
290:					
Rock outcrop	50	Not rated		Not rated	
Topdeck	20	Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00
Starboard	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.68
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitation	Value
291:					
Rock outcrop	40	Not rated		Not rated	
Spinnaker	30	Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00
Topdeck	15	Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
292:					
Rock outcrop	25	Not rated		Not rated	
Buoy	25	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.50
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Bereme	20	Limitations		Limitations	
		Bedrock (hard) <20" depth	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Typic Palexerolls	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 20 to 40"	0.92
				Clay from 40 to 60%	0.88
300:					
Cumulic Haploxerolls	85	Limitations		Limitations	
		AASHTO GI 5-8 (soil strength)	0.78	Caving potential	1.00
		Shrink-swell (LEP 3-6)	0.50		
310:					
Livigne	40	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Low caving potential	0.10

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitation	Value
310:					
Macool	30	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.32
		Slopes >15%	1.00	Low caving potential	0.10
Badland	15	Not rated		Not rated	
311:					
Livigne	45	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (soft) <20” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Bedrock (soft) <20” depth	1.00	Low caving potential	0.10
Gunwale	40	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) from 20 to 40"	0.98
		AASHTO GI 5-8 (soil strength)	0.22	Low caving potential	0.10
321:					
Rudder	40	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (hard) from 20 to 40"	0.29	Slopes >15%	1.00
				Caving potential	1.00
Spinnaker, moist	30	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00
Rock outcrop	15	Not rated		Not rated	
650:					
Abaft	85	No limitations		Limitations	
				Caving potential	1.00
651:					
Abaft	45	No limitations		Limitations	
				Caving potential	1.00
Abaft, moderately steep	40	Limitations		Limitations	
		Slopes >15%	1.00	Caving potential	1.00
				Slopes >15%	1.00

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitation	Value
660:					
Pachic Haploxerolls	85	No limitations		Limitations	
				Caving potential	1.00
670:					
Ironshot	60	Limitations		Limitations	
		Slopes 8 to 15%	0.16	Caving potential	1.00
				Slopes 8 to 15%	0.16
Ahoy	25	No limitations		Limitations	
				Clay from 40 to 60%	0.88
				Low caving potential	0.10
680:					
Bereme	65	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
				Low caving potential	0.10
Rock outcrop	20	Not rated		Not rated	
681:					
Bereme	65	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00
Rock outcrop	20	Not rated		Not rated	
690:					
Typic Xerorthents	40	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00
				Low caving potential	0.10
Ultic Haploxeralfs	35	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Bedrock (hard) from 20 to 40"	0.01	Clay from 40 to 60%	0.50
Rock outcrop	15	Not rated		Not rated	

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitation	Value
700:					
Ahoy	30	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Clay > 60%	1.00
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Hawser, moderately steep	30	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00		
Ahoy, moderately steep	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Clay from 40 to 60%	0.88
				Low caving potential	0.10
Hawser	15	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay > 60%	1.00
710:					
Windage	55	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Clay > 60%	1.00
Typic Xerorthents	20	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (soft) <20” depth	1.00	Slopes >15%	1.00
				Low caving potential	0.10
Buoy	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
				Clay from 40 to 60%	0.50
				Low caving potential	0.10
711:					
Windage	40	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.88
Hawser	30	Not rated		Not rated	

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Local roads and streets: Value	Shallow excavations: Limitation	Shallow excavations: Value
711:					
Typic Haploxeralfs	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Caving potential	1.00
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.32
712:					
Windage	60	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Clay > 60%	1.00
		Slopes >15%	1.00	Low caving potential	0.10
Buoy	25	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP 3-6)	0.50	Clay from 40 to 60%	0.50
713:					
Windage	50	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.50
		Slopes >15%	1.00	Low caving potential	0.10
Ballast	35	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 20 to 40"	0.82
721:					
Buoy	85	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
				Clay from 40 to 60%	0.12
				Low caving potential	0.10
722:					
Buoy, cobbly	55	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Clay from 40 to 60%	0.50
				Low caving potential	0.10
Rock outcrop	35	Not rated		Not rated	

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitation	Value
723:					
Buoy	45	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
				Caving potential	1.00
				Clay from 40 to 60%	0.50
Lithic Argixerolls	25	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (hard) <20” depth	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Low caving potential	0.10
Rock outcrop	15	Not rated		Not rated	
724:					
Buoy	50	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.50
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Rock outcrop	20	Not rated		Not rated	
Ballast	20	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Clay > 60%	1.00
725:					
Buoy	60	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
				Clay from 40 to 60%	0.12
				Low caving potential	0.10
Typic Haploxeralfs	20	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.32
730:					
Lodestone, very deep	35	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Clay > 60%	1.00

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitation	Value
730:					
Ballast	30	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40" depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 20 to 40"	0.82
Buoy	20	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Caving potential	1.00
				Clay from 40 to 60%	0.50
761:					
Lodestone	35	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40" depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Caving potential	1.00
Typic Xerorthents	20	Limitations		Limitations	
		Slopes >15%	1.00	Bedrock (soft) <20" depth	1.00
		Bedrock (soft) <20" depth	1.00	Slopes >15%	1.00
				Low caving potential	0.10
Windage	20	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
762:					
Lodestone	40	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40" depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Caving potential	1.00
Ballast	30	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40" depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 20 to 40"	0.93
Halyard	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.12

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitation	Value
763:					
Hawser	50	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Clay from 40 to 60%	0.12
Lodestone, very deep	25	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Slopes >15%	1.00	Clay > 60%	1.00
Buoy	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP 3-6)	0.50	Clay from 40 to 60%	0.50
780:					
Typic Argixerolls	75	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.32
800:					
Ballast	50	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) from 20 to 40"	0.68
		Slopes >15%	1.00	Clay from 40 to 60%	0.50
Halyard	25	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.88
		Slopes >15%	1.00	Bedrock (soft) from 20 to 40"	0.54
Typic Argixerolls	15	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Bedrock (soft) <20” depth	0.99
850:					
Typic Natrixeralfs	50	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) from 20 to 40"	0.92
		Slopes 8 to 15%	0.26	Slopes 8 to 15%	0.26
				Low caving potential	0.10

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitation	Value
850:					
Typic Haploxeralfs, dry-----------	45	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes 8 to 15%	0.74
		Slopes 8 to 15%	0.74	Bedrock (hard) from 40 to 60"	0.50
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
851:					
Typic Haploxeralfs, dry-----------	60	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) from 40 to 60"	0.50
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Typic Natrixeralfs----------------	30	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >15%	1.00
		Slopes >15%	1.00	Low caving potential	0.10
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.02
852:					
Lithic Argixerolls, dry-----------	55	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (soft) <20” depth	1.00	Bedrock (soft) <20” depth	1.00
		Shrink-swell (LEP >6)	1.00	Slopes 8 to 15%	0.37
Typic Natrixeralfs----------------	35	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (soft) <20” depth	1.00	Slopes 8 to 15%	0.37
853:					
Rock outcrop----------------------	45	Not rated		Not rated	
Typic Haploxeralfs, dry-----------	40	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) from 40 to 60"	0.50
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
860:					
Topdeck---------------------------	45	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (hard) <20” depth	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00	Slopes 8 to 15%	0.09
Halyard---------------------------	40	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Clay from 40 to 60%	0.88
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
		Slopes 8 to 15%	0.09	Slopes 8 to 15%	0.09

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Limitations	Value	Shallow excavations: Limitation	Value
861:					
Rock outcrop	40	Not rated		Not rated	
Topdeck	30	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP 3-6)	0.50	Low caving potential	0.10
Spinnaker	15	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
				Low caving potential	0.10
900:					
Petrocalcic Palexeralfs	85	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Slopes 8 to 15%	0.16
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
		Slopes 8 to 15%	0.16		
910:					
Hawser	65	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.08
Hawser, moderately steep	20	Limitations		Limitations	
		AASHTO GI >8 (low soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Slopes 8 to 15%	0.99
		Slopes 8 to 15%	0.99	Clay from 40 to 60%	0.88
920:					
Typic Durixerolls	85	Limitations		Limitations	
		Slopes 8 to 15%	0.16	Clay from 40 to 60%	0.50
				Bedrock (soft) from 20 to 40"	0.50
				Slopes 8 to 15%	0.16
921:					
Typic Durixerolls	85	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
				Clay from 40 to 60%	0.59
				Bedrock (soft) from 20 to 40"	0.18
930:					
Fluventic Haploxerolls	85	Limitations		Limitations	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00
				Caving potential	1.00
				Clay from 40 to 60%	0.50

Table 7b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitations	Value	Limitation	Value
940:					
Typic Durixeralfs	85	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
950:					
Ahoy	70	Limitations		Limitations	
		Shrink-swell (LEP 3-6)	0.50	Clay from 40 to 60%	0.50
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16
				Low caving potential	0.10
Ironshot	15	Limitations		Limitations	
		Slopes 8 to 15%	0.16	Caving potential	1.00
				Slopes 8 to 15%	0.16
970:					
Dune land	90	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >15%	1.00
				Low caving potential	0.10
980:					
Lithic Haploxeralfs	85	Limitations		Limitations	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >15%	1.00
				Low caving potential	0.10

The interpretation for *local roads and streets* evaluates the following soil properties at variable depths in the soil: flooding, ponding, wetness, slope, organic Unified classes for low soil strength (PT, OL, and OH), amount of clay, depth to hard or soft bedrock, depth to a thick or thin cemented pan, fragments more than 3 inches in size, bulk density, and the caving potential of the soil.

The interpretation for *shallow excavations* evaluates the following soil properties at variable depths in the soil: flooding, ponding, wetness, slope, subsidence of organic soils, shrink-swell potential expressed as linear extensibility percent (LEP), potential for frost action, depth to hard or soft bedrock, depth to a thick or thin cemented pan, fragments more than 3 inches in size, and soil strength expressed as the AASHTO group index number (AASHTO GI).

Table 8a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
100:					
Fiale	60	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (soft) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Permeability .6-2"/hr (some seepage)	0.50
Tongva	15	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Topdeck	15	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
101:					
Spinnaker	35	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Tongva	35	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Permeability .6-2"/hr (some seepage)	0.50
Fiale	15	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (soft) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
102:					
Fiale	65	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes 2 to 8%	0.50
Topdeck	20	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes 2 to 8%	0.50
103:					
Fiale	35	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Topdeck	35	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Rock outcrop	15	Not rated		Not rated	
120:					
Miasotus	70	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Yardarm	15	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
130:					
Frigate	70	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability of .6-2”/hr (restricted permeability)	0.50	Permeability .6-2"/hr (some seepage)	0.50

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
130:					
Yardarm	20	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40″ depth	1.00
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Slopes >8%	1.00
150:					
Halyard	45	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Bedrock (soft) <40″ depth	1.00
				Slopes >8%	1.00
		Depth to bedrock <40″	1.00	Permeability .6-2"/hr (some seepage)	0.50
		Slopes >15%	1.00		
Topdeck	25	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40″ depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Tongva	15	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40″ depth	1.00
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Slopes >8%	1.00
152:					
Halyard	60	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Bedrock (soft) <40″ depth	1.00
				Slopes >8%	1.00
		Depth to bedrock <40″	1.00		
		Slopes 8 to 15%	0.37		
Starboard	25	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (soft) <40″ depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.09		
153:					
Halyard	45	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Slopes >8%	1.00
				Bedrock (soft) <40" depth	0.99
		Depth to bedrock <40″	0.99		
		Slopes 8 to 15%	0.09		

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
153:					
Topdeck	40	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.09		
155:					
Halyard	45	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Bedrock (soft) <40″ depth	1.00
				Slopes 2 to 8%	0.58
		Depth to bedrock <40″	1.00	Permeability .6-2"/hr (some seepage)	0.50
Fiale	40	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Bedrock (soft) <40″ depth	1.00
				Slopes 2 to 8%	0.58
		Depth to bedrock <40″	1.00		
160:					
Beaches	75	Limitations		Limitations	
		Flooding	1.00	Flooding >= occasional	1.00
Abaft	15	Limitations		Limitations	
		Seepage in bottom layer	1.00	Permeability >2″/hr (seepage)	1.00
		Permeability > 6"/hr in 24-60" (seepage and poor filter)	1.00		
180:					
Typic Argixerolls, very deep	95	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Slopes 2 to 8%	0.33
190:					
Typic Xerofluvents	70	Limitations		Limitations	
		Flooding	1.00	Ponded (any duration)	1.00
		Ponded (any duration)	1.00	Flooding >= occasional	1.00
		Seepage in bottom layer	1.00	Permeability >2″/hr (seepage)	1.00
Riverwash	15	Not rated		Not rated	
200:					
Fantail, thin surface	40	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (soft) <40″ depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
200:					
Forestay	25	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability of .6-2”/hr (restricted permeability)	0.50	Permeability .6-2"/hr (some seepage)	0.50
Fantail	20	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
				Permeability .6-2"/hr (some seepage)	0.50
210:					
Lospinos	55	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Permeability of .6-2”/hr (restricted permeability)	0.50	Permeability .6-2"/hr (some seepage)	0.50
				Slopes 2 to 8%	0.50
Forestay	15	No limitations		Limitations	
				Slopes 2 to 8%	0.50
Forestay, strongly sloping	15	Limitations		Limitations	
		Slopes 8 to 15%	0.96	Slopes >8%	1.00
211:					
Lospinos	90	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability of .6-2”/hr (restricted permeability)	0.50	Permeability .6-2"/hr (some seepage)	0.50
212:					
Lospinos	70	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Rock outcrop	25	Not rated		Not rated	
230:					
Fantail	85	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
240:					
Delphine	50	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Miasotus	20	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Yardarm	15	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (hard) <40” depth	0.99
241:					
Delphine	50	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Badland	20	Not rated		Not rated	
Miasotus	15	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
250:					
Spinnaker	50	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
250:					
Starboard-------------------	20	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop----------------	20	Not rated		Not rated	
251:					
Spinnaker-------------------	60	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Rock outcrop----------------	25	Not rated		Not rated	
260:					
Starboard-------------------	40	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability of .6-2”/hr (restricted permeability)	0.50	Permeability .6-2"/hr (some seepage)	0.50
Spinnaker-------------------	30	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop----------------	15	Not rated		Not rated	
262:					
Halyard---------------------	55	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (soft) <40” depth	1.00
				Slopes >8%	1.00
		Depth to bedrock <40”	1.00		
		Slopes >15%	1.00		
Fantail---------------------	30	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
263:					
Starboard	35	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Depth to bedrock <40″	0.99	Bedrock (soft) <40″ depth	0.99
		Permeability of .6-2″/hr (restricted permeability)	0.50	Permeability .6-2"/hr (some seepage)	0.50
Pachic Argixerolls	35	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Bedrock (soft) from 40 to 60"	0.98
		Depth to bedrock 40-72″	0.99	Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop	15	Not rated		Not rated	
270:					
Topdeck	35	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Rock outcrop	35	Not rated		Not rated	
Spinnaker	15	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
271:					
Topdeck	45	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Spinnaker	20	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40″ depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
271:					
Tongva	20	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Permeability .6-2"/hr (some seepage)	0.50
272:					
Topdeck	35	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Starboard	35	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop	15	Not rated		Not rated	
273:					
Topdeck, overblown	45	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Typic Durixerolls, loamy subsoil	40	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Depth to pan < 40"	1.00	Depth to pan < 40"	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
290:					
Rock outcrop	50	Not rated		Not rated	
Topdeck	20	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
290:					
Starboard	15	Limitations		Limitations	
		Depth to bedrock <40"	1.00	Bedrock (soft) <40" depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability <.6"/hr in 24-60" (restricted permeability)	1.00	Permeability .6-2"/hr (some seepage)	0.50
291:					
Rock outcrop	40	Not rated		Not rated	
Spinnaker	30	Limitations		Limitations	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40" depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Topdeck	15	Limitations		Limitations	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
292:					
Rock outcrop	25	Not rated		Not rated	
Buoy	25	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Seepage in bottom layer	1.00	Permeability >2"/hr (seepage)	1.00
		Depth to bedrock 40-72"	0.93	Bedrock (soft) from 40 to 60"	0.82
Bereme	20	Limitations		Limitations	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Permeability .6-2"/hr (some seepage)	0.50
Typic Palexerolls	15	Limitations		Limitations	
		Depth to bedrock <40"	1.00	Bedrock (soft) <40" depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
300:					
Cumulic Haploxerolls--------	85	Limitations		Limitations	
		Seepage in bottom layer	1.00	Permeability >2”/hr (seepage)	1.00
		Permeability of .6-2”/hr (restricted permeability)	0.50	Slopes 2 to 8%	0.50
		Very rare flooding	0.20		
310:					
Livigne---------------------	40	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Permeability .6-2"/hr (some seepage)	0.50
Macool----------------------	30	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Slopes >8%	1.00
				Permeability .6-2"/hr (some seepage)	0.50
		Slopes >15%	1.00		
		Depth to bedrock 40-72”	0.78	Bedrock (soft) from 40 to 60"	0.42
Badland---------------------	15	Not rated		Not rated	
311:					
Livigne---------------------	45	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Gunwale---------------------	40	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
321:					
Rudder----------------------	40	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Permeability of .6-2”/hr (restricted permeability)	0.50	Slopes >8%	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitations	Value	Limitations	Value
321:					
Spinnaker, moist	30	Limitations		Limitations	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40" depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Rock outcrop	15	Not rated		Not rated	
650:					
Abaft	85	Limitations		Limitations	
		Seepage in bottom layer	1.00	Permeability >2"/hr (seepage)	1.00
		Permeability > 6"/hr in 24-60" (seepage and poor filter)	1.00	Slopes 2 to 8%	0.50
651:					
Abaft	45	Limitations		Limitations	
		Seepage in bottom layer	1.00	Permeability >2"/hr (seepage)	1.00
		Permeability > 6"/hr in 24-60" (seepage and poor filter)	1.00	Slopes 2 to 8%	0.58
Abaft, moderately steep	40	Limitations		Limitations	
		Seepage in bottom layer	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Permeability >2"/hr (seepage)	1.00
		Permeability > 6"/hr in 24-60" (seepage and poor filter)	1.00		
660:					
Pachic Haploxerolls	85	Limitations		Limitations	
		Seepage in bottom layer	1.00	Permeability >2"/hr (seepage)	1.00
		Permeability of .6-2"/hr (restricted permeability)	0.50	Slopes 2 to 8%	0.50
670:					
Ironshot	60	Limitations		Limitations	
		Seepage in bottom layer	1.00	Permeability >2"/hr (seepage)	1.00
		Permeability > 6"/hr in 24-60" (seepage and poor filter)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16		
Ahoy	25	No limitations		Limitations	
				Permeability >2"/hr (seepage)	1.00
				Slopes 2 to 8%	0.58

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Septic tank absorption fields: Value	Sewage lagoons: Limitations	Sewage lagoons: Value
680:					
Bereme	65	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop	20	Not rated		Not rated	
681:					
Bereme	65	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Rock outcrop	20	Not rated		Not rated	
690:					
Typic Xerorthents	40	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Ultic Haploxeralfs	35	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
Rock outcrop	15	Not rated		Not rated	
700:					
Ahoy	30	Limitations		Limitations	
		Permeability of .6-2”/hr (restricted permeability)	0.50	Slopes 2 to 8%	0.67
				Permeability .6-2"/hr (some seepage)	0.50
Hawser, moderately steep	30	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Ahoy, moderately steep	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
				Permeability >2”/hr (seepage)	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
700:					
Hawser	15	Limitations		Limitations	
		Permeability <.6"/hr in 24-60" (restricted permeability)	1.00	Slopes 2 to 8%	0.67
710:					
Windage	55	Limitations		Limitations	
		Permeability <.6"/hr in 24-60" (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Typic Xerorthents	20	Limitations		Limitations	
		Depth to bedrock <40"	1.00	Bedrock (soft) <40" depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Buoy	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Depth to bedrock 40-72"	0.73	Bedrock (soft) from 40 to 60"	0.32
711:					
Windage	40	Limitations		Limitations	
		Permeability <.6"/hr in 24-60" (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Hawser	30	Not rated		Not rated	
Typic Haploxeralfs	15	Limitations		Limitations	
		Permeability <.6"/hr in 24-60" (restricted permeability)	1.00	Bedrock (soft) <40" depth	1.00
				Slopes >8%	1.00
		Depth to bedrock <40"	1.00		
		Slopes >15%	1.00		
712:					
Windage	60	Limitations		Limitations	
		Permeability <.6"/hr in 24-60" (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Buoy	25	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Depth to bedrock 40-72"	0.99	Bedrock (soft) from 40 to 60"	0.98
				Permeability .6-2"/hr (some seepage)	0.50

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
713:					
Windage	50	Limitations		Limitations	
		Permeability <.6"/hr in 24-60" (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Ballast	35	Limitations		Limitations	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40" depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
721:					
Buoy	85	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Depth to bedrock 40-72"	0.93	Permeability >2"/hr (seepage)	1.00
				Bedrock (soft) from 40 to 60"	0.82
722:					
Buoy, cobbly	55	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Depth to bedrock 40-72"	0.97	Bedrock (soft) from 40 to 60"	0.92
				Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop	35	Not rated		Not rated	
723:					
Buoy	45	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability > 6"/hr in 24-60" (seepage and poor filter)	1.00	Permeability >2"/hr (seepage)	1.00
				Bedrock (soft) from 40 to 60"	0.18
		Depth to bedrock 40-72"	0.63		
Lithic Argixerolls	25	Limitations		Limitations	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Rock outcrop	15	Not rated		Not rated	

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
724:					
Buoy	50	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Seepage in bottom layer	1.00	Permeability >2″/hr (seepage)	1.00
		Depth to bedrock 40-72″	0.93	Bedrock (soft) from 40 to 60"	0.82
Rock outcrop	20	Not rated		Not rated	
Ballast	20	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Bedrock (hard) <40″ depth	1.00
		Depth to bedrock <40″	1.00	Bedrock (soft) <40″ depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
725:					
Buoy	60	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Depth to bedrock 40-72″	0.99	Permeability >2″/hr (seepage)	1.00
				Bedrock (soft) <40″ depth	0.99
Typic Haploxeralfs	20	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Bedrock (soft) <40″ depth	1.00
				Slopes >8%	1.00
		Depth to bedrock <40″	1.00		
		Slopes >15%	1.00		
730:					
Lodestone, very deep	35	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Ballast	30	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″	1.00	Bedrock (hard) <40″ depth	1.00
		(restricted permeability)		Bedrock (soft) <40" depth	1.00
		Depth to bedrock <40″	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Buoy	20	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Depth to bedrock 40-72″	0.99	Bedrock (soft) from 40 to 60"	0.98
				Permeability .6-2"/hr (some seepage)	0.50

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
761:					
Lodestone	35	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (hard) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Typic Xerorthents	20	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Windage	20	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
762:					
Lodestone	40	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (hard) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Ballast	30	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
Halyard	15	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (soft) <40” depth	1.00
				Slopes >8%	1.00
		Depth to bedrock <40”	1.00	Permeability .6-2"/hr (some seepage)	0.50
		Slopes >15%	1.00		
763:					
Hawser	50	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Permeability .6-2"/hr (some seepage)	0.50

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
763:					
Lodestone, very deep--------	25	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Buoy------------------------	15	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Depth to bedrock 40-72”	0.99	Bedrock (soft) from 40 to 60"	0.98
				Permeability .6-2"/hr (some seepage)	0.50
780:					
Typic Argixerolls-----------	75	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (soft) <40” depth	1.00
				Slopes >8%	1.00
		Depth to bedrock <40”	1.00	Permeability .6-2"/hr (some seepage)	0.50
		Slopes >15%	1.00		
800:					
Ballast---------------------	50	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (soft) <40” depth	1.00
				Slopes >8%	1.00
		Depth to bedrock <40”	1.00		
		Slopes >15%	1.00		
Halyard---------------------	25	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Bedrock (soft) <40” depth	1.00
				Slopes >8%	1.00
		Depth to bedrock <40”	1.00		
		Slopes >15%	1.00		
Typic Argixerolls-----------	15	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
850:					
Typic Natrixeralfs----------	50	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.26		

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
850:					
Typic Haploxeralfs, dry-----	45	Limitations		Limitations	
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Slopes >8%	1.00
		Depth to bedrock 40-72″	0.81	Permeability .6-2"/hr (some seepage)	0.50
		Slopes 8 to 15%	0.74	Bedrock (hard) from 40 to 60"	0.50
851:					
Typic Haploxeralfs, dry-----	60	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Permeability .6-2"/hr (some seepage)	0.50
		Depth to bedrock 40-72″	0.81	Bedrock (hard) from 40 to 60"	0.50
Typic Natrixeralfs----------	30	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
852:					
Lithic Argixerolls, dry-----	55	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Bedrock (soft) <40″ depth	1.00
		Slopes 8 to 15%	0.37	Slopes >8%	1.00
Typic Natrixeralfs----------	35	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Bedrock (soft) <40″ depth	1.00
		Slopes 8 to 15%	0.37	Slopes >8%	1.00
853:					
Rock outcrop----------------	45	Not rated		Not rated	
Typic Haploxeralfs, dry-----	40	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00
		Permeability <.6″/hr in 24-60″ (restricted permeability)	1.00	Permeability .6-2"/hr (some seepage)	0.50
		Depth to bedrock 40-72″	0.81	Bedrock (hard) from 40 to 60"	0.50
860:					
Topdeck---------------------	45	Limitations		Limitations	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.09		

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
860:					
Halyard----------------------	40	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Slopes >8%	1.00
				Bedrock (soft) <40" depth	0.99
		Depth to bedrock <40”	0.99		
		Slopes 8 to 15%	0.09		
861:					
Rock outcrop----------------	40	Not rated		Not rated	
Topdeck---------------------	30	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
Spinnaker-------------------	15	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00		
900:					
Petrocalcic Palexeralfs-----	85	Limitations		Limitations	
		Depth to pan < 40"	1.00	Depth to pan < 40"	1.00
		Seepage in bottom layer	1.00	Permeability >2”/hr (seepage)	1.00
		Slopes 8 to 15%	0.16	Slopes >8%	1.00
910:					
Hawser----------------------	65	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Slopes 2 to 8%	0.58
Hawser, moderately steep----	20	Limitations		Limitations	
		Permeability <.6”/hr in 24-60” (restricted permeability)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.99		
920:					
Typic Durixerolls-----------	85	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Depth to pan < 40"	1.00	Depth to pan < 40"	1.00
		Slopes 8 to 15%	0.16	Permeability >2”/hr (seepage)	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
921:					
Typic Durixerolls	85	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Depth to pan < 40"	1.00	Depth to pan < 40"	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
930:					
Fluventic Haploxerolls	85	Limitations		Limitations	
		Ponded (any duration)	1.00	Ponded (any duration)	1.00
		Seepage in bottom layer	1.00	Permeability >2”/hr (seepage)	1.00
		Permeability > 6"/hr in 24-60" (seepage and poor filter)	1.00	Slopes 2 to 8%	0.08
940:					
Typic Durixeralfs	85	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Depth to pan < 40"	1.00	Depth to pan < 40"	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
950:					
Ahoy	70	Limitations		Limitations	
		Slopes 8 to 15%	0.16	Slopes >8%	1.00
				Permeability .6-2"/hr (some seepage)	0.50
Ironshot	15	Limitations		Limitations	
		Seepage in bottom layer	1.00	Permeability >2”/hr (seepage)	1.00
		Permeability > 6"/hr in 24-60" (seepage and poor filter)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16		
970:					
Dune land	90	Limitations		Limitations	
		Slopes >15%	1.00	Slopes >8%	1.00

Table 8a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitations	Value	Sewage lagoons: Limitations	Value
980:					
Lithic Haploxeralfs---------	85	Limitations		Limitations	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Restricted permeability because of bedrock or a hardpan	1.00	Permeability .6-2"/hr (some seepage)	0.50

The interpretation for *septic tank adsorption fields* evaluates the following soil properties at variable depths in the soil: flooding; ponding; wetness; slope; subsidence of organic soils; depth to hard or soft bedrock; depth to a cemented pan; permeability that is too fast, allowing seepage; and permeability that is too slow or an impermeable layer at a shallow depth.

The interpretation for *sewage lagoons* evaluates the following soil properties at variable depths in the soil: flooding, ponding, wetness, slope, organic Unified classes for low strength (PT, OL, and OH), depth to hard or soft bedrock, depth to a cemented pan, fragments more than 3 inches in size, and permeability that is too fast, allowing seepage.

Table 8b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are listed. There may be more limitations. Fine-earth fractions and coarse fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
100:							
Fiale	60	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00			Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
Tongva	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay textures from 10-60"	0.50
Topdeck	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
101:							
Spinnaker	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
		Seepage in bottom layer	1.00			Permeability >2.0 in/hr	1.00
Tongva	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
Fiale	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00			Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
102:							
Fiale	65	Limitations		No limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00			Depth to bedrock <40”	1.00
						Packing (OL, OH, CH, or MH)	1.00
Topdeck	20	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
						Permeability >2.0 in/hr	1.00
		Organic matter (PT, OL, or OH)	1.00			Organic matter (PT)	1.00
103:							
Fiale	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00			Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
Topdeck	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, or silty clay loam	0.50				
Rock outcrop	15	Not rated		Not rated		Not rated	
120:							
Miasotus	70	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
						Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50				
Yardarm	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) >50%	0.99
		Clay loam, silty clay, or silty clay loam	0.50				

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
130:							
Frigate	70	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
						Slopes >15%	1.00
Yardarm	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay textures from 10-60"	0.50
150:							
Halyard	45	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
		Clay or silty clay	1.00			Silty clay or clay 10-60"	1.00
Topdeck	25	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay textures from 10-60"	0.50
Tongva	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay textures from 10-60"	0.50
152:							
Halyard	60	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
		Clay or silty clay	1.00	Slopes 8 to 15%	0.37	Silty clay or clay 10-60"	1.00
		Slopes 8 to 15%	0.37			Packing (OL, OH, CH, or MH)	1.00

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
152:							
Starboard	25	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
		Clay loam, silty clay, or silty clay loam	0.50	Slopes 8 to 15%	0.09	Silt or clay textures from 10-60"	0.50
		Slopes 8 to 15%	0.09			Clay loam, silty clay, or silty clay loam	0.50
153:							
Halyard	45	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
		Clay or silty clay	1.00	Slopes 8 to 15%	0.09	Silty clay or clay 10-60"	1.00
		Slopes 8 to 15%	0.09			Packing (OL, OH, CH, or MH)	1.00
Topdeck	40	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
		Clay loam, silty clay, or silty clay loam	0.50	Slopes 8 to 15%	0.09	Silt or clay textures from 10-60"	0.50
		Slopes 8 to 15%	0.09			Clay loam, silty clay, or silty clay loam	0.50
155:							
Halyard	45	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
		Clay or silty clay	1.00			Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
Fiale	40	Limitations		No limitations		Not suited	
		Lithic or paralithic bedrock <72"	1.00			Depth to bedrock <40"	1.00
						Packing (OL, OH, CH, or MH)	1.00
160:							
Beaches	75	Not rated		Not rated		Not rated	
Abaft	15	Limitations		Limitations		Not suited	
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	1.00
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50			Texture of lcos, ls, lfs, or vfs	0.50

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
180:							
Typic Argixerolls, very deep	95	Limitations		No limitations		Not suited	
		Clay loam, silty clay, or silty clay loam	0.50			Fragments (<75 mm) >50%	1.00
						Silt or clay textures from 10-60"	0.50
						Clay loam, silty clay, or silty clay loam	0.50
190:							
Typic Xerofluvents	70	Limitations		Limitations		Not suited	
		Flooding >= occasional	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Ponding (any duration)	1.00	Seepage in 20-40" depth	1.00	Texture=s, fs, cos, or sg	1.00
		Sandy textures (cos, s, fs, lcos, or vfs	1.00	Frequent flooding	0.80	Permeability >2.0 in/hr	1.00
Riverwash	15	Not rated		Not rated		Not rated	
200:							
Fantail, thin surface	40	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
		Organic matter (PT, OL, or OH)	1.00			Slopes >15%	1.00
Forestay	25	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.87
Fantail	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) >50%	0.99
210:							
Lospinos	55	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Fragments (<75 mm) 25-50%	0.90
						Silt or clay textures from 10-60"	0.50
Forestay	15	Limitations		No limitations		Not suited	
		Organic matter (PT, OL, or OH)	1.00			Permeability >2.0 in/hr	1.00
						Organic matter (PT)	1.00
						Fragments (<75 mm) 25-50%	0.87

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
210:							
Forestay, strongly sloping	15	Limitations		Limitations		Not suited	
		Organic matter (PT, OL, or OH)	1.00	Slopes 8 to 15%	0.96	Permeability >2.0 in/hr	1.00
						Organic matter (PT)	1.00
		Slopes 8 to 15%	0.96			Slopes 8 to 15%	0.96
211:							
Lospinos	90	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Fragments (<75 mm) >50%	1.00
				Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Slopes >15%	1.00			Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50				
212:							
Lospinos	70	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50				
Rock outcrop	25	Not rated		Not rated		Not rated	
230:							
Fantail	85	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15%	1.00
		Organic matter (PT, OL, or OH)	1.00				
240:							
Delphine	50	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15%	1.00
Miasotus	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50				

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
240:							
Yardarm-----------------	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Slopes >15%	1.00
						Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, or silty clay loam	0.50				
241:							
Delphine----------------	50	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
						Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50				
Badland-----------------	20	Not rated		Not rated		Not rated	
Miasotus----------------	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.78
		Clay loam, silty clay, or silty clay loam	0.50				
250:							
Spinnaker---------------	50	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Slopes >15%	1.00
						Permeability >2.0 in/hr	0.50
		Seepage in bottom layer	1.00				
Starboard---------------	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Slopes >15%	1.00
						Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, or silty clay loam	0.50				
Rock outcrop------------	20	Not rated		Not rated		Not rated	

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
251:							
Spinnaker	60	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.84
		Seepage in bottom layer	1.00				
Rock outcrop	25	Not rated		Not rated		Not rated	
260:							
Starboard	40	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.25
Spinnaker	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.71
Rock outcrop	15	Not rated		Not rated		Not rated	
262:							
Halyard	55	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00				
Fantail	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
		Clay loam, silty clay, or silty clay loam	0.50				
263:							
Starboard	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
263:							
Pachic Argixerolls------	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.98	Slopes >15%	1.00
						Depth to bedrock from 40-60” 60"	0.98
		Clay loam, silty clay, or silty clay loam	0.50				
Rock outcrop-----------	15	Not rated		Not rated		Not rated	
270:							
Topdeck----------------	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.46
Rock outcrop-----------	35	Not rated		Not rated		Not rated	
Spinnaker--------------	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.75
		Seepage in bottom layer	1.00				
271:							
Topdeck----------------	45	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, or silty clay loam	0.50				
Spinnaker--------------	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.90
		Seepage in bottom layer	1.00				
Tongva-----------------	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.52
		Clay loam, silty clay, or silty clay loam	0.50				

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
272:							
Topdeck-----------------	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, or silty clay loam	0.50				
Starboard---------------	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
Rock outcrop------------	15	Not rated		Not rated		Not rated	
273:							
Topdeck, overblown------	45	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
				Slopes >15%	1.00		
		Slopes >15%	1.00			Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay textures from 10-60"	0.50
Typic Durixerolls, loamy subsoil----------------	40	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Depth to pan <40”	1.00	Depth to pan <40”	1.00
				Bedrock depth <40”	1.00		
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
290:							
Rock outcrop------------	50	Not rated		Not rated		Not rated	
Topdeck-----------------	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Permeability >2.0 in/hr	1.00
		Organic matter (PT, OL, or OH)	1.00				
Starboard---------------	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
291:							
Rock outcrop-----------	40	Not rated		Not rated		Not rated	
Spinnaker--------------	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.90
		Seepage in bottom layer	1.00				
Topdeck----------------	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, or silty clay loam	0.50				
292:							
Rock outcrop-----------	25	Not rated		Not rated		Not rated	
Buoy-------------------	25	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.82	Depth to bedrock from 40-60"	0.82
		Seepage in bottom layer	1.00				
Bereme-----------------	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
Typic Palexerolls-------	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Permeability >2.0 in/hr	1.00
		Organic matter (PT, OL, or OH)	1.00				
300:							
Cumulic Haploxerolls----	85	Limitations		Limitations		Suited	
		Seepage in bottom layer	1.00	Very rare flooding	0.20		

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
310:							
Livigne	40	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
Macool	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.42	Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, or silty clay loam	0.50			Clay loam, silty clay, or silty clay loam	0.50
Badland	15	Not rated		Not rated		Not rated	
311:							
Livigne	45	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay textures from 10-60"	0.50
Gunwale	40	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
321:							
Rudder	40	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.96
Spinnaker, moist	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
		Seepage in bottom layer	1.00			Fragments (<75 mm) 25-50%	0.90
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
650:							
Abaft-------------------	85	Limitations		Limitations		Not suited	
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	1.00
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50			Texture of lcos, ls, lfs, or vfs	0.50
651:							
Abaft-------------------	45	Limitations		Limitations		Not suited	
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	1.00
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50			Texture of lcos, ls, lfs, or vfs	0.50
Abaft, moderately steep	40	Limitations		Limitations		Not suited	
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50			Texture of lcos, ls, lfs, or vfs	0.50
660:							
Pachic Haploxerolls-----	85	Limitations		Limitations		Not suited	
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	1.00
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50			Texture of lcos, ls, lfs, or vfs	0.50
670:							
Ironshot----------------	60	Limitations		Limitations		Not suited	
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	1.00
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50	Slopes 8 to 15%	0.16	Texture of lcos, ls, lfs, or vfs	0.50
		Slopes 8 to 15%	0.16			Slopes 8 to 15%	0.16
Ahoy--------------------	25	No limitations		No limitations		Suited	
680:							
Bereme------------------	65	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
Rock outcrop------------	20	Not rated		Not rated		Not rated	

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
681:							
Bereme------------------	65	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.03
Rock outcrop------------	20	Not rated		Not rated		Not rated	
690:							
Typic Xerorthents-------	40	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.91
		Seepage in bottom layer	1.00				
Ultic Haploxeralfs------	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Permeability >2.0 in/hr	1.00
Rock outcrop------------	15	Not rated		Not rated		Not rated	
700:							
Ahoy--------------------	30	Limitations		No limitations		Suited	
		Clay loam, silty clay, or silty clay loam	0.50			Silt or clay textures from 10-60"	0.50
						Clay loam, silty clay, or silty clay loam	0.50
Hawser, moderately steep	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Packing (OL, OH, CH, or MH)	1.00
						Slopes >15%	1.00
Ahoy, moderately steep--	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
Hawser------------------	15	No limitations		No limitations		Not suited	
						Packing (OL, OH, CH, or MH)	1.00
710:							
Windage-----------------	55	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Clay or silty clay	1.00			Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
710:							
Typic Xerorthents-------	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.91
		Seepage in bottom layer	1.00				
Buoy-------------------	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.32	Depth to bedrock from 40-60"	0.32
711:							
Windage-----------------	40	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Clay loam, silty clay, or silty clay loam	0.50			Packing (OL, OH, CH, or MH)	1.00
						Silt or clay textures from 10-60"	0.50
Hawser-----------------	30	Not rated		Not rated		Not rated	
Typic Haploxeralfs------	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00				
712:							
Windage-----------------	60	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Clay or silty clay	1.00			Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
Buoy-------------------	25	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.98	Depth to bedrock from 40-60"	0.98
713:							
Windage-----------------	50	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Clay or silty clay	1.00			Silty clay or clay 10-60"	1.00
						Clay or silty clay	1.00

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
713:							
Ballast	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00				
721:							
Buoy	85	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Slopes >15%	1.00	Slopes >15%	1.00
				Bedrock depth from 40-60"	0.82	Depth to bedrock from 40-60”	0.82
		Slopes >15%	1.00				
						Fragments (<75 mm) 25-50%	0.06
722:							
Buoy, cobbly	55	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Slopes >15%	1.00	Slopes >15%	1.00
				Bedrock depth from 40-60"	0.92	Depth to bedrock from 40-60”	0.92
		Slopes >15%	1.00				
Rock outcrop	35	Not rated		Not rated		Not rated	
723:							
Buoy	45	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	1.00
				Bedrock depth from 40-60"	0.18	Texture of lcos, ls, lfs, or vfs	0.50
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50				
Lithic Argixerolls	25	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
		Clay loam, silty clay, or silty clay loam	0.50				
Rock outcrop	15	Not rated		Not rated		Not rated	
724:							
Buoy	50	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.82	Depth to bedrock from 40-60"	0.82
		Seepage in bottom layer	1.00				

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
724:							
Rock outcrop-----------	20	Not rated		Not rated		Not rated	
Ballast----------------	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
		Clay loam, silty clay, or silty clay loam	0.50				
725:							
Buoy-------------------	60	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Slopes >15%	1.00	Slopes >15%	1.00
				Bedrock depth <40”	0.99	Depth to bedrock from 40-60”	0.99
		Slopes >15%	1.00				
						Permeability >2.0 in/hr	0.43
Typic Haploxeralfs------	20	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
				Slopes >15%	1.00	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00			Packing (OL, OH, CH, or MH)	1.00
		Slopes >15%	1.00				
730:							
Lodestone, very deep----	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
Ballast----------------	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00
						Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00				
Buoy-------------------	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.98	Depth to bedrock from 40-60"	0.98
761:							
Lodestone---------------	35	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00			Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
761:							
Typic Xerorthents	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.91
		Seepage in bottom layer	1.00				
Windage	20	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.80
762:							
Lodestone	40	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Lithic or paralithic bedrock <72"	1.00			Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
Ballast	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Slopes >15%	1.00
						Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00				
Halyard	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
		Clay loam, silty clay, or silty clay loam	0.50				
763:							
Hawser	50	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
Lodestone, very deep	25	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
						Packing (OL, OH, CH, or MH)	1.00
Buoy	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth from 40-60"	0.98	Depth to bedrock from 40-60"	0.98

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
780:							
Typic Argixerolls-------	75	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40″	1.00
		Lithic or paralithic bedrock <72″	1.00	Bedrock depth <40″	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.09
800:							
Ballast-----------------	50	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72″	1.00	Bedrock depth <40″	1.00	Depth to bedrock <40″	1.00
						Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00	Slopes >15%	1.00	Packing (OL, OH, CH, or MH)	1.00
		Slopes >15%	1.00				
Halyard-----------------	25	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72″	1.00	Bedrock depth <40″	1.00	Depth to bedrock <40″	1.00
						Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00	Slopes >15%	1.00	Packing (OL, OH, CH, or MH)	1.00
		Slopes >15%	1.00				
Typic Argixerolls-------	15	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72″	1.00	Bedrock depth <40″	1.00	Depth to bedrock <40″	1.00
						Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00	Slopes >15%	1.00	Packing (OL, OH, CH, or MH)	1.00
		Slopes >15%	1.00				
850:							
Typic Natrixeralfs------	50	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72″	1.00	Bedrock depth <40″	1.00	Fragments (<75 mm) >50%	1.00
				Slopes 8 to 15%	0.26	Depth to bedrock <40″	1.00
		EC >16 dS/m	1.00			Salinity	1.00
		Organic matter (PT, OL, or OH)	1.00				
Typic Haploxeralfs, dry	45	Limitations		Limitations		Suited	
		Lithic or paralithic bedrock <72″	1.00	Slopes 8 to 15%	0.74	Slopes 8 to 15%	0.74
				Bedrock depth from 40-60"	0.50	Depth to bedrock from 40-60″	0.50
		Slopes 8 to 15%	0.74				
851:							
Typic Haploxeralfs, dry	60	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72″	1.00	Bedrock depth from 40-60"	0.50	Depth to bedrock from 40-60"	0.50

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Limitations	Value	Area sanitary landfill: Limitations	Value	Daily cover for landfill: Limitations	Value
851:							
Typic Natrixeralfs------	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Fragments (<75 mm) >50%	1.00
		EC >16 dS/m	1.00			Slopes >15%	1.00
		Organic matter (PT, OL, or OH)	1.00			Salinity	1.00
852:							
Lithic Argixerolls, dry	55	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
				Slopes 8 to 15%	0.37	Permeability >2.0 in/hr	1.00
		Organic matter (PT, OL, or OH)	1.00			Organic matter (PT)	1.00
		Slopes 8 to 15%	0.37				
Typic Natrixeralfs------	35	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
				Slopes 8 to 15%	0.37	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00				
		EC >16 dS/m	1.00				
853:							
Rock outcrop------------	45	Not rated		Not rated		Not rated	
Typic Haploxeralfs, dry	40	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.50	Depth to bedrock from 40-60"	0.50
860:							
Topdeck-----------------	45	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
				Slopes 8 to 15%	0.09	Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, or silty clay loam	0.50			Clay loam, silty clay, or silty clay loam	0.50
		Slopes 8 to 15%	0.09				
Halyard-----------------	40	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
				Slopes 8 to 15%	0.09	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00			Packing (OL, OH, CH, or MH)	1.00
		Slopes 8 to 15%	0.09				

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
861:							
Rock outcrop	40	Not rated		Not rated		Not rated	
Topdeck	30	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40″	1.00
		Lithic or paralithic bedrock <72″	1.00	Bedrock depth <40″	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.46
Spinnaker	15	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40″	1.00
		Lithic or paralithic bedrock <72″	1.00	Bedrock depth <40″	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.75
		Seepage in bottom layer	1.00				
900:							
Petrocalcic Palexeralfs	85	Limitations		Limitations		Not suited	
		Clay or silty clay	1.00	Depth to pan <40″	1.00	Depth to pan <40″	1.00
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	Silty clay or clay 10-60"	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Packing (OL, OH, CH, or MH)	1.00
910:							
Hawser	65	No limitations		No limitations		Not suited	
						Packing (OL, OH, CH, or MH)	1.00
Hawser, moderately steep	20	Limitations		Limitations		Not suited	
		Slopes 8 to 15%	0.99	Slopes 8 to 15%	0.99	Packing (OL, OH, CH, or MH)	1.00
						Slopes 8 to 15%	0.99
920:							
Typic Durixerolls	85	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72″	1.00	Depth to pan <40″	1.00	Depth to pan <40″	1.00
				Bedrock depth <40″	1.00	Depth to bedrock <40″	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Permeability >2.0 in/hr	0.50
921:							
Typic Durixerolls	85	Limitations		Limitations		Not suited	
		Lithic or paralithic bedrock <72″	1.00	Depth to pan <40″	1.00	Depth to pan <40″	1.00
				Bedrock depth <40″	1.00	Depth to bedrock <40″	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00

Table 8b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitations	Value	Limitations	Value	Limitations	Value
930:							
Fluventic Haploxerolls--	85	Limitations		Limitations		Not suited	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	1.00
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50	Very rare flooding	0.20	Texture of lcos, ls, lfs, or vfs	0.50
940:							
Typic Durixeralfs-------	85	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Depth to pan <40”	1.00	Depth to pan <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
				Bedrock depth <40”	1.00	Slopes >15%	1.00
950:							
Ahoy--------------------	70	Limitations		Limitations		Suited	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16
Ironshot----------------	15	Limitations		Limitations		Not suited	
		Sandy textures (cos, s, fs, lcos, or vfs	1.00	Seepage in 20-40" depth	1.00	Texture=s, fs, cos, or sg	1.00
		Seepage in bottom layer	1.00	Slopes 8 to 15%	0.16	Permeability >2.0 in/hr	1.00
		Slopes 8 to 15%	0.16			Slopes 8 to 15%	0.16
970:							
Dune land---------------	90	Not rated		Not rated		Not rated	
980:							
Lithic Haploxeralfs-----	85	Limitations		Limitations		Not suited	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Slopes >15%	1.00

The interpretation for *trench sanitary landfill* evaluates the following soil properties at variable depths in the soil: flooding, ponding, wetness, slope, depth to hard or soft bedrock, depth to a thick or thin cemented pan, fragments 3 to 10 inches in size, sodium content (SAR), pH, clayey or sandy textures, and permeability that is too rapid, allowing seepage in some climates.

The interpretation for *area sanitary landfill* evaluates the following soil properties at variable depths in the soil: flooding, ponding, wetness, slope, depth to bedrock, depth to a cemented pan, and permeability that is too rapid, allowing seepage in some climates.

The interpretation for *daily cover for landfill* evaluates the following soil properties at variable depths in the soil: ponding, wetness, slope, depth to bedrock, depth to a cemented pan, fragments more than or less than 3 inches in size, Unified class for peat (PT), Unified classes for packing (OL, OH, CH, and MH), sandy or clayey textures, pH, carbonates, sodium content (SAR), salinity (EC), soil climate, kaolinitic mineralogy, and permeability that is too rapid, allowing seepage.

Table 9a.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The closer the value is to 0.00, the greater the limitation. Values of 0.00 indicate absolute limitations based on the soil property criteria used to develop the interpretation. Values closer to 1.00 indicate lesser limitations. Features with values of 1.00 have absolutely no limitation and are not shown in the table. Rating classes are determined by the most limiting value. Fine-earth fractions and rock fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
100:							
Fiale-------------------	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Depth to bedrock 20 to 40"	0.74
Tongva------------------	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.20
Topdeck-----------------	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20”	0.00
						Clay 27 to 40%	0.68
						Rock fragment content	0.76
101:							
Spinnaker---------------	35	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.04	Depth to bedrock <20”	0.00
						Rock fragment content	0.
							0.00
Tongva------------------	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.18
Fiale-------------------	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Depth to bedrock 20 to 40"	0.28

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
102:							
Fiale	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.20
Topdeck	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20"	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.18
103:							
Fiale	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Depth to bedrock 20 to 40"	0.06
Topdeck	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.76
						Clay 27 to 40%	0.92
Rock outcrop	15	Not rated		Not rated		Not rated	
120:							
Miasotus	70	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer a possible source	0.45			Depth to bedrock >20"	0.00
						Clay 27 to 40%	0.32
Yardarm	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.12
						Clay 27 to 40%	0.92
130:							
Frigate	70	Fair source		Poor source		Poor source	
		Thickest layer possible source	0.03	Bottom layer not a source	0.00	Slope >15%	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer a possible source	0.35			Depth to bedrock 20 to 40"	0.58

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
130:							
Yardarm-----------------	20	Poor source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.22
						Clay 27 to 40%	0.68
150:							
Halyard-----------------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Rock fragment content	0.68
						Depth to bedrock 20 to 40"	0.90
Topdeck-----------------	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20”	0.00
						Rock fragment content	0.98
Tongva------------------	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.22
						Rock fragment content	0.82
						Clay 27 to 40%	0.92
152:							
Halyard-----------------	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12%	0.63
						Depth to bedrock 20 to 40"	0.74
						Rock fragment content	0.88
Starboard---------------	25	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40"	0.10
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.18
						Slope 8 to 12%	0.91
						Clay 27 to 40%	0.92
153:							
Halyard-----------------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12%	0.91

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
153:							
Topdeck	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20"	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12%	0.91
155:							
Halyard	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.68
						Depth to bedrock 20 to 40"	0.90
Fiale	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.34
160:							
Beaches	75	Not rated		Not rated		Not rated	
Abaft	15	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.08	Sand fractions 75-85%	0.18
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.08		
180:							
Typic Argixerolls, very deep	95	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Hard to reclaim	0.00
		Bottom layer a possible source	0.71	Thickest layer not a source	0.00	Rock fragment content	0.00
						Clay 27 to 40%	0.92
190:							
Typic Xerofluvents	70	Fair source		Fair source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.02	Hard to reclaim	0.00
		Bottom layer a possible source	0.09	Bottom layer a possible source	0.09	Rock fragment content	0.82
Riverwash	15	Not rated		Not rated		Not rated	

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
200:							
Fantail, thin surface---	40	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer a possible source	0.07	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.48
Forestay----------------	25	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer a possible source	0.47	Thickest layer not a source	0.00	Rock fragment content	0.00
Fantail-----------------	20	Poor source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.96
210:							
Lospinos----------------	55	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Bottom layer a possible source	0.18	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.22
Forestay----------------	15	Fair source		Poor source		Fair source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Rock fragment content	0.76
		Bottom layer a possible source	0.47	Thickest layer not a source	0.00	pH >6.5 or NULL	1.00
Forestay, strongly sloping----------------	15	Fair source		Poor source		Fair source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope 12 to 15%	0.04
		Bottom layer a possible source	0.47	Thickest layer not a source	0.00	Rock fragment content	0.76
						pH >6.5 or NULL	1.00
211:							
Lospinos----------------	90	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Bottom layer a possible source	0.40	Thickest layer not a source	0.00	Slope >15%	0.00
						Depth to bedrock 20 to 40"	0.44

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
212:							
Lospinos	70	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer a possible source	0.32	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.10
						Clay 27 to 40%	0.82
Rock outcrop	25	Not rated		Not rated		Not rated	
230:							
Fantail	85	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer a possible source	0.12	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.48
240:							
Delphine	50	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer a possible source	0.72	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock >20"	0.00
Miasotus	20	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer a possible source	0.25	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock >20"	0.00
						Clay 27 to 40%	0.32
Yardarm	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.59
						Depth to bedrock 20 to 40"	0.78
241:							
Delphine	50	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer a possible source	0.62	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock >20"	0.00
						Clay 27 to 40%	0.92
Badland	20	Not rated		Not rated		Not rated	

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
241:							
Miasotus----------------	15	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer a possible source	0.07			Depth to bedrock >20"	0.00
						Clay 27 to 40%	0.50
250:							
Spinnaker---------------	50	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.03	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00			Depth to bedrock >20"	0.00
				Thickest layer possible source	0.03	Rock fragment content	0.00
Starboard---------------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.80
						Clay 27 to 40%	0.98
Rock outcrop------------	20	Not rated		Not rated		Not rated	
251:							
Spinnaker---------------	60	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.04	Depth to bedrock <20”	0.00
						Rock fragment content	0.00
Rock outcrop------------	25	Not rated		Not rated		Not rated	
260:							
Starboard---------------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.50
Spinnaker---------------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20”	0.00
						Rock fragment content	0.00
Rock outcrop------------	15	Not rated		Not rated		Not rated	

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
262:							
Halyard	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.78
Fantail	30	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
				Thickest layer not a source	0.00	Clay 27 to 40%	0.08
		Bottom layer a possible source	0.10			Depth to bedrock 20 to 40"	0.50
						Rock fragment content	0.76
263:							
Starboard	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.59
						pH of 4.5 to 6.5	0.95
Pachic Argixerolls	35	Fair source		Poor source		Poor source	
		Thickest layer possible source	0.36	Bottom layer not a source	0.00	Slope >15%	0.00
				Thickest layer not a source	0.00	Hard to reclaim	0.00
		Bottom layer a possible source	0.43			Rock fragment content	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	
270:							
Topdeck	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Rock outcrop	35	Not rated		Not rated		Not rated	
Spinnaker	15	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.04	Depth to bedrock <20"	0.00
						Rock fragment content	0.00

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
271:							
Topdeck	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Clay 27 to 40%	0.08
						Rock fragment content	0.76
Spinnaker	20	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.03	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Tongva	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.60
272:							
Topdeck	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.76
Starboard	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.40
Rock outcrop	15	Not rated		Not rated		Not rated	
273:							
Topdeck, overblown	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20"	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope >15%	0.00
Typic Durixerolls, loamy subsoil	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20"	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Slope >15%	0.00
						Rock fragment content	0.88

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
290:							
Rock outcrop------------	50	Not rated		Not rated		Not rated	
Topdeck-----------------	20	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.03	Depth to bedrock <20”	0.00
						Rock fragment content	0.08
Starboard---------------	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.40
291:							
Rock outcrop------------	40	Not rated		Not rated		Not rated	
Spinnaker---------------	30	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.03	Depth to bedrock <20”	0.00
						Rock fragment content	0.00
Topdeck-----------------	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20”	0.00
						Rock fragment content	0.00
292:							
Rock outcrop------------	25	Not rated		Not rated		Not rated	
Buoy--------------------	25	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.01	Sand fractions <75% or NULL	0.99
Bereme------------------	20	Poor source		Fair source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
				Bottom layer a possible source	0.04	Depth to bedrock >20"	0.00
		Bottom layer not a source	0.00			Rock fragment content	0.00
Typic Palexerolls-------	15	Poor source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.12
		Bottom layer not a source	0.00			Depth to bedrock 20 to 40"	0.20

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
300:							
Cumulic Haploxerolls	85	Fair source		Fair source		Good source	
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
		Bottom layer a possible source	0.55	Bottom layer a possible source	0.08		
310:							
Livigne	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20”	0.00
Macool	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Rock fragment content	0.59
Badland	15	Not rated		Not rated		Not rated	
311:							
Livigne	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20”	0.00
						Clay 27 to 40%	0.68
Gunwale	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.10
						pH of 4.5 to 6.5	0.88
321:							
Rudder	40	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.03	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00			Rock fragment content	0.00
				Thickest layer possible source	0.03	Depth to bedrock 20 to 40"	0.44
						pH of 4.5 to 6.5	0.59
Spinnaker, moist	30	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.03	Depth to bedrock <20”	0.00
						Rock fragment content	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
650:							
Abaft-------------------	85	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.08	Sand fractions 75-85%	0.18
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.08		
651:							
Abaft-------------------	45	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.08	Sand fractions 75-85%	0.18
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.08		
Abaft, moderately steep	40	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.08	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.08	Sand fractions 75-85%	0.18
660:							
Pachic Haploxerolls-----	85	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00		
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.86		
670:							
Ironshot----------------	60	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.02	Sand fractions 75-85%	0.36
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.02	Slope 8 to 12%	0.84
Ahoy--------------------	25	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
680:							
Bereme------------------	65	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.03	Depth to bedrock <20"	0.00

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
680:							
Rock outcrop	20	Not rated		Not rated		Not rated	
681:							
Bereme	65	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.04	Depth to bedrock >20"	0.00
						Rock fragment content	0.01
Rock outcrop	20	Not rated		Not rated		Not rated	
690:							
Typic Xerorthents	40	Poor source		Fair source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Bottom layer not a source	0.00	Bottom layer a possible source	0.01	Depth to bedrock >20"	0.00
						Rock fragment content	0.00
Ultic Haploxeralfs	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Sand fractions 75-85%	0.10
						Rock fragment content	0.92
						Depth to bedrock 20 to 40"	0.96
Rock outcrop	15	Not rated		Not rated		Not rated	
700:							
Ahoy	30	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Hawser, moderately steep	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
Ahoy, moderately steep	15	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.03		

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
700:							
Hawser	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
710:							
Windage	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Rock fragment content	0.59
Typic Xerorthents	20	Poor source		Fair source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
				Bottom layer a possible source	0.01	Depth to bedrock >20"	0.00
		Bottom layer not a source	0.00			Rock fragment content	0.00
Buoy	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
711:							
Windage	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
						Clay 27 to 40%	0.50
Hawser	30	Poor source		Poor source		Not rated	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Typic Haploxeralfs	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Depth to bedrock 20 to 40"	0.60
712:							
Windage	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
712:							
Buoy	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
713:							
Windage	50	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
				Thickest layer not a source	0.00	Clay >40%	0.00
		Bottom layer a possible source	0.03			Hard to reclaim	0.00
Ballast	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Calcium carbonates 15-40%	0.05
						Depth to bedrock 20 to 40"	0.20
721:							
Buoy	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
722:							
Buoy, cobbly	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Rock outcrop	35	Not rated		Not rated		Not rated	
723:							
Buoy	45	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.07	Sand fractions 75-85%	0.20
Lithic Argixerolls	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20”	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
724:							
Buoy	50	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	 0.00 0.00	Fair source Thickest layer not a source Bottom layer a possible source	 0.00 0.01	Poor source Slope >15% Sand fractions <75% or NULL	 0.00 0.99
Rock outcrop	20	Not rated		Not rated		Not rated	
Ballast	20	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	 0.00 0.00	Poor source Bottom layer not a source Thickest layer not a source	 0.00 0.00	Poor source Slope >15% Clay >40% Depth to bedrock 20 to 40"	 0.00 0.00 0.96
725:							
Buoy	60	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	 0.00 0.00	Poor source Bottom layer not a source Thickest layer not a source	 0.00 0.00	Poor source Slope >15% Rock fragment content	 0.00 0.41
Typic Haploxeralfs	20	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	 0.00 0.00	Poor source Bottom layer not a source Thickest layer not a source	 0.00 0.00	Poor source Clay >40% Slope >15% Depth to bedrock 20 to 40"	 0.00 0.00 0.60
730:							
Lodestone, very deep	35	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	 0.00 0.00	Poor source Bottom layer not a source Thickest layer not a source	 0.00 0.00	Poor source Slope >15% Clay >40%	 0.00 0.00
Ballast	30	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	 0.00 0.00	Poor source Bottom layer not a source Thickest layer not a source	 0.00 0.00	Poor source Slope >15% Clay >40% Depth to bedrock 20 to 40" Calcium carbonates 15-40%	 0.00 0.00 0.30 0.92
Buoy	20	Poor source Bottom layer not a source Thickest layer not a source due to fines or thin layer	 0.00 0.00	Poor source Bottom layer not a source Thickest layer possible source	 0.00 0.00	Poor source Slope >15% Rock fragment content	 0.00 0.04

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
761:							
Lodestone	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Calcium carbonates 15-40%	0.39
						Depth to bedrock 20 to 40"	0.50
Typic Xerorthents	20	Poor source		Fair source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Bottom layer not a source	0.00	Bottom layer a possible source	0.01	Depth to bedrock >20"	0.00
						Rock fragment content	0.00
Windage	20	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer a possible source	0.40	Thickest layer not a source	0.00	Hard to reclaim	0.00
						Rock fragment content	0.08
						Clay 27 to 40%	0.50
762:							
Lodestone	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Depth to bedrock 20 to 40"	0.50
Ballast	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Calcium carbonates 15-40%	0.05
						Depth to bedrock 20 to 40"	0.18
Halyard	15	Fair source		Poor source		Poor source	
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Bottom layer a possible source	0.50	Thickest layer not a source	0.00	Rock fragment content	0.12
						Clay 27 to 40%	0.68
						Depth to bedrock 20 to 40"	0.98
763:							
Hawser	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
763:							
Lodestone, very deep----	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Calcium carbonates >40%	0.00
Buoy--------------------	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
780:							
Typic Argixerolls-------	75	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.03	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.60
800:							
Ballast-----------------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.40
Halyard-----------------	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
						Depth to bedrock 20 to 40"	0.48
						Rock fragment content	0.68
Typic Argixerolls-------	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
						Depth to bedrock 20 to 40"	0.00
850:							
Typic Natrixeralfs------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	OM >30%	0.00
						Depth to bedrock 20 to 40"	0.20
						Slope 8 to 12%	0.74
Typic Haploxeralfs, dry	45	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 12 to 15%	0.26
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
851:							
Typic Haploxeralfs, dry	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Typic Natrixeralfs------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
852:							
Lithic Argixerolls, dry	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20”	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12%	0.63
Typic Natrixeralfs------	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20”	0.00
						Slope 8 to 12%	0.63
853:							
Rock outcrop------------	45	Not rated		Not rated		Not rated	
Typic Haploxeralfs, dry	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
860:							
Topdeck-----------------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20”	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12%	0.91
Halyard-----------------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12%	0.91
861:							
Rock outcrop------------	40	Not rated		Not rated		Not rated	

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
861:							
Topdeck-----------------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
Spinnaker---------------	15	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.04	Depth to bedrock <20"	0.00
						Rock fragment content	0.00
900:							
Petrocalcic Palexeralfs	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20"	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40%	0.00
						Slope 8 to 12%	0.84
910:							
Hawser------------------	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Hawser, moderately steep	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15%	0.01
920:							
Typic Durixerolls-------	85	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan 20 to 40"	0.26
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.04	Depth to bedrock 20 to 40"	0.50
						Slope 8 to 12%	0.84
921:							
Typic Durixerolls-------	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer possible source	0.04	Depth to pan 20 to 40"	0.68
						Depth to bedrock 20 to 40"	0.70

Table 9a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class and limiting features	Value	Potential as source of sand: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
930:							
Fluventic Haploxerolls--	85	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.08	Sand fractions 75-85%	0.30
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.08		
940:							
Typic Durixeralfs-------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20”	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
						Depth to bedrock >20"	0.00
						Rock fragment content	0.88
						Clay 27 to 40%	0.92
950:							
Ahoy--------------------	70	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 8 to 12%	0.84
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Ironshot----------------	15	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.04	Slope 8 to 12%	0.84
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.86		
970:							
Dune land---------------	90	Not rated		Not rated		Not rated	
980:							
Lithic Haploxeralfs-----	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.03	Depth to bedrock <20”	0.00
						Sand fractions 75-85%	0.20
						Rock fragment content	0.92

The interpretation for *gravel* evaluates rock fragments more than 0.2 inch in size in the bottom layer or in the thickest layer of the soil.

The interpretation for *sand* evaluates the amount of sand and fine gravel in the thickest layer or in the bottom layer of the soil. Organic soil layers with the Unified engineering class for peat (PT) also are evaluated.

The interpretation for *topsoil* evaluates the following soil properties at various depths: calcium carbonates, clay amount, bulk density, sand content, soil wetness, rock fragments 0.2 inch to more than 3 inches in size, content of organic matter (OM), sodium content expressed as the sodium adsorption ratio (SAR), salinity expressed as mmhos/cm of electrical conductivity (EC), depth to bedrock, slope,and pH.

Table 9b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The closer the value is to 0, the greater the limitation. Values of 0.00 indicate absolute limitations based on the soil property criteria used to develop the interpretation. Values closer to 1.00 indicate lesser limitations. Features with a value of 1.00 have absolutely no limitation and are not shown in the table. Rating classes are determined by the most limiting value. Fine-earth fractions and rock fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
100:					
Fiale------------------	60	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3 to 6” to 60” depth	0.82	AASHTO GIN >8 (low soil strength)	0.00
		pH between 4 and 6.5 above 40”	0.92	LEP >9	0.00
				Slopes >25%	0.00
Tongva-----------------	15	Fair source		Poor source	
		AWC 3 to 6” to 60” depth	0.29	Depth to bedrock <40”	0.00
		K factor <.10 or NULL	0.99	Slopes >25%	0.00
				AASHTO GIN >8 (low soil strength)	0.00
				LEP 3 to 9	0.25
Topdeck----------------	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Clay 27 to 40%	0.68	Slopes >25%	0.00
		K factor <.10 or NULL	0.99		
101:					
Spinnaker--------------	35	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92		
Tongva-----------------	35	Fair source		Poor source	
		AWC 3 to 6” to 60” depth	0.23	Depth to bedrock <40”	0.00
		K factor <.10 or NULL	0.99	Slopes >25%	0.00
				LEP 3 to 9	0.75
				AASHTO GIN 5 to 8 (soil strength)	0.78
Fiale------------------	15	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3 to 6” to 60” depth	0.24	AASHTO GIN >8 (low soil strength)	0.00
		pH between 4 and 6.5 above 40”	0.92	LEP >9	0.00
				Slopes >25%	0.00

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
102:					
Fiale	65	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40″	0.00
		AWC 3 to 6″ to 60″ depth	0.04	LEP >9	0.00
		pH between 4 and 6.5 above 40″	0.92	AASHTO GIN >8 (low soil strength)	0.00
Topdeck	20	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		pH between 4 and 6.5 above 40″	0.92		
		K factor <.10 or NULL	0.99		
103:					
Fiale	35	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40″	0.00
		AWC 3 to 6″ to 60″ depth	0.01	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.95	LEP >9	0.00
				AASHTO GIN >8 (low soil strength)	0.00
Topdeck	35	Fair source		Poor source	
		AWC 3 to 6″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		Clay 27 to 40%	0.92	Slopes >25%	0.00
				AASHTO GIN >8 (low soil strength)	0.00
				LEP 3 to 9	0.25
Rock outcrop	15	Not rated		Not rated	
120:					
Miasotus	70	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.32	LEP 3 to 9	0.25
		pH between 4 and 6.5 above 40″	0.92		
Yardarm	15	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of .5 to 1%	0.32	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.92	LEP 3 to 9	0.25
		Clay 27 to 40%	0.92		
130:					
Frigate	70	Poor source		Poor source	
		OM content of <.5%	0.00	Depth to bedrock <40″	0.00
		AWC 3 to 6″ to 60″ depth	0.17	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.50		

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
130:					
Yardarm----------------	20	Poor source		Poor source	
		OM content of <.5%	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to 60" depth	0.03	Slopes >25%	0.00
		Clay 27 to 40%	0.68	LEP 3 to 9	0.25
		K factor of .10 to .35	0.90		
		pH between 4 and 6.5 above 40"	0.92		
150:					
Halyard----------------	45	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to 60" depth	0.71	Slopes >25%	0.00
		pH between 4 and 6.5 above 40"	0.92	AASHTO GIN >8 (low soil strength)	0.00
				LEP >9	0.00
Topdeck----------------	25	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		pH between 4 and 6.5 above 40"	0.95	Slopes >25%	0.00
		K factor <.10 or NULL	0.99	LEP 3 to 9	0.35
Tongva-----------------	15	Fair source		Poor source	
		AWC 3 to 6" to 60" depth	0.14	Depth to bedrock <40"	0.00
		pH between 4 and 6.5 above 40"	0.68	Slopes >25%	0.00
		Clay 27 to 40%	0.92	AASHTO GIN 5 to 8 (soil strength)	0.22
		K factor <.10 or NULL	0.99	LEP 3 to 9	0.36
152:					
Halyard----------------	60	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to 60" depth	0.56	LEP >9	0.00
		pH between 4 and 6.5 above 40"	0.92	AASHTO GIN >8 (low soil strength)	0.00
Starboard--------------	25	Fair source		Poor source	
		AWC 3 to 6" to 60" depth	0.06	Depth to bedrock <40"	0.00
		pH between 4 and 6.5 above 40"	0.54	AASHTO GIN >8 (low soil strength)	0.00
		Clay 27 to 40%	0.92	LEP 3 to 9	0.25
		K factor <.10 or NULL	0.99		
153:					
Halyard----------------	45	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40"	0.00
		K factor <.10 or NULL	0.99	LEP >9	0.00
				AASHTO GIN >8 (low soil strength)	0.00

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
153:					
Topdeck----------------	40	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.92	AASHTO GIN >8 (low soil strength)	0.00
		K factor <.10 or NULL	0.99	LEP 3 to 9	0.25
Halyard----------------	45	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3 to 6” to 60” depth	0.71	AASHTO GIN >8 (low soil strength)	0.00
		pH between 4 and 6.5 above 40”	0.92	LEP >9	0.00
Fiale------------------	40	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		OM content of .5 to 1%	0.08	LEP >9	0.00
		AWC 3 to 6” to 60” depth	0.23	AASHTO GIN >8 (low soil strength)	0.00
160:					
Beaches----------------	75	Not rated		Not rated	
Abaft------------------	15	Poor source		Good source	
		WEG of 1 or 2	0.00		
		OM content of <.5%	0.00		
		AWC 3 to 6” to 60” depth	0.32		
		Sand fractions 75 to 85%	0.41		
180:					
Typic Argixerolls, very deep------------------	95	Fair source		Fair source	
		AWC 3 to 6” to 60” depth	0.29	LEP 3 to 9	0.25
		Clay 27 to 40%	0.92		
		pH between 4 and 6.5 above 40”	0.92		
190:					
Typic Xerofluvents-----	70	Fair source		Good source	
		pH between 4 and 6.5 above 40”	0.92		
Riverwash--------------	15	Not rated		Not rated	
200:					
Fantail, thin surface--	40	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.92	Slopes >25%	0.00
				LEP >9	0.00

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
200:					
Forestay	25	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.03	LEP 3 to 9	0.75
Fantail	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.92	Slopes >25%	0.00
				LEP 3 to 9	0.75
210:					
Lospinos	55	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.68	LEP 3 to 9	0.74
Forestay	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	LEP >9	0.00
		pH between 4 and 6.5 above 40”	0.50		
Forestay, strongly sloping	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	LEP >9	0.00
		pH between 4 and 6.5 above 40”	0.50		
211:					
Lospinos	90	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.68	LEP 3 to 9	0.63
				Slopes 15 to 25%	0.68
212:					
Lospinos	70	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.68	Slopes >25%	0.00
		Clay 27 to 40%	0.82	LEP 3 to 9	0.25
Rock outcrop	25	Not rated		Not rated	
230:					
Fantail	85	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.92	Slopes >25%	0.00
				LEP >9	0.00

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
240:					
Delphine	50	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of .5 to 1%	0.68	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.97	LEP 3 to 9	0.75
Miasotus	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.32	LEP 3 to 9	0.25
		pH between 4 and 6.5 above 40”	0.92		
Yardarm	15	Fair source		Poor source	
		AWC 3 to 6” to 60” depth	0.86	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.92	Slopes >25%	0.00
				LEP 3 to 9	0.25
241:					
Delphine	50	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of .5 to 1%	0.08	Slopes >25%	0.00
		Clay 27 to 40%	0.92	LEP 3 to 9	0.25
Badland	20	Not rated		Not rated	
Miasotus	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.50	LEP 3 to 9	0.25
		pH between 4 and 6.5 above 40”	0.92		
250:					
Spinnaker	50	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92		

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
250:					
Starboard--------------	20	Fair source		Poor source	
		pH between 4 and 6.5 above 40″	0.54	Depth to bedrock <40″	0.00
		AWC 3 to 6″ to 60″ depth	0.68	Slopes >25%	0.00
		Clay 27 to 40%	0.98	AASHTO GIN >8 (low soil strength)	0.00
		K factor <.10 or NULL	0.99	LEP 3 to 9	0.40
Rock outcrop-----------	20	Not rated		Not rated	
251:					
Spinnaker--------------	60	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
Rock outcrop-----------	25	Not rated		Not rated	
260:					
Starboard--------------	40	Fair source		Poor source	
		AWC 3 to 6″ to 60″ depth	0.05	Depth to bedrock <40″	0.00
		pH between 4 and 6.5 above 40″	0.54	Slopes >25%	0.00
				LEP 3 to 9	0.75
Spinnaker--------------	30	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.92	LEP 3 to 9	0.75
Rock outcrop-----------	15	Not rated		Not rated	
262:					
Halyard----------------	55	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40″	0.00
		AWC 3 to 6″ to 60″ depth	0.28	Slopes >25%	0.00
				LEP >9	0.00
				AASHTO GIN >8 (low soil strength)	0.00
Fantail----------------	30	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.08	AASHTO GIN >8 (low soil strength)	0.00
		pH between 4 and 6.5 above 40″	0.92	LEP 3 to 9	0.25

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
263:					
Starboard--------------	35	Fair source		Poor source	
		pH between 4 and 6.5 above 40″	0.50	Depth to bedrock <40″	0.00
				Slopes >25%	0.00
				LEP 3 to 9	0.75
Pachic Argixerolls-----	35	Fair source		Poor source	
		AWC 3 to 6″ to 60″ depth	0.42	Slopes >25%	0.00
		OM content of .5 to 1%	0.50	Depth to bedrock 40 to 60"	0.02
		pH between 4 and 6.5 above 40″	0.92	LEP 3 to 9	0.56
Rock outcrop-----------	15	Not rated		Not rated	
270:					
Topdeck----------------	35	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
				Slopes >25%	0.00
Rock outcrop-----------	35	Not rated		Not rated	
Spinnaker--------------	15	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.92		
271:					
Topdeck----------------	45	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		Clay 27 to 40%	0.08	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.92	LEP 3 to 9	0.38
Spinnaker--------------	20	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.92		
Tongva-----------------	20	Fair source		Poor source	
		AWC 3 to 6″ to 60″ depth	0.20	Depth to bedrock <40″	0.00
		pH between 4 and 6.5 above 40″	0.68	Slopes >25%	0.00
				LEP 3 to 9	0.39
				AASHTO GIN 5 to 8 (soil strength)	0.78

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
272:					
Topdeck----------------	35	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
				Slopes >25%	0.00
				AASHTO GIN >8 (low soil strength)	0.00
				LEP 3 to 9	0.25
Starboard--------------	35	Fair source		Poor source	
		OM content of .5 to 1%	0.50	Depth to bedrock <40"	0.00
		pH between 4 and 6.5 above 40"	0.54	Slopes >25%	0.00
		AWC 3 to 6" to 60" depth	0.68	AASHTO GIN >8 (low soil strength)	0.00
				LEP 3 to 9	0.69
Rock outcrop-----------	15	Not rated		Not rated	
273:					
Topdeck, overblown-----	45	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
				Slopes 15 to 25%	0.68
				LEP 3 to 9	0.75
				AASHTO GIN 5 to 8 (soil strength)	0.78
Typic Durixerolls, loamy subsoil----------------	40	Poor source		Poor source	
		Depth to pan < 20"	0.00	Depth to bedrock <40"	0.00
		AWC 3 to 6" to 60" depth	0.01	Depth to pan <40"	0.00
		K factor <.10 or NULL	0.99	Slopes 15 to 25%	0.68
290:					
Rock outcrop-----------	50	Not rated		Not rated	
Topdeck----------------	20	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		pH between 4 and 6.5 above 40"	0.92	Slopes >25%	0.00
Starboard--------------	15	Fair source		Poor source	
		OM content of .5 to 1%	0.50	Depth to bedrock <40"	0.00
		pH between 4 and 6.5 above 40"	0.54	Slopes >25%	0.00
		AWC 3 to 6" to 60" depth	0.68	AASHTO GIN >8 (low soil strength)	0.00
		K factor <.10 or NULL	0.99	LEP 3 to 9	0.69

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
291:					
Rock outcrop	40	Not rated		Not rated	
Spinnaker	30	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.92		
Topdeck	15	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.92	LEP 3 to 9	0.25
				AASHTO GIN 5 to 8 (soil strength)	0.78
292:					
Rock outcrop	25	Not rated		Not rated	
Buoy	25	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40″	0.92	AASHTO GIN >8 (low soil strength)	0.00
				Depth to bedrock 40 to 60"	0.18
				LEP 3 to 9	0.88
Bereme	20	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		K factor <.10 or NULL	0.99	Slopes >25%	0.00
				LEP 3 to 9	0.78
Typic Palexerolls	15	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		pH between 4 and 6.5 above 40″	0.92	Slopes >25%	0.00
				LEP >9	0.00
300:					
Cumulic Haploxerolls	85	Fair source		Fair source	
		K factor of .10 to .35	0.90	AASHTO GIN 5 to 8 (soil strength)	0.22
				LEP 3 to 9	0.75
310:					
Livigne	40	Fair source		Poor source	
		AWC 3 to 6″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM content of .5 to 1%	0.50	Slopes >25%	0.00
		K factor <.10 or NULL	0.99	AASHTO GIN >8 (low soil strength)	0.00
				LEP 3 to 9	0.75

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
310:					
Macool	30	Poor source		Poor source	
		Clay >40%	0.00	Slopes >25%	0.00
		OM content of .5 to 1%	0.50	AASHTO GIN >8 (low soil strength)	0.00
		pH between 4 and 6.5 above 40”	0.92	LEP 3 to 9	0.01
				Depth to bedrock 40 to 60"	0.58
Badland	15	Not rated		Not rated	
311:					
Livigne	45	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Clay 27 to 40%	0.68	Slopes >25%	0.00
				AASHTO GIN >8 (low soil strength)	0.00
				LEP 3 to 9	0.25
Gunwale	40	Fair source		Poor source	
		AWC 3 to 6” to 60” depth	0.01	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.50	Slopes >25%	0.00
		OM content of .5 to 1%	0.50	LEP 3 to 9	0.35
		K factor <.10 or NULL	0.99	AASHTO GIN 5 to 8 (soil strength)	0.78
321:					
Rudder	40	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.50	Slopes >25%	0.00
Spinnaker, moist	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92		
Rock outcrop	15	Not rated		Not rated	
650:					
Abaft	85	Poor source		Good source	
		WEG of 1 or 2	0.00		
		OM content of <.5%	0.00		
		AWC 3 to 6” to 60” depth	0.32		
		Sand fractions 75 to 85%	0.41		

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
651:					
Abaft	45	Poor source		Good source	
		WEG of 1 or 2	0.00		
		OM content of <.5%	0.00		
		AWC 3 to 6” to 60” depth	0.32		
		Sand fractions 75 to 85%	0.41		
Abaft, moderately steep	40	Poor source		Fair source	
		WEG of 1 or 2	0.00	Slopes 15 to 25%	0.92
		OM content of <.5%	0.00		
		AWC 3 to 6” to 60” depth	0.32		
		Sand fractions 75 to 85%	0.41		
660:					
Pachic Haploxerolls	85	Good source		Good source	
		K factor <.10 or NULL	0.99		
		AWC >6” to 60” depth or NULL AWC data	1.00		
670:					
Ironshot	60	Poor source		Good source	
		OM content of <.5%	0.00		
		Sand fractions 75 to 85%	0.74		
		K factor <.10 or NULL	0.99		
Ahoy	25	Fair source		Good source	
		AWC 3 to 6” to 60” depth	0.06		
		pH between 4 and 6.5 above 40”	0.95		
		K factor <.10 or NULL	0.99		
680:					
Bereme	65	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
Rock outcrop	20	Not rated		Not rated	
681:					
Bereme	65	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
Rock outcrop	20	Not rated		Not rated	

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
690:					
Typic Xerorthents------	40	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of .5 to 1%	0.08	Slopes >25%	0.00
Ultic Haploxeralfs-----	35	Poor source		Poor source	
		WEG of 1 or 2	0.00	Depth to bedrock <40”	0.00
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		Sand fractions 75 to 85%	0.22		
		pH between 4 and 6.5 above 40”	0.50		
		OM content of .5 to 1%	0.50		
Rock outcrop-----------	15	Not rated		Not rated	
700:					
Ahoy-------------------	30	Fair source		Poor source	
		AWC 3 to 6” to 60” depth	0.39	AASHTO GIN >8 (low soil strength)	0.00
		pH between 4 and 6.5 above 40”	0.92	LEP 3 to 9	0.82
Hawser, moderately steep-----------------	30	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		pH between 4 and 6.5 above 40”	0.92	AASHTO GIN >8 (low soil strength)	0.00
				Slopes 15 to 25%	0.82
Ahoy, moderately steep	15	Poor source		Fair source	
		AWC <3” to 60” depth	0.00	Slopes 15 to 25%	0.50
		pH between 4 and 6.5 above 40”	0.92	LEP 3 to 9	0.88
Hawser-----------------	15	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		pH between 4 and 6.5 above 40”	0.92	AASHTO GIN >8 (low soil strength)	0.00
710:					
Windage----------------	55	Poor source		Poor source	
		Clay >40%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92	LEP >9	0.00
				AASHTO GIN >8 (low soil strength)	0.00
Typic Xerorthents------	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of .5 to 1%	0.08	Slopes >25%	0.00

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
710:					
Buoy------------------	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92	Depth to bedrock 40 to 60"	0.68
711:					
Windage----------------	40	Fair source		Poor source	
		Clay 27 to 40%	0.50	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92	AASHTO GIN >8 (low soil strength)	0.00
				LEP 3 to 9	0.03
Hawser-----------------	30	Poor source		Not rated	
		Clay >40%	0.00	LEP >9	0.00
		OM content of .5 to 1%	0.32	AASHTO GIN >8 (low soil strength)	0.00
Typic Haploxeralfs-----	15	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		OM content of .5 to 1%	0.32	Slopes >25%	0.00
		AWC 3 to 6” to 60” depth	0.84	LEP >9	0.00
		K factor of .10 to .35	0.90	AASHTO GIN >8 (low soil strength)	0.00
712:					
Windage----------------	60	Poor source		Poor source	
		Clay >40%	0.00	Slopes >25%	0.00
		OM content of .5 to 1%	0.50	LEP >9	0.00
		pH between 4 and 6.5 above 40”	0.92	AASHTO GIN >8 (low soil strength)	0.00
Buoy------------------	25	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		K factor <.10 or NULL	0.99	AASHTO GIN >8 (low soil strength)	0.00
				Depth to bedrock 40 to 60"	0.02
				LEP 3 to 9	0.75
713:					
Windage----------------	50	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
				Slopes >25%	0.00
Ballast----------------	35	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		Calcium carbonates 15 to 40%	0.05	Slopes >25%	0.00
		AWC 3 to 6” to 60” depth	0.17	AASHTO GIN >8 (low soil strength)	0.00
		OM content of .5 to 1%	0.50	LEP >9	0.00
		K factor <.10 or NULL	0.99		

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
721:					
Buoy-------------------	85	Poor source		Fair source	
		AWC <3” to 60” depth	0.00	Depth to bedrock 40 to 60"	0.18
		OM content of .5 to 1%	0.32	Slopes 15 to 25%	0.59
722:					
Buoy, cobbly-----------	55	Poor source		Fair source	
		AWC <3” to 60” depth	0.00	Depth to bedrock 40 to 60"	0.08
		OM content of <.5%	0.00	Slopes 15 to 25%	0.59
				LEP 3 to 9	0.75
Rock outcrop-----------	35	Not rated		Not rated	
723:					
Buoy-------------------	45	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		OM content of <.5%	0.00	Depth to bedrock 40 to 60"	0.82
		Sand fractions 75 to 85%	0.46		
		pH between 4 and 6.5 above 40”	0.92		
Lithic Argixerolls-----	25	Poor source		Poor source	
		WEG of 1 or 2	0.00	Depth to bedrock <40”	0.00
		AWC <3” to 60” depth	0.00	AASHTO GIN >8 (low soil strength)	0.00
		pH between 4 and 6.5 above 40”	0.92	Slopes >25%	0.00
				LEP 3 to 9	0.58
Rock outcrop-----------	15	Not rated		Not rated	
724:					
Buoy-------------------	50	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92	AASHTO GIN >8 (low soil strength)	0.00
				Depth to bedrock 40 to 60"	0.18
				LEP 3 to 9	0.88
Rock outcrop-----------	20	Not rated		Not rated	
Ballast----------------	20	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		Maximum pH >8.5	0.00	Slopes >25%	0.00
		Calcium carbonates 15 to 40%	0.05	LEP >9	0.00
		AWC 3 to 6” to 60” depth	0.98	AASHTO GIN >8 (low soil strength)	0.00

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
725:					
Buoy-------------------	60	Poor source		Fair source	
		AWC <3” to 60” depth	0.00	Depth to bedrock 40 to 60"	0.01
		OM content of .5 to 1%	0.32	Slopes 15 to 25%	0.59
		pH between 4 and 6.5 above 40”	0.95		
Typic Haploxeralfs-----	20	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		OM content of .5 to 1%	0.32	LEP >9	0.00
		AWC 3 to 6” to 60” depth	0.84	AASHTO GIN >8 (low soil strength)	0.00
		K factor of .10 to .35	0.90	Slopes 15 to 25%	0.59
730:					
Lodestone, very deep---	35	Poor source		Poor source	
		Clay >40%	0.00	Slopes >25%	0.00
		Maximum pH >8.5	0.00	LEP >9	0.00
		OM content of .5 to 1%	0.32	AASHTO GIN >8 (low soil strength)	0.00
		Calcium carbonates 15 to 40%	0.32		
Ballast----------------	30	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3 to 6” to 60” depth	0.24	LEP >9	0.00
		OM content of .5 to 1%	0.50	AASHTO GIN >8 (low soil strength)	0.00
		Calcium carbonates 15 to 40%	0.92	Slopes >25%	0.00
Buoy-------------------	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		OM content of <.5%	0.00	Depth to bedrock 40 to 60"	0.02
				LEP 3 to 9	0.75
761:					
Lodestone--------------	35	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		Calcium carbonates 15 to 40%	0.32	Slopes >25%	0.00
		OM content of .5 to 1%	0.50	LEP >9	0.00
		AWC 3 to 6” to 60” depth	0.54	AASHTO GIN >8 (low soil strength)	0.00
Typic Xerorthents------	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of .5 to 1%	0.08	Slopes >25%	0.00
Windage----------------	20	Fair source		Poor source	
		Clay 27 to 40%	0.50	Slopes >25%	0.00
				LEP 3 to 9	0.47

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
762:					
Lodestone	40	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		Calcium carbonates 15 to 40%	0.32	LEP >9	0.00
		AWC 3 to 6” to 60” depth	0.60	AASHTO GIN >8 (low soil strength)	0.00
				Slopes >25%	0.00
Ballast	30	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		Calcium carbonates 15 to 40%	0.05	Slopes >25%	0.00
		AWC 3 to 6” to 60” depth	0.15	AASHTO GIN >8 (low soil strength)	0.00
		OM content of .5 to 1%	0.50	LEP >9	0.00
		K factor <.10 or NULL	0.99		
Halyard	15	Fair source		Poor source	
		Clay 27 to 40%	0.68	Depth to bedrock <40”	0.00
		K factor of .10 to .35	0.90	Slopes >25%	0.00
		AWC 3 to 6” to 60” depth	1.00	AASHTO GIN >8 (low soil strength)	0.00
				LEP 3 to 9	0.30
763:					
Hawser	50	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		pH between 4 and 6.5 above 40”	0.92	AASHTO GIN >8 (low soil strength)	0.00
		AWC >6” to 60” depth or NULL AWC data	1.00	Slopes >25%	0.00
Lodestone, very deep	25	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		OM content of <.5%	0.00	AASHTO GIN >8 (low soil strength)	0.00
		Calcium carbonates > 40%	0.00	Slopes >25%	0.00
Buoy	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92	AASHTO GIN >8 (low soil strength)	0.00
				Depth to bedrock 40 to 60"	0.02
				LEP 3 to 9	0.75
780:					
Typic Argixerolls	75	Fair source		Poor source	
		AWC 3 to 6” to 60” depth	0.07	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
				LEP 3 to 9	0.39

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
800:					
Ballast----------------	50	Fair source		Poor source	
		Calcium carbonates 15 to 40%	0.05	Depth to bedrock <40”	0.00
		AWC 3 to 6” to 60” depth	0.51	AASHTO GIN >8 (low soil strength)	0.00
				LEP >9	0.00
				Slopes >25%	0.00
Halyard----------------	25	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3 to 6” to 60” depth	0.64	AASHTO GIN >8 (low soil strength)	0.00
		K factor <.10 or NULL	0.99	LEP >9	0.00
				Slopes >25%	0.00
Typic Argixerolls------	15	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3 to 6” to 60” depth	0.01	LEP >9	0.00
		K factor <.10 or NULL	0.99	AASHTO GIN >8 (low soil strength)	0.00
				Slopes >25%	0.00
850:					
Typic Natrixeralfs-----	50	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		EC >16 dS/m	0.00	LEP 3 to 9	0.25
		Maximum pH >8.5	0.00		
		K factor of .10 to .35	0.90		
		pH between 4 and 6.5 above 40”	0.92		
Typic Haploxeralfs, dry	45	Poor source		Poor source	
		Maximum pH >8.5	0.00	AASHTO GIN >8 (low soil strength)	0.00
		OM content of .5 to 1%	0.32	Depth to bedrock 40 to 60"	0.50
		pH between 4 and 6.5 above 40”	0.92	LEP 3 to 9	0.53
851:					
Typic Haploxeralfs, dry	60	Poor source		Poor source	
		Maximum pH >8.5	0.00	AASHTO GIN >8 (low soil strength)	0.00
		OM content of .5 to 1%	0.32	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92	Depth to bedrock 40 to 60"	0.50
				LEP 3 to 9	0.53
Typic Natrixeralfs-----	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		EC >16 dS/m	0.00	LEP 3 to 9	0.25
		Maximum pH >8.5	0.00		
		pH between 4 and 6.5 above 40”	0.92		

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
852:					
Lithic Argixerolls, dry	55	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.92		
		K factor <.10 or NULL	0.99		
Typic Natrixeralfs-----	35	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC <3” to 60” depth	0.00	LEP >9	0.00
		EC >16 dS/m	0.00	AASHTO GIN >8 (low soil strength)	0.00
		Maximum pH >8.5	0.00		
		SAR from 4 to 13	0.00		
		OM content of .5 to 1%	0.32		
		pH between 4 and 6.5 above 40”	0.92		
		K factor <.10 or NULL	0.99		
853:					
Rock outcrop-----------	45	Not rated		Not rated	
Typic Haploxeralfs, dry	40	Poor source		Poor source	
		Maximum pH >8.5	0.00	Slopes >25%	0.00
		OM content of .5 to 1%	0.32	AASHTO GIN >8 (low soil strength)	0.00
		pH between 4 and 6.5 above 40”	0.92	Depth to bedrock 40 to 60"	0.50
				LEP 3 to 9	0.53
860:					
Topdeck----------------	45	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		pH between 4 and 6.5 above 40”	0.92	AASHTO GIN >8 (low soil strength)	0.00
		K factor <.10 or NULL	0.99	LEP 3 to 9	0.25
Halyard----------------	40	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		K factor <.10 or NULL	0.99	LEP >9	0.00
				AASHTO GIN >8 (low soil strength)	0.00
861:					
Rock outcrop-----------	40	Not rated		Not rated	
Topdeck----------------	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
				Slopes >25%	0.00

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value
861:					
Spinnaker--------------	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM content of <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40”	0.92		
900:					
Petrocalcic Palexeralfs	85	Poor source		Poor source	
		Clay >40%	0.00	Depth to pan <40”	0.00
		AWC <3” to 60” depth	0.00	LEP >9	0.00
		Depth to pan < 20"	0.00	AASHTO GIN >8 (low soil strength)	0.00
		OM content of .5 to 1%	0.32		
		K factor of .10 to .35	0.68		
910:					
Hawser-----------------	65	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		OM content of .5 to 1%	0.50	AASHTO GIN >8 (low soil strength)	0.00
Hawser, moderately steep----------------	20	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		OM content of .5 to 1%	0.50	AASHTO GIN >8 (low soil strength)	0.00
920:					
Typic Durixerolls------	85	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Depth to pan 20 to 40"	0.26	Depth to pan <40”	0.00
921:					
Typic Durixerolls------	85	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Depth to pan 20 to 40"	0.68	Depth to pan <40”	0.00
				Slopes 15 to 25%	0.12
930:					
Fluventic Haploxerolls	85	Poor source		Good source	
		OM content of <.5%	0.00		
		AWC 3 to 6” to 60” depth	0.04		
		Sand fractions 75 to 85%	0.65		

Table 9b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
940:					
Typic Durixeralfs------	85	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Depth to pan < 20"	0.00	Slopes >25%	0.00
		OM content of .5 to 1%	0.08	Depth to pan <40”	0.00
		Clay 27 to 40%	0.92		
950:					
Ahoy-------------------	70	Fair source		Fair source	
		AWC 3 to 6” to 60” depth	0.01	LEP 3 to 9	0.75
		K factor of .10 to .35	0.90		
		pH between 4 and 6.5 above 40”	0.95		
Ironshot---------------	15	Fair source		Good source	
		AWC 3 to 6” to 60” depth	0.85		
970:					
Dune land--------------	90	Not rated		Not rated	
980:					
Lithic Haploxeralfs----	85	Poor source		Poor source	
		WEG of 1 or 2	0.00	Depth to bedrock <40”	0.00
		AWC <3” to 60” depth	0.00	Slopes >25%	0.00
		OM content of .5 to 1%	0.08		
		Sand fractions 75 to 85%	0.46		

The interpretation for *reclamation material* evaluates the following soil properties at variable depths in the soil: the amount of sand, clay, and fragments; the wind erodibility group (WEG); the available water capacity (AWC); pH; salinity (EC); amount of sodium (SAR); carbonates; and susceptibility of the soil to water erosion (K factor).

The interpretation for *roadfill* evaluates the following soil properties at variable depths in the soil: shrink-swell potential expressed as linear extensibility percent (LEP), depth to bedrock or a cemented pan, wetness, slope, soil strength expressed as AASHTO group index number (AASHTO GIN), and content of fragments.

Table 10.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. The rating is based on the limitation with the highest value. Only the three highest value limitations are lisited. There may be more limitations. Fine-earth fractions and rock fragments are reported on a weight basis. An explanation of the rating criteria and of the abbreviations used in describing the limitations is given at the end of the table)

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
100:					
Fiale	60	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.73	Depth to bedrock from 20 to 60”	0.73
		MH or CH Unified and PI <40%	0.50	Permeability .6-2"/hr (some seepage)	0.50
Tongva	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.98	Depth to bedrock from 20 to 60”	0.98
Topdeck	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
		Low piping potential	0.01		
101:					
Spinnaker	35	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Organic matter (PT, OL, or OH)	1.00	Depth to bedrock <20”	1.00
		Possible seepage problem	0.50		
Tongva	35	Limitations		Limitations	
		Thin layer	0.98	Slopes >7%	1.00
		High piping potential	0.56	Depth to bedrock from 20 to 60”	0.98
		Shrink-swell (LEP 3-6)	0.50	Permeability .6-2"/hr (some seepage)	0.50
Fiale	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.96	Depth to bedrock from 20 to 60”	0.96
		MH or CH Unified and PI <40%	0.50		
102:					
Fiale	65	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Depth to bedrock from 20 to 60”	0.98
		Thin layer	0.98	Slopes 2 to 7%	0.31
		MH or CH Unified and PI <40%	0.50		

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
102:					
Topdeck	20	Limitations		Limitations	
		Thin layer	1.00	Depth to bedrock <20”	1.00
		Organic matter (PT, OL, or OH)	1.00	Slopes 2 to 7%	0.31
		Shrink-swell (LEP 3-6)	0.50		
103:					
Fiale	35	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.99	Depth to bedrock <20”	0.99
		MH or CH Unified and PI <40%	0.50		
Topdeck	35	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
Rock outcrop	15	Not rated		Not rated	
120:					
Miasotus	70	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
Yardarm	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.99	Depth to bedrock <20”	0.99
130:					
Frigate	70	Limitations		Limitations	
		Thin layer	0.83	Slopes >7%	1.00
				Depth to bedrock from 20 to 60”	0.83
				Permeability .6-2"/hr (some seepage)	0.50
Yardarm	20	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.98	Depth to bedrock from 20 to 60”	0.98
150:					
Halyard	45	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.59	Depth to bedrock from 20 to 60”	0.59
		MH or CH Unified and PI <40%	0.50	Permeability .6-2"/hr (some seepage)	0.50

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
150:					
Topdeck	25	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
		High piping potential	0.80	Permeability >2”/hr (seepage)	1.00
Tongva	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.98	Depth to bedrock from 20 to 60”	0.98
		High piping potential	0.16		
152:					
Halyard	60	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.73	Depth to bedrock from 20 to 60”	0.73
		MH or CH Unified and PI <40%	0.50		
Starboard	25	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.99	Depth to bedrock <20”	0.99
		High piping potential	0.15		
153:					
Halyard	45	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20 to 60”	0.50
		Thin layer	0.50		
Topdeck	40	Limitations		Limitations	
		Thin layer	1.00	Depth to bedrock <20”	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		High piping potential	0.14		
155:					
Halyard	45	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Depth to bedrock from 20 to 60”	0.59
		Thin layer	0.59	Permeability .6-2"/hr (some seepage)	0.50
		MH or CH Unified and PI <40%	0.50	Slopes 2 to 7%	0.48
Fiale	40	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Depth to bedrock from 20 to 60”	0.94
		MH or CH Unified and PI >=40%	1.00	Slopes 2 to 7%	0.48
		Thin layer	0.94		

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
160:					
Beaches	75	Not rated		Not rated	
Abaft	15	Limitations		Limitations	
		Possible seepage problem	0.50	Permeability >2”/hr (seepage)	1.00
180:					
Typic Argixerolls, very deep	95	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes 2 to 7%	0.08
190:					
Typic Xerofluvents	70	Limitations		Limitations	
		Ponding (any duration)	1.00	Permeability >2”/hr (seepage)	1.00
		Seepage problem	1.00	Slopes 2 to 7%	0.08
Riverwash	15	Not rated		Not rated	
200:					
Fantail, thin surface	40	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock from 20 to 60”	0.88
		Organic matter (PT, OL, or OH)	1.00		
Forestay	25	Limitations		Limitations	
		Thin layer	0.94	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Permeability .6-2"/hr (some seepage)	0.50
Fantail	20	Limitations		Limitations	
		Thin layer	0.99	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock from 20 to 60”	0.54
				Permeability .6-2"/hr (some seepage)	0.50
210:					
Lospinos	55	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Depth to bedrock from 20 to 60”	0.98
		Thin layer	0.98	Permeability .6-2"/hr (some seepage)	0.50
				Slopes 2 to 7%	0.31
Forestay	15	Limitations		Limitations	
		Thin layer	1.00	Slopes 2 to 7%	0.31
		Shrink-swell (LEP >6)	1.00		
		Organic matter (PT, OL, or OH)	1.00		

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
210:					
Forestay, strongly sloping	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00		
		Organic matter (PT, OL, or OH)	1.00		
211:					
Lospinos	90	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.90	Depth to bedrock from 20 to 60”	0.90
				Permeability .6-2"/hr (some seepage)	0.50
212:					
Lospinos	70	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.99	Depth to bedrock <20”	0.99
Rock outcrop	25	Not rated		Not rated	
230:					
Fantail	85	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock from 20 to 60”	0.88
		Organic matter (PT, OL, or OH)	1.00		
240:					
Delphine	50	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock <20”	1.00
Miasotus	20	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
Yardarm	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.70	Depth to bedrock from 20 to 60”	0.70
241:					
Delphine	50	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
Badland	20	Not rated		Not rated	

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
241:					
Miasotus	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
250:					
Spinnaker	50	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Starboard	20	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.68	Depth to bedrock from 20 to 60”	0.68
		High piping potential	0.43	Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop	20	Not rated		Not rated	
251:					
Spinnaker	60	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Rock outcrop	25	Not rated		Not rated	
260:					
Starboard	40	Limitations		Limitations	
		Thin layer	0.87	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock from 20 to 60”	0.87
				Permeability .6-2"/hr (some seepage)	0.50
Spinnaker	30	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock <20”	1.00
				Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop	15	Not rated		Not rated	
262:					
Halyard	55	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.70	Depth to bedrock from 20 to 60”	0.70
		MH or CH Unified and PI <40%	0.50		

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
262:					
Fantail	30	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock from 20 to 60”	0.87
		MH or CH Unified and PI <40%	0.50		
263:					
Starboard	35	Limitations		Limitations	
		High piping potential	0.88	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Permeability .6-2"/hr (some seepage)	0.50
		Thin layer	0.50	Depth to bedrock from 20 to 60”	0.50
Pachic Argixerolls	35	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.40	Permeability .6-2"/hr (some seepage)	0.50
				Depth to bedrock from 20 to 60”	0.40
Rock outcrop	15	Not rated		Not rated	
270:					
Topdeck	35	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock <20”	1.00
Rock outcrop	35	Not rated		Not rated	
Spinnaker	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
271:					
Topdeck	45	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
Spinnaker	20	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Tongva	20	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.82	Depth to bedrock from 20 to 60”	0.82
				Permeability .6-2"/hr (some seepage)	0.50

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
272:					
Topdeck	35	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
		High piping potential	0.20		
Starboard	35	Limitations		Limitations	
		Thin layer	0.92	Slopes >7%	1.00
		High piping potential	0.66	Depth to bedrock from 20 to 60”	0.92
		Shrink-swell (LEP 3-6)	0.50	Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop	15	Not rated		Not rated	
273:					
Topdeck, overblown	45	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock <20”	1.00
Typic Durixerolls, loamy subsoil	40	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Very high piping potential	1.00	Depth to bedrock <20”	1.00
				Depth to pan < 20"	1.00
290:					
Rock outcrop	50	Not rated		Not rated	
Topdeck	20	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Organic matter (PT, OL, or OH)	1.00	Depth to bedrock <20”	1.00
		Possible seepage problem	0.50		
Starboard	15	Limitations		Limitations	
		Thin layer	0.92	Slopes >7%	1.00
		High piping potential	0.66	Depth to bedrock from 20 to 60”	0.92
		Shrink-swell (LEP 3-6)	0.50	Permeability .6-2"/hr (some seepage)	0.50
291:					
Rock outcrop	40	Not rated		Not rated	
Spinnaker	30	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Topdeck	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
292:					
Rock outcrop	25	Not rated		Not rated	
Buoy	25	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Permeability >2"/hr (seepage)	1.00
				Depth to bedrock from 20 to 60"	0.24
Bereme	20	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock <20"	1.00
				Permeability .6-2"/hr (some seepage)	0.50
Typic Palexerolls	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock from 20 to 60"	0.98
		Organic matter (PT, OL, or OH)	1.00		
300:					
Cumulic Haploxerolls	85	Limitations		Limitations	
		High piping potential	0.97	Permeability >2"/hr (seepage)	1.00
		Shrink-swell (LEP 3-6)	0.50	Slopes 2 to 7%	0.31
		Thin layer	0.09		
310:					
Livigne	40	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock <20"	1.00
				Permeability .6-2"/hr (some seepage)	0.50
Macool	30	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.11	Permeability .6-2"/hr (some seepage)	0.50
				Depth to bedrock from 20 to 60"	0.11
Badland	15	Not rated		Not rated	
311:					
Livigne	45	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20"	1.00
Gunwale	40	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.99	Depth to bedrock <20"	0.99

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
321:					
Rudder	40	Limitations		Limitations	
		Thin layer	0.90	Slopes >7%	1.00
				Depth to bedrock from 20 to 60”	0.90
				Permeability .6-2"/hr (some seepage)	0.50
Spinnaker, moist	30	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Rock outcrop	15	Not rated		Not rated	
650:					
Abaft	85	Limitations		Limitations	
		Possible seepage problem	0.50	Permeability >2”/hr (seepage)	1.00
				Slopes 2 to 7%	0.31
651:					
Abaft	45	Limitations		Limitations	
		Possible seepage problem	0.50	Permeability >2”/hr (seepage)	1.00
				Slopes 2 to 7%	0.48
Abaft, moderately steep	40	Limitations		Limitations	
		Possible seepage problem	0.50	Slopes >7%	1.00
				Permeability >2”/hr (seepage)	1.00
660:					
Pachic Haploxerolls	85	Limitations		Limitations	
		Very high piping potential	1.00	Permeability >2”/hr (seepage)	1.00
		Possible seepage problem	0.50	Slopes 2 to 7%	0.31
		Thin layer	0.44		
670:					
Ironshot	60	No limitations		Limitations	
		Slight seepage problem	0.10	Permeability >2”/hr (seepage)	1.00
				Slopes >7%	1.00
Ahoy	25	Limitations		Limitations	
		Thin layer	1.00	Permeability >2”/hr (seepage)	1.00
		Very high piping potential	1.00	Slopes 2 to 7%	0.48

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
680:					
Bereme	65	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop	20	Not rated		Not rated	
681:					
Bereme	65	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability .6-2"/hr (some seepage)	0.50
Rock outcrop	20	Not rated		Not rated	
690:					
Typic Xerorthents	40	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Ultic Haploxeralfs	35	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock from 20 to 60”	0.54
		Possible seepage problem	0.50		
Rock outcrop	15	Not rated		Not rated	
700:					
Ahoy	30	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes 2 to 7%	0.66
		High piping potential	0.97	Permeability .6-2"/hr (some seepage)	0.50
		Thin layer	0.94		
Hawser, moderately steep	30	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50		
Ahoy, moderately steep	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Permeability >2”/hr (seepage)	1.00
Hawser	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes 2 to 7%	0.66
		MH or CH Unified and PI <40%	0.50		

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
710:					
Windage	55	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50		
Typic Xerorthents	20	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20"	1.00
Buoy	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Very high piping potential	1.00	Depth to bedrock from 20 to 60"	0.08
711:					
Windage	40	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50		
Hawser	30	Limitations		Not rated	
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified and PI <40%	0.50		
Typic Haploxeralfs	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.82	Depth to bedrock from 20 to 60"	0.82
		MH or CH Unified and PI <40%	0.50		
712:					
Windage	60	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50		
Buoy	25	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Very high piping potential	0.99	Permeability .6-2"/hr (some seepage)	0.50
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock from 20 to 60"	0.40
713:					
Windage	50	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
Ballast	35	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.98	Depth to bedrock from 20 to 60"	0.98
		MH or CH Unified and PI <40%	0.50		

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
721:					
Buoy	85	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Permeability >2"/hr (seepage)	1.00
				Depth to bedrock from 20 to 60"	0.24
722:					
Buoy, cobbly	55	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Permeability .6-2"/hr (some seepage)	0.50
				Depth to bedrock from 20 to 60"	0.32
Rock outcrop	35	Not rated		Not rated	
723:					
Buoy	45	Limitations		Limitations	
		Thin layer	0.95	Slopes >7%	1.00
		Possible seepage problem	0.50	Permeability >2"/hr (seepage)	1.00
				Depth to bedrock from 20 to 60"	0.04
Rock outcrop	15	Not rated		Not rated	
Lithic Argixerolls	25	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20"	1.00
		MH or CH Unified and PI <40%	0.50		
724:					
Buoy	50	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Permeability >2"/hr (seepage)	1.00
				Depth to bedrock from 20 to 60"	0.24
Ballast	20	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.54	Depth to bedrock from 20 to 60"	0.54
		MH or CH Unified and PI <40%	0.50		
Rock outcrop	20	Not rated		Not rated	
725:					
Buoy	60	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Permeability >2"/hr (seepage)	1.00
				Depth to bedrock from 20 to 60"	0.44

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
725:					
Typic Haploxeralfs	20	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.82	Depth to bedrock from 20 to 60”	0.82
		MH or CH Unified and PI <40%	0.50		
730:					
Lodestone, very deep	35	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50		
Ballast	30	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.95	Depth to bedrock from 20 to 60”	0.95
		MH or CH Unified and PI <40%	0.50		
Buoy	20	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Permeability .6-2"/hr (some seepage)	0.50
				Depth to bedrock from 20 to 60”	0.40
761:					
Lodestone	35	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.87	Depth to bedrock from 20 to 60”	0.87
		MH or CH Unified and PI <40%	0.50		
Typic Xerorthents	20	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Windage	20	Limitations		Limitations	
		Shrink-swell (LEP 3-6)	0.50	Slopes >7%	1.00
762:					
Lodestone	40	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.87	Depth to bedrock from 20 to 60”	0.87
		MH or CH Unified and PI <40%	0.50		
Ballast	30	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.98	Depth to bedrock from 20 to 60”	0.98
		MH or CH Unified and PI <40%	0.50		

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
762:					
Halyard	15	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.52	Depth to bedrock from 20 to 60"	0.52
		MH or CH Unified and PI <40%	0.50	Permeability .6-2"/hr (some seepage)	0.50
763:					
Hawser	50	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Permeability .6-2"/hr (some seepage)	0.50
		Thin layer	0.50		
Lodestone, very deep	25	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50		
Buoy	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Very high piping potential	1.00	Permeability .6-2"/hr (some seepage)	0.50
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock from 20 to 60"	0.40
780:					
Typic Argixerolls	75	Limitations		Limitations	
		Thin layer	0.82	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock from 20 to 60"	0.82
				Permeability .6-2"/hr (some seepage)	0.50
800:					
Ballast	50	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.92	Depth to bedrock from 20 to 60"	0.92
		MH or CH Unified and PI <40%	0.50		
Halyard	25	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.88	Depth to bedrock from 20 to 60"	0.88
		MH or CH Unified and PI <40%	0.50		
Typic Argixerolls	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20"	1.00
		MH or CH Unified and PI <40%	0.50		

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitations	Value	Pond reservoir areas: Limitations	Value
850:					
Typic Natrixeralfs----------------	50	Limitations		Limitations	
		EC >16 dS/m	1.00	Slopes >7%	1.00
		Thin layer	1.00	Depth to bedrock from 20 to 60”	0.98
		Shrink-swell (LEP >6)	1.00		
Typic Haploxeralfs, dry-----------	45	Limitations		Limitations	
		Shrink-swell (LEP 3-6)	0.50	Slopes >7%	1.00
		Thin layer	0.12	Permeability .6-2"/hr (some seepage)	0.50
		Low piping potential	0.01	Depth to bedrock from 20 to 60”	0.12
851:					
Typic Haploxeralfs, dry-----------	60	Limitations		Limitations	
		Shrink-swell (LEP 3-6)	0.50	Slopes >7%	1.00
		Thin layer	0.12	Permeability .6-2"/hr (some seepage)	0.50
		Low piping potential	0.01	Depth to bedrock from 20 to 60”	0.12
Typic Natrixeralfs----------------	30	Limitations		Limitations	
		EC >16 dS/m	1.00	Slopes >7%	1.00
		Thin layer	1.00		
		Shrink-swell (LEP >6)	1.00		
852:					
Lithic Argixerolls, dry-----------	55	Limitations		Limitations	
		Thin layer	1.00	Depth to bedrock <20”	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Organic matter (PT, OL, or OH)	1.00		
Typic Natrixeralfs----------------	35	Limitations		Limitations	
		EC >16 dS/m	1.00	Depth to bedrock <20”	1.00
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00		
853:					
Rock outcrop----------------------	45	Not rated		Not rated	
Typic Haploxeralfs, dry-----------	40	Limitations		Limitations	
		Shrink-swell (LEP 3-6)	0.50	Slopes >7%	1.00
		Thin layer	0.12	Permeability .6-2"/hr (some seepage)	0.50
		Low piping potential	0.01	Depth to bedrock from 20 to 60”	0.12

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
860:					
Topdeck	45	Limitations		Limitations	
		Thin layer	1.00	Depth to bedrock <20”	1.00
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		High piping potential	0.14		
Halyard	40	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20 to 60”	0.50
		Thin layer	0.50		
861:					
Rock outcrop	40	Not rated		Not rated	
Topdeck	30	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Depth to bedrock <20”	1.00
Spinnaker	15	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
900:					
Petrocalcic Palexeralfs	85	Limitations		Limitations	
		Thin layer	1.00	Depth to pan < 20"	1.00
		Shrink-swell (LEP >6)	1.00	Permeability >2”/hr (seepage)	1.00
		MH or CH Unified and PI <40%	0.50	Slopes >7%	1.00
910:					
Hawser	65	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes 2 to 7%	0.48
		MH or CH Unified and PI <40%	0.50		
Hawser, moderately steep	20	Limitations		Limitations	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50		
920:					
Typic Durixerolls	85	Limitations		Limitations	
		Thin layer	1.00	Permeability >2”/hr (seepage)	1.00
				Slopes >7%	1.00
				Depth to pan 20 to 60"	0.94

Table 10.--Water Management

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitations	Value	Limitations	Value
921:					
Typic Durixerolls	85	Limitations		Limitations	
		Thin layer	0.99	Slopes >7%	1.00
				Permeability >2”/hr (seepage)	1.00
				Depth to pan 20 to 60"	0.82
930:					
Fluventic Haploxerolls	85	Limitations		Limitations	
		Ponding (any duration)	1.00	Permeability >2”/hr (seepage)	1.00
		Thin layer	0.84		
		Possible seepage problem	0.50		
940:					
Typic Durixeralfs	85	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Depth to bedrock <20”	1.00
		High piping potential	0.14	Depth to pan < 20"	1.00
950:					
Ahoy	70	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.50	Permeability .6-2"/hr (some seepage)	0.50
		High piping potential	0.24		
Ironshot	15	Limitations		Limitations	
		Seepage problem	1.00	Permeability >2”/hr (seepage)	1.00
				Slopes >7%	1.00
970:					
Dune land	90	Not rated		Not rated	
980:					
Lithic Haploxeralfs	85	Limitations		Limitations	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability .6-2"/hr (some seepage)	0.50

The interpretation for embankments, dikes, and levees evaluates the following soil properties at variable depths in the soil: ponding; wetness; depth to a restrictive layer; fragments more than 3 inches in size; salinity (EC); Unified classes for a high content of organic matter (PT, OL, and OH); Unified classes that are hard to pack (MH and CH), permeability that is too rapid, allowing seepage; piping as determined by Atterberg limits of liquid limit (LL) and plasticity index (PI); sodium content (SAR; and gypsum content.

The interpretation for pond reservoir areas evaluates the following soil properties at variable depths in the soil: slope, depth to hard or soft bedrock, depth to a cemented pan, marly textures, gypsum content, and permeability that is too rapid, alowing seepage.

Table 11.--Engineering Properties

(Absence of an entry indicates that the data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
100:												
Fiale-----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-4	Clay loam	CH	A-7-6	0	0	77-100	76-100	62-95	47-76	40-59	19-29
	4-15	Clay	CH	A-7	0	0	75-100	74-100	61-100	53-91	53-76	29-44
	15-24	Clay	CH	A-7	0	0	75-100	74-100	61-100	53-91	53-76	29-44
	24-28	Clay	CH	A-7	0	0	75-100	74-100	61-100	53-91	53-76	29-44
	28-34	Sandy clay loam	SC	A-6	0	0	92-100	91-100	77-92	42-53	31-39	13-19
	34-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Tongva----------	0-6	Loam	CL	A-6	0	0	77-100	76-100	67-96	49-74	33-45	12-19
	6-18	Clay loam	CL	A-7-6	0	0	77-100	76-100	66-100	51-81	40-57	19-29
	18-24	Clay loam	CL	A-7-6	0	0	77-100	76-100	64-97	49-78	40-57	19-29
	24-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Topdeck---------	0-3	Loam	CL	A-6	0	0	78-100	76-100	66-96	48-72	33-45	12-19
	3-7	Clay loam	CL	A-7-6	0	0	78-100	76-100	64-97	49-78	40-57	19-29
	7-11	Bedrock	---	---	0	0	0	0	0	0	---	---
	11-21	Bedrock	---	---	0	0	0	0	0	0	---	---
101:												
Spinnaker-------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-3	Gravelly sandy loam	SM	A-2	0	0	53-77	51-76	39-64	20-37	0-25	NP-7
	3-8	Gravelly sandy loam	GC-GM	A-1-b	0	0	53-77	51-76	37-62	17-33	0-25	NP-7
	8-21	Bedrock	---	---	0	0	0	0	0	0	---	---
Tongva----------	0-7	Loam	CL	A-6	0	0	78-100	76-100	66-96	48-72	33-45	12-19
	7-19	Loam	CL	A-6	0	0	78-100	76-100	66-96	48-72	33-45	12-19
	19-23	Gravelly loam	CL	A-6	0	0	53-77	51-76	42-69	31-53	30-40	12-19
	23-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Fiale-----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-8	Loam	CL	A-6	0	0	77-100	76-100	63-92	46-70	31-45	12-19
	8-13	Sandy clay loam	SC	A-7-6	0	0	77-100	76-100	61-87	35-54	40-53	19-25
	13-20	Clay	CH	A-7-6	0	0	75-100	74-100	67-100	54-93	53-76	29-44
	20-25	Clay	CH	A-7-6	0	0	100	100	90-100	73-93	52-71	29-44
	25-60	Bedrock	---	---	0	0	0	0	0	0	---	---
102:												
Fiale-----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-4	Gravelly clay loam	CL	A-7-6	0	0	53-77	50-76	43-75	33-60	40-57	19-29
	4-24	Clay	CH	A-7-6	0	0	75-100	74-100	61-100	53-91	53-76	29-44
	24-60	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
102:												
Topdeck---------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-2	Loam	CL-ML	A-4	0	0	78-100	76-100	64-100	44-77	23-43	4-18
	2-10	Gravelly loam	CL	A-7-6	0	0	55-78	51-76	43-70	31-53	33-45	12-19
	10-18	Bedrock	---	---	0	0	0	0	0	0	---	---
103:												
Fiale-----------	0-2	Clay	CH	A-7-5	0	0	75-100	74-100	61-100	53-91	53-78	29-44
	2-9	Clay	CH	A-7-6	0	0	75-100	74-100	61-100	53-91	53-76	29-44
	9-17	Clay	CH	A-7-6	0	0	75-100	74-100	61-100	53-91	53-76	29-44
	17-21	Clay	CH	A-7-6	0	0	75-100	74-100	60-100	53-91	53-76	29-44
	21-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Topdeck---------	0-2	Gravelly sandy loam	SC-SM	A-2-4	0	0	53-77	51-76	35-58	15-29	0-30	NP-7
	2-17	Clay loam	CL	A-7-6	0	0	77-100	76-100	65-99	50-79	43-57	19-29
	17-19	Clay loam	CL	A-7-6	0	0	77-100	76-100	64-97	49-78	38-52	19-29
	19-29	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
120:												
Miasotus--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-3	Sandy loam	SC-SM	A-2-4	0	0	76-100	75-100	55-81	26-43	16-26	1-7
	3-6	Gravelly loam	SC-SM	A-4	0	0	53-76	48-74	41-71	29-51	23-35	4-12
	6-9	Very gravelly clay loam	GC	A-2-7	0	0	28-50	25-48	21-47	16-37	39-52	19-29
	9-15	Very gravelly clay loam	GC	A-2-7	0	0	28-50	25-48	20-46	16-36	39-52	19-29
	15-31	Bedrock	---	---	0	0	0	0	0	0	---	---
Yardarm---------	0-1	Moderately decomposed plant material			0	0	0	0	0	0	0-0	NP
	1-8	Gravelly silt loam	GC	A-7-6	0	0	51-75	48-74	43-72	37-64	31-45	12-19
	8-22	Gravelly clay loam	GC	A-7-6	0	0	50-75	48-73	41-73	31-58	39-53	19-29
	22-37	Bedrock	---	---	0	0	0	0	0	0	---	---
130:												
Frigate---------	0-3	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	3-4	Silt loam	CL-ML	A-4	0	0	76-91	74-91	66-90	52-73	23-37	4-12
	4-8	Gravelly silt loam	GC	A-4	0	0	53-76	48-74	44-72	36-59	23-30	7-12
	8-15	Gravelly silt loam	GC	A-4	0	0	53-76	48-74	43-70	35-58	23-30	7-12
	15-28	Very gravelly silt loam	GC-GM	A-2-4	0	0	28-50	25-48	22-47	18-38	19-30	4-12
	28-31	Very gravelly silt loam	GC	A-2-6	0	0	28-50	25-48	24-48	20-42	30-40	12-19
	31-69	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
130:												
Yardarm---------	0-2	Silt loam	CL-ML	A-4	0	0	91-100	91-100	79-95	62-76	17-30	1-7
	2-8	Silt loam	CL-ML	A-4	0	0	91-100	91-100	79-98	63-79	21-35	4-12
	8-13	Gravelly clay loam	GC	A-7-6	0	0	50-75	48-73	40-72	31-57	39-53	19-29
	13-24	Very gravelly clay loam	GC	A-2-7	0	0	28-50	25-48	21-46	16-37	39-53	19-29
	24-38	Bedrock	---	---	0	0	0	0	0	0	---	---
150:												
Halyard---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-13	Gravelly loam	CL	A-6	0	0	53-77	51-76	43-71	32-54	29-39	12-19
	13-22	Gravelly clay	CH	A-7-6	0	0-1	52-76	48-74	45-74	36-70	52-71	29-44
	22-37	Clay	CH	A-7-6	0	0-22	71-100	70-100	63-100	52-93	53-76	29-44
	37-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Topdeck---------	0-2	Loam	CL-ML	A-4	0	0	78-100	76-100	65-100	45-78	23-43	4-18
	2-4	Loam	CL	A-4	0	0	78-100	76-100	63-100	43-76	23-43	4-18
	4-11	Loam	CL	A-6	0	0	78-100	76-100	66-96	48-72	33-45	12-19
	11-14	Gravelly clay loam	GC	A-7-6	0	0	55-78	50-76	45-76	35-63	43-57	19-29
	14-26	Bedrock	---	---	0	0	0	0	0	0	---	---
Tongva----------	0-2	Loam	CL-ML	A-4	0	0	77-100	76-100	67-100	47-77	26-43	7-18
	2-8	Loam	CL	A-4	0	0	77-100	76-100	66-100	46-76	26-43	7-18
	8-13	Clay loam	CL	A-6	0	0	77-100	76-100	69-100	54-84	38-51	19-29
	13-18	Gravelly clay loam	CL	A-7-6	0	0	53-77	50-76	43-74	33-59	38-52	19-29
	18-24	Gravelly clay loam	GC	A-7-6	0	0	53-77	50-76	43-75	33-60	38-52	19-29
	24-39	Bedrock	---	---	0	0	0	0	0	0	---	---
152:												
Halyard---------	0-2	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-5	Clay loam	CH	A-7-6	0	0	100	100	84-97	64-77	40-57	19-29
	5-22	Clay	CH	A-7-6	0	0	76-100	74-100	67-100	54-93	53-76	29-44
	22-34	Gravelly clay	CH	A-7-6	0	0	51-75	49-74	39-74	34-68	53-76	29-44
	34-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Starboard-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-7	Loam	SC	A-4	0	0	77-100	76-100	64-100	45-78	23-45	4-18
	7-22	Gravelly clay loam	CL	A-7-6	0	0	53-77	50-76	43-71	33-56	40-55	19-25
	22-60	Bedrock	---	---	0	0	0	0	0	0	---	---
153:												
Halyard---------	0-3	Loam	CL	A-6	0	0	77-100	76-100	66-96	48-72	31-45	12-19
	3-16	Clay	CH	A-7	0	0	75-100	74-100	67-100	54-93	53-76	29-44
	16-31	Clay	CH	A-7	0	0	75-100	74-100	60-100	53-91	53-76	29-44
	31-39	Clay	CH	A-7	0	0	75-100	74-100	60-100	53-91	53-76	29-44
	39-60	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
153:												
Topdeck---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-5	Silt loam	CL	A-6	0	0	77-100	76-100	70-100	58-85	33-45	12-19
	5-14	Silty clay loam	CL	A-7-6	0	0	84-100	84-100	80-100	72-94	43-53	19-25
	14-24	Bedrock	---	---	0	0	0	0	0	0	---	---
155:												
Halyard---------	0-2	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-13	Gravelly loam	CL	A-6	0	0	53-77	51-76	43-71	32-54	29-39	12-19
	13-22	Gravelly clay	CH	A-7-6	0	0-1	52-76	48-74	45-74	36-70	52-71	29-44
	22-37	Clay	CH	A-7-6	0	0-22	71-100	70-100	63-100	52-93	53-76	29-44
	37-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Fiale-----------	0-2	Clay	CH	A-7	0	0	100	100	90-100	73-93	53-76	29-44
	2-4	Clay	CH	A-7	0	0	100	100	81-100	71-91	53-76	29-44
	4-14	Clay	CH	A-7	0	0	100	100	92-100	86-96	72-87	44-52
	14-26	Clay	CH	A-7	0	0	100	100	81-100	71-91	52-71	29-44
	26-60	Bedrock	---	---	0	0	0	0	0	0	---	---
160:												
Beaches.												
Abaft-----------	0-5	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-22	NP-4
	5-13	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-22	NP-4
	13-59	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-21	NP-4
180:												
Typic Argixerolls, very deep-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-15	Gravelly clay loam	GC	A-7-6	0	0-1	52-77	50-76	45-76	35-63	40-57	19-29
	15-60	Extremely gravelly clay loam	GC	A-2	0	0-15	10-30	6-27	5-27	4-21	40-54	19-29
190:												
Typic Xerofluvents---	0-2	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-24	Sandy loam	SM	A-2	0	0	78-100	77-100	59-85	31-48	16-26	1-7
	24-39	Extremely gravelly sand	GW	A-1	0	0	24-31	17-25	13-20	1-2	0-17	NP-1
	39-72	Extremely cobbly sand	GW	A-1	6-15	25-41	13-65	9-63	7-49	1-5	0-20	NP-1
Riverwash.												

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
200:												
Fantail, thin surface--------	0-1	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-3	Gravelly loam	GC	A-6	0	0	56-79	52-77	41-68	28-49	23-35	4-12
	3-7	Gravelly clay	GC	A-7	0	0	52-76	49-75	45-75	37-71	55-76	29-44
	7-13	Very gravelly clay	GC	A-7	0	0	40-59	26-49	23-49	19-46	55-76	29-44
	13-24	Very gravelly clay	GC	A-2-7	0	0	40-59	26-49	21-49	18-45	53-74	29-44
	24-29	Very gravelly clay	GC	A-2-7	0	0	40-59	26-49	21-49	18-45	52-72	29-44
	29-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Forestay--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-4	Gravelly loam	CL	A-7	0	0	54-77	50-75	41-68	30-52	33-45	12-19
	4-15	Gravelly loam	GC	A-6	0	0	54-77	50-75	42-71	31-53	33-45	12-19
	15-27	Very gravelly coarse sandy loam	GC	A-2	0	0	34-56	28-52	15-33	9-21	26-39	7-14
	27-35	Extremely gravelly clay	GC	A-2	0	0	31-52	24-47	20-47	17-43	53-76	29-44
	35-45	Gravelly clay	GC	A-7-6	0	0	52-76	47-73	38-73	33-66	53-76	29-44
	45-60	Extremely gravelly clay	GC	A-2-7	0	0	31-52	24-47	20-47	17-43	52-72	29-44
Fantail---------	0-2	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-4	Gravelly loam	SC	A-4	0	0	56-79	52-77	42-70	29-50	23-35	4-12
	4-12	Gravelly loam	GC	A-6	0	0-2	54-78	51-77	43-72	31-54	33-45	12-19
	12-22	Very gravelly loam	GC	A-2-7	0	1-2	40-60	27-51	22-47	16-36	33-45	12-19
	22-35	Very gravelly clay	GC	A-2-7	0	1-4	38-58	24-49	22-49	18-46	52-72	29-44
	35-39	Very gravelly clay	GC	A-7	0	1-4	38-58	24-49	19-47	17-44	54-74	29-45
	39-60	Bedrock	---	---	0	0	0	0	0	0	---	---
210:												
Lospinos--------	0-6	Gravelly sandy loam	SC-SM	A-2	0	0	52-76	50-75	36-61	17-32	0-30	NP-7
	6-15	Very gravelly loam	GC	A-2-6	0	0	29-52	26-50	22-49	16-37	24-43	7-18
	15-20	Very gravelly clay loam	GC	A-2-7	0	0-12	24-51	21-49	19-49	15-41	40-57	19-29
	20-24	Very gravelly loam	GC	A-2-6	0	19-26	15-46	12-44	11-42	8-32	31-43	12-19
	24-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Forestay--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-3	Silt loam	CL	A-7	0	0	77-100	75-100	67-97	58-86	33-45	12-19
	3-6	Loam	CL	A-6	0	0	77-100	75-100	64-94	46-71	33-45	12-19
	6-13	Gravelly clay	CH	A-7	0	0	52-76	47-73	38-73	33-66	53-76	29-44
	13-22	Extremely gravelly clay	GC	A-2	0	0	31-52	24-47	20-47	17-42	52-72	29-44
	22-60	Extremely gravelly clay	GC	A-2	0	0	31-52	24-47	20-47	17-42	52-72	29-44

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
210:												
Forestay, strongly sloping-------	0-2	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-3	Silt loam	CL	A-7	0	0	84-100	83-100	73-97	64-86	33-45	12-19
	3-6	Loam	CL	A-6	0	0	77-100	75-100	64-94	46-71	33-45	12-19
	6-13	Gravelly clay	CH	A-7	0	0	52-76	47-73	38-73	33-66	53-76	29-44
	13-22	Very gravelly clay	GC	A-7-6	0	0	31-52	24-47	20-47	17-42	52-72	29-44
	22-60	Extremely gravelly clay	GC	A-2-7	0	0	31-52	24-47	20-47	17-42	52-72	29-44
211:												
Lospinos--------	0-2	Gravelly loam	GC-GM	A-4	0	0	52-76	50-75	43-73	30-53	21-35	4-12
	2-8	Gravelly loam	GC-GM	A-4	0	0	52-76	50-75	42-70	29-51	21-35	4-12
	8-14	Very gravelly loam	GC	A-2-4	0	0-11	24-52	21-50	18-49	13-37	24-43	7-18
	14-23	Very gravelly clay loam	GC	A-2	0	0-11	24-51	21-49	19-49	15-41	40-57	19-29
	23-28	Extremely gravelly loam	GP-GC	A-2-6	0	2-31	10-28	6-25	6-25	4-19	30-40	12-19
	28-60	Bedrock	---	---	0	0	0	0	0	0	---	---
212:												
Lospinos--------	0-2	Gravelly clay loam	GC	A-7	0	0	51-76	49-75	45-75	35-63	39-56	19-28
	2-9	Very gravelly clay loam	GC	A-2	0	0	29-51	26-49	22-49	17-39	40-57	19-29
	9-19	Very gravelly clay loam	GC	A-2	0	0	29-51	26-49	22-48	17-39	40-57	19-29
	19-22	Very gravelly clay loam	GC	A-2-7	0	0	29-51	26-49	22-48	17-38	40-55	19-29
	22-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
230:												
Fantail---------	0-1	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-3	Gravelly loam	GC	A-6	0	0	56-79	52-77	45-74	33-55	33-45	12-19
	3-7	Gravelly clay	CH	A-7	0	0-2	52-76	48-75	44-75	36-70	52-71	29-44
	7-13	Very gravelly clay	GC	A-2-7, A	0	0-11	35-59	21-49	19-49	15-46	52-72	29-44
	13-24	Very gravelly clay	GC	A-2-7, A	0	0-11	35-59	21-49	19-49	15-46	52-72	29-44
	24-29	Very gravelly clay	GC	A-2-7, A	0	0-6	38-59	23-49	21-49	17-46	52-72	29-44
	29-60	Bedrock	---	---	0	0	0	0	0	0	---	---
240:												
Delphine--------	0-1	Very gravelly silt loam	GC-GM	A-2-4	0	0	28-51	25-48	22-46	17-37	17-28	1-7
	1-9	Extremely gravelly silt loam	GC-GM	A-2-6	0	0	12-28	8-25	7-25	6-20	18-31	3-12
	9-14	Extremely gravelly loam	GP-GC	A-2-6	0	0	12-51	8-48	7-45	5-34	30-40	12-19
	14-31	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
240:												
Miasotus--------	0-1	Gravelly silt loam	GC	A-4	0	0	50-75	48-74	44-72	36-59	23-31	7-12
	1-2	Very gravelly silt loam	GC	A-2	0	0	31-53	25-48	22-46	18-38	23-31	7-12
	2-8	Extremely gravelly silt loam	GC	A-2	0	0	29-51	25-48	22-47	19-41	29-39	12-19
	8-13	Extremely gravelly silty clay loam	GC	A-2	0	0	29-51	25-48	23-48	20-43	39-48	19-25
	13-19	Very gravelly silty clay loam	GC	A-2	0	0	28-50	25-48	21-47	19-42	39-52	19-29
	19-36	Bedrock	---	---	0	0	0	0	0	0	---	---
Yardarm---------	0-1	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-19	Clay loam	CL	A-7-6	0	0	75-100	73-100	66-100	52-83	40-57	19-29
	19-35	Gravelly clay loam	GC	A-7-6	0	0	50-75	48-73	40-72	31-57	39-53	19-29
	35-49	Bedrock	---	---	0	0	0	0	0	0	---	---
241:												
Delphine--------	0-7	Extremely gravelly silty clay loam	GC	A-2-6	0	0	12-51	8-48	8-48	7-46	39-48	19-25
	7-15	Extremely gravelly silty clay loam	GC	A-2-6	0	0	18-28	14-25	14-25	12-23	39-48	19-25
	15-31	Bedrock	---	---	0	0	0	0	0	0	---	---
Badland---------	---	---	---	---	---	---	---	---	---	---	---	---
Miasotus--------	0-3	Sandy loam	SC-SM	A-2	0	0	76-100	75-100	54-80	25-42	16-26	1-7
	3-6	Gravelly loam	GC	A-6	0	0	53-76	48-74	43-72	31-54	33-45	12-19
	6-13	Very gravelly clay loam	GC	A-2	0	0-13	25-51	20-48	16-46	13-37	39-52	19-29
	13-17	Very gravelly clay loam	GC	A-2	0	0-13	25-51	20-48	17-47	13-38	39-52	19-29
	17-33	Bedrock	---	---	0	0	0	0	0	0	---	---
250:												
Spinnaker-------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-1	Gravelly sandy loam	SC-SM	A-1	0	0	54-78	51-76	37-61	17-32	0-25	NP-7
	1-14	Gravelly sandy loam	SC-SM	A-2	0	0	54-78	51-76	36-61	17-32	0-25	NP-7
	14-28	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
250:												
Starboard-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-4	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	4-7	Loamy sand	SM	A-2	0	0	85-100	84-100	64-82	22-33	0-22	NP-4
	7-12	Loam	CL	A-6	0	0	78-100	76-100	65-94	48-71	33-45	12-19
	12-30	Clay loam	CL	A-7	0	0	76-100	76-100	66-100	50-80	40-59	19-29
	30-35	Gravelly loam	SC	A-6	0	0	55-78	51-76	45-73	32-55	33-45	12-19
	35-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
251:												
Spinnaker-------	0-1	Gravelly sandy loam	GC-GM	A-2	0	0	54-78	51-76	35-58	15-29	0-25	NP-7
	1-6	Gravelly sandy loam	GC-GM	A-2	0	0	54-78	51-76	35-58	15-29	0-25	NP-7
	6-16	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
260:												
Starboard-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-2	Gravelly loam	SC-SM	A-4	0	0	55-78	51-76	43-71	30-52	23-35	4-12
	2-12	Gravelly loam	GC	A-6	0	0	53-77	51-76	44-72	32-54	31-47	12-19
	12-30	Gravelly loam	GC	A-7	0	0	55-78	51-76	42-69	31-53	33-45	12-19
	30-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Spinnaker-------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-2	Gravelly loam	SC	A-4	0	0	54-78	51-76	41-68	28-50	18-30	4-12
	2-7	Gravelly loam	GC	A-6	0	0	54-78	51-76	41-68	28-49	18-30	4-12
	7-14	Gravelly loam	GC	A-6	0	0	54-78	51-76	45-74	33-56	29-38	12-19
	14-24	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
262:												
Halyard---------	0-6	Gravelly clay loam	CH	A-7	0	0	53-77	50-76	42-73	32-59	40-57	19-29
	6-20	Gravelly clay	CH	A-7	0	0	51-75	49-74	39-74	34-68	53-76	29-44
	20-29	Very gravelly clay	GC	A-7	0	0	29-51	25-49	20-49	18-44	53-76	29-44
	29-35	Clay	CH	A-7	0	0	76-100	74-100	67-100	54-93	53-76	29-44
	35-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Fantail---------	0-3	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	3-8	Clay loam	CL	A-7	0	0	78-100	76-100	65-99	50-79	43-57	19-29
	8-14	Clay loam	CH	A-7	0	0	78-100	76-100	62-95	48-76	39-53	19-29
	14-20	Gravelly clay	GC	A-7	0	0	59-79	49-75	44-75	36-70	52-72	29-44
	20-30	Very gravelly clay	GC	A-2-7	0	0	39-58	25-48	23-48	22-48	71-91	44-60
	30-60	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
263:												
Starboard-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-3	Loam	CL-ML	A-4	0	0	78-100	76-100	63-95	44-69	19-35	3-12
	3-18	Loam	CL	A-6	0	0	77-100	76-100	67-97	49-73	31-45	12-19
	18-39	Loam	CL	A-6	0	0	78-100	76-100	66-96	48-72	31-45	12-19
	39-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Pachic Argixerolls----	0-4	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	4-12	Gravelly loam	GC-GM	A-4	0	0	54-78	51-76	44-73	31-53	21-35	4-12
	12-20	Loam	CL	A-4	0	0	78-100	76-100	66-100	46-76	22-43	7-18
	20-41	Very gravelly clay loam	GC	A-2	0	0	29-52	27-50	24-50	19-42	39-53	19-29
	41-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
270:												
Topdeck---------	0-<1	Gravelly loam	GC-GM	A-4	0	0	55-78	51-76	44-73	30-53	23-35	4-12
	<1-6	Gravelly loam	GC	A-4	0	0	55-78	51-76	41-69	29-50	23-35	4-12
	6-10	Gravelly loam	GC	A-7	0	0	55-78	51-76	43-70	31-53	33-45	12-19
	10-20	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
Spinnaker-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-2	Gravelly sandy loam	SM	A-2	0	0	55-78	51-76	38-64	20-36	0-25	NP-7
	2-12	Gravelly sandy loam	SC-SM	A-1	0	0	55-78	51-76	37-61	17-32	0-25	NP-7
	12-22	Bedrock	---	---	0	0	0	0	0	0	---	---
271:												
Topdeck---------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-6	Gravelly loam	CL-ML	A-4	0	0-14	76-92	74-91	63-87	44-63	23-35	4-12
	6-12	Gravelly loam	GC	A-7	0	0	55-78	51-76	43-70	31-53	33-45	12-19
	12-18	Gravelly clay loam	GC	A-7	0	0	53-77	50-76	41-72	32-57	38-52	19-29
	18-31	Bedrock	---	---	0	0	0	0	0	0	---	---
Spinnaker-------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-2	Gravelly sandy loam	SM	A-1	0	0	55-78	51-76	39-65	20-37	0-25	NP-7
	2-10	Gravelly sandy loam	SC-SM	A-1	0	0	55-78	51-76	36-61	17-32	0-25	NP-7
	10-28	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
271:												
Tongva----------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-3	Gravelly loam	GC	A-4	0	0	53-77	51-76	41-69	29-50	23-35	4-12
	3-16	Gravelly loam	GC	A-6	0	0	53-77	51-76	43-71	31-54	33-45	12-19
	16-22	Gravelly clay loam	GC	A-7	0	0	53-77	50-76	45-76	35-62	39-53	19-29
	22-31	Gravelly clay loam	GC	A-7	0	0	53-77	50-76	43-74	33-59	38-52	19-29
	31-60	Bedrock	---	---	0	0	0	0	0	0	---	---
272:												
Topdeck---------	0-2	Gravelly sandy loam	SC-SM	A-2	0	0-15	75-92	74-91	52-73	24-38	0-30	NP-7
	2-8	Gravelly loam	CL	A-7	0	0-21	74-92	73-91	60-84	44-64	33-45	12-19
	8-12	Clay loam	CL	A-7	0	0	77-100	76-100	67-100	52-82	43-57	19-29
	12-26	Bedrock	---	---	0	0	0	0	0	0	---	---
Starboard-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-16	Loam	CL	A-6	0	0	100	100	88-97	64-73	30-40	12-19
	16-26	Loam	CL	A-7	0	0	100	100	83-92	61-70	31-47	12-19
	26-28	Clay loam	CL	A-7	0	0	100	100	84-97	65-78	43-57	19-29
	28-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
273:												
Topdeck, overblown------	0-7	Gravelly sandy loam	SC-SM	A-2	0	0	53-77	51-76	35-58	15-29	0-30	NP-7
	7-19	Gravelly clay loam	GC	A-7-6	0	0	53-77	50-76	45-76	35-63	41-56	19-28
	19-28	Bedrock	---	---	0	0	0	0	0	0	---	---
Typic Durixerolls, loamy subsoil	0-2	Sandy loam	SC-SM	A-2	0	0	80-100	79-100	57-84	27-46	21-35	4-13
	2-13	Loam	CL	A-4	0	0	80-100	79-100	66-90	47-65	24-33	7-12
	13-18	Loam	CL	A-4	0	0	80-100	79-100	66-90	47-65	23-31	7-12
	18-19	Duripan			---	---	---	---	---	---	---	---
	19-60	Bedrock	---	---	0	0	0	0	0	0	---	---
290:												
Rock outcrop.												
Topdeck---------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-4	Cobbly sandy loam	SC-SM	A-2	0	21-44	68-100	66-100	49-80	24-42	21-30	3-7
	4-7	Gravelly sandy loam	SC	A-2	0	0	55-78	51-76	38-63	19-34	26-37	7-13
	7-28	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
290:												
Starboard-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-16	Loam	CL	A-6	0	0	100	100	88-97	64-73	30-40	12-19
	16-26	Loam	CL	A-6	0	0	100	100	83-92	61-70	31-47	12-19
	26-28	Clay loam	CH	A-7	0	0	100	100	84-97	65-78	43-57	19-29
	28-60	Bedrock	---	---	0	0	0	0	0	0	---	---
291:												
Rock outcrop.												
Spinnaker-------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-2	Gravelly sandy loam	SM	A-1	0	0	53-77	51-76	39-65	20-37	0-25	NP-7
	2-10	Gravelly sandy loam	GC-GM	A-1	0	0	53-77	51-76	36-61	17-32	0-25	NP-7
	10-28	Bedrock	---	---	0	0	0	0	0	0	---	---
Topdeck---------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-2	Gravelly loam	SC-SM	A-4	0	0	53-77	51-76	44-73	31-53	23-35	4-12
	2-4	Gravelly loam	GC	A-6	0	0	53-77	51-76	44-73	32-55	33-45	12-19
	4-19	Gravelly clay loam	GC	A-7	0	0	53-77	50-76	45-76	35-63	38-52	19-29
	19-29	Bedrock	---	---	0	0	0	0	0	0	---	---
292:												
Rock outcrop.												
Buoy------------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-12	Fine sandy loam	SC-SM	A-4	0	0	87-100	86-100	74-96	30-45	0-30	NP-7
	12-18	Loam	CL	A-6	0	0	100	100	83-92	61-70	29-40	12-19
	18-33	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	33-41	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	41-45	Fine sandy loam	SC-SM	A-4	0	0	100	100	86-96	35-45	0-26	NP-7
	45-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Bereme----------	0-6	Loam	CL-ML	A-4	0	0	80-100	79-100	69-100	49-77	24-43	7-18
	6-10	Sandy loam	SC	A-4	0	0	80-100	79-100	58-79	29-43	24-35	7-12
	10-18	Very cobbly sandy loam	SC	A-2	0	19-38	39-77	37-76	26-58	12-29	26-37	7-12
	18-33	Bedrock	---	---	0	0	0	0	0	0	---	---
Typic Palexerolls----	0-2	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-5	Loam	SM	A-4	0	0	76-100	75-100	65-90	44-63	0-29	NP-4
	5-9	Gravelly loam	SC	A-4	0	0	52-76	50-75	40-68	28-50	21-35	4-12
	9-19	Gravelly clay	CH	A-7	0	0-13	46-74	43-73	39-73	32-68	52-71	29-44
	19-24	Very cobbly clay	CH	A-7	0	33-68	47-100	45-100	36-100	32-91	52-71	29-44
	24-60	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
300:												
Cumulic Haploxerolls---	0-9	Silt loam	ML	A-4	0	0	77-100	76-100	68-99	52-78	0-26	NP-7
	9-35	Silt loam	CL	A-6	0	0	77-100	76-100	71-100	59-86	31-45	12-19
	35-51	Fine sandy loam			0	0	77-100	76-100	70-100	31-50	33-45	12-19
	51-67	Extremely gravelly loamy sand			0	0	14-28	10-25	7-20	3-8	0-27	NP-3
310:												
Livigne---------	0-2	Loam	CL	A-7	0	0	77-100	75-100	62-91	45-69	33-45	12-19
	2-6	Clay	CH	A-7	0	0	75-100	73-100	67-100	54-94	53-76	29-44
	6-18	Loam	CL	A-6	0	0	77-100	75-100	62-92	46-70	30-40	12-19
	18-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Macool----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-2	Loam	CL-ML	A-4	0	0	77-100	75-100	61-95	41-69	20-35	1-12
	2-6	Loam	CL	A-6	0	0	77-100	75-100	66-97	48-73	33-45	12-19
	6-12	Loam	CL	A-7	0	0	77-100	75-100	62-92	46-70	33-45	12-19
	12-17	Clay loam	CL	A-7	0	0	76-100	74-100	65-100	49-80	40-59	19-29
	17-28	Clay	CH	A-7	0	0	75-100	73-100	61-100	53-92	52-76	29-44
	28-30	Clay	CH	A-7	0	0	75-100	73-100	66-100	54-94	52-76	29-44
	30-38	Clay	CH	A-7	0	0	75-100	73-100	66-100	54-94	52-72	29-44
	38-50	Clay loam	CL	A-7	0	0	76-100	74-100	63-97	48-78	39-53	19-29
	50-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Badland.												
311:												
Livigne---------	0-2	Clay loam	CL	A-7	0	0	100	100	90-100	70-83	43-57	19-29
	2-17	Clay loam	CL	A-7	0	0	100	100	84-97	65-78	40-57	19-29
	17-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Gunwale---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-2	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-4	Loam	CL	A-6	0	0	77-100	75-100	66-97	47-72	33-45	12-19
	4-11	Sandy loam	SC	A-4	0	0	77-100	76-100	56-82	28-45	23-33	7-13
	11-22	Sandy clay loam	SC	A-7	0	0	76-100	75-100	64-93	38-58	39-49	19-25
	22-60	Bedrock	---	---	0	0	0	0	0	0	---	---
321:												
Rudder----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-4	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	4-8	Gravelly sandy loam	SC-SM	A-2	0	0-2	53-78	51-77	35-59	15-29	0-26	NP-7
	8-22	Gravelly sandy loam	SC	A-2	0	0-2	53-78	51-77	38-64	19-35	23-33	7-13
	22-28	Gravelly sandy loam	GC	A-2	0	0-2	53-78	51-77	38-63	19-34	23-33	7-13
	28-42	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
321:												
Spinnaker, moist	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-2	Gravelly sandy loam	SM	A-1	0	0	53-77	51-76	39-65	20-37	0-25	NP-7
	2-10	Gravelly sandy loam	GC-GM	A-1	0	0	53-77	51-76	36-61	17-32	0-25	NP-7
	10-28	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
650:												
Abaft-----------	0-5	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-22	NP-4
	5-13	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-22	NP-4
	13-59	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-21	NP-4
651:												
Abaft-----------	0-5	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-22	NP-4
	5-13	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-22	NP-4
	13-59	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-21	NP-4
Abaft, moderately steep---------	0-5	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-22	NP-4
	5-13	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-22	NP-4
	13-59	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-21	NP-4
660:												
Pachic Haploxerolls---	0-2	Loam	CL-ML	A-4	0	0	100	100	83-93	58-68	21-35	4-12
	2-20	Loam	CL-ML	A-4	0	0	100	100	83-93	58-68	21-35	4-12
	20-33	Loamy sand	SM	A-2	0	0	100	100	76-83	26-33	0-22	NP-4
	33-41	Loam	CL-ML	A-4	0	0	100	100	83-93	58-68	20-31	4-12
	41-63	Gravelly sand			0	0	59-81	57-80	43-62	4-7	0-17	NP-1
670:												
Ironshot--------	0-7	Loam	CL	A-4	0	0	100	100	81-91	56-66	23-37	4-12
	7-14	Fine sandy loam	SC	A-4	0	0	100	100	83-97	30-44	16-31	1-12
	14-20	Fine sandy loam	SC-SM	A-4	0	0	100	100	87-95	37-45	16-25	1-7
	20-31	Loamy fine sand	SM	A-2	0	0	100	100	92-98	32-38	0-21	NP-4
	31-66	Loamy fine sand	SM	A-2	0	0	100	100	93-99	33-39	0-21	NP-4
Ahoy------------	0-2	Loam	CL-ML	A-4	0	0	100	100	81-91	55-65	20-34	1-9
	2-16	Loam	CL	A-4	0	0	80-100	79-100	63-92	43-67	21-37	3-12
	16-20	Fine sandy loam	SC-SM	A-4	0	0	100	100	85-95	35-45	0-28	NP-7
	20-60	Clay	CH	A-7	0	0	100	100	81-100	71-91	52-71	29-44
680:												
Bereme----------	0-1	Sandy loam	SC-SM	A-4	0	0	100	100	73-87	34-48	17-35	1-12
	1-12	Sandy loam	SC	A-4	0	0	100	100	75-81	37-43	24-35	7-12
	12-15	Sandy loam	SC	A-4	0	0	100	100	75-81	37-43	24-35	7-12
	15-24	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
681:												
Bereme----------	0-2	Gravelly sandy loam	SC-SM	A-2	0	0	55-79	53-78	38-62	18-33	0-30	NP-7
	2-15	Gravelly sandy loam	SC	A-2	0	0	55-79	53-78	40-65	20-35	24-37	7-13
	15-29	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
681:												
Rock outcrop.												
690:												
Typic Xerorthents----	0-5	Gravelly loam	GC-GM	A-4	0	0	57-80	55-79	48-76	33-55	20-30	4-12
	5-10	Very gravelly fine sandy loam	GC-GM	A-1	0	0	34-58	31-56	27-53	11-25	16-25	1-7
	10-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Ultic Haploxeralfs---	0-4	Slightly decomposed plant material			0	0	0	0	0	0	0-0	NP
	4-10	Loamy sand	SM	A-2	0	0	81-93	80-93	62-78	22-32	0-22	NP-4
	10-31	Sandy clay	SC	A-7	0	0	79-92	78-92	54-82	32-57	48-67	25-41
	31-39	Sandy clay	SC	A-7	0	0	79-92	78-92	58-88	37-62	48-67	25-41
	39-48	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
700:												
Ahoy------------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-4	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	4-13	Silt loam	CL	A-4	0	0	93-100	93-100	83-96	67-78	24-37	7-12
	13-20	Silty clay loam	CL	A-7	0	0	86-100	85-100	81-100	72-97	40-57	19-29
	20-26	Very fine sandy loam	CL	A-4	0	0	93-100	93-100	81-100	43-61	17-35	1-12
	26-33	Clay	CH	A-7	0	0	78-100	77-100	69-100	56-93	53-76	29-44
	33-60	Clay	CH	A-7	0	0	78-100	77-100	71-100	67-96	70-81	44-52
Hawser, moderately steep---------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-7	Clay	CH	A-7	0	0	78-100	77-100	69-100	56-93	53-78	29-44
	7-16	Clay	CH	A-7	0	0	78-100	77-100	69-100	56-93	53-76	29-44
	16-60	Clay	CH	A-7	0	0	78-100	77-100	71-100	57-95	53-76	29-44
Ahoy, moderately steep----------	0-2	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-16	Sandy loam	SC	A-6	0	0	80-100	79-100	56-77	26-40	26-41	7-14
	16-18	Loamy sand	SM	A-2	0	0	87-100	86-100	65-82	23-33	0-27	NP-4
	18-41	Clay	CH	A-7	0	0	78-100	77-100	62-100	55-91	53-76	29-44
	41-61	Clay	CH	A-7	0	0	78-100	77-100	62-100	55-91	51-70	29-44
Hawser----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-7	Clay	CH	A-7	0	0	78-100	77-100	70-100	57-94	53-78	29-44
	7-18	Clay	CH	A-7	0	0	78-100	77-100	63-100	55-91	53-76	29-44
	18-37	Clay	CH	A-7	0	0	78-100	77-100	59-97	54-90	55-78	29-44
	37-41	Clay	CH	A-7	0	0	78-100	77-100	59-97	54-90	55-78	29-44
	41-60	Clay	CH	A-7	0	0	78-100	77-100	62-100	55-91	51-70	29-44

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
710:												
Windage	0-2	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-5	Loam	CL	A-6	0	0	76-100	75-100	65-96	47-72	31-45	12-19
	5-12	Clay loam	CH	A-7	0	0	76-100	75-100	62-97	48-77	40-57	19-29
	12-24	Clay	CH	A-7	0	0	74-100	73-100	66-100	54-93	53-76	29-44
	24-31	Gravelly clay	CH	A-7	0	0	50-74	47-73	38-73	34-67	52-72	29-44
	31-37	Clay	CH	A-7	0	0	74-100	73-100	56-97	51-90	54-74	29-45
	37-60	Clay	CH	A-7	0	0	74-100	73-100	60-100	52-91	52-72	29-44
Typic Xerorthents	0-5	Gravelly loam	GC-GM	A-4	0	0	57-80	55-79	48-76	33-55	20-30	4-12
	5-10	Very gravelly fine sandy loam	GC-GM	A-1	0	0	34-58	31-56	27-53	11-25	16-25	1-7
	10-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Buoy	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-12	Silt loam	CL-ML	A-4	0	0	100	100	88-98	69-79	23-35	4-12
	12-47	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-71	29-44
	47-51	Clay loam	CL	A-7	0	0	100	100	84-97	64-77	39-53	19-29
	51-60	Bedrock	---	---	0	0	0	0	0	0	---	---
711:												
Windage	0-2	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-7	Loam	CL	A-6	0	0	76-100	75-100	63-92	46-70	31-45	12-19
	7-22	Clay loam	CH	A-7	0	0	76-100	75-100	62-97	48-77	40-57	19-29
	22-31	Clay	CH	A-7	0	0	74-100	73-100	59-100	52-91	53-76	29-44
	31-39	Clay	CH	A-7	0	0	74-100	73-100	60-100	52-91	52-72	29-44
	39-43	Clay	CH	A-7	0	0	74-100	73-100	60-100	52-91	52-72	29-44
	43-51	Gravelly clay loam	CL	A-7	0	0	51-76	49-75	42-73	32-58	39-53	19-29
	51-60	Very paragravelly clay loam	GC	A-2	0	0	51-76	49-75	42-73	32-58	39-53	19-29
Hawser	0-4	Silty clay	CH	A-7	0	0	100	100	99-100	94-100	53-76	29-44
	4-18	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	18-28	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	28-35	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	35-41	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	41-60	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
Typic Haploxeralfs	0-2	Silt loam	CL	A-6	0	0	100	100	92-100	76-85	30-40	12-19
	2-8	Silt loam	CL	A-6	0	0	100	100	89-98	77-86	30-40	12-19
	8-20	Clay loam	CL	A-7	0	0	100	100	82-95	63-76	39-53	19-29
	20-31	Gravelly clay	CH	A-7	0	0	54-78	52-77	47-77	38-72	52-72	29-44
	31-60	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
712:												
Windage	0-<1	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-2	Clay loam	CL	A-7	0	0	76-100	75-100	66-100	52-82	40-57	19-29
	2-10	Clay loam	CH	A-7	0	0	76-100	75-100	62-97	48-77	40-57	19-29
	10-18	Clay	CH	A-7	0	0	100	100	90-100	73-93	53-76	29-44
	18-30	Clay	CH	A-7	0	0	100	100	77-97	70-90	54-74	29-45
	30-43	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	43-60	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
Buoy	0-9	Loam	CL-ML	A-4	0	0	80-100	79-100	67-95	47-69	23-35	4-12
	9-14	Loam	CL	A-7	0	0	80-100	79-100	65-92	48-70	33-45	12-19
	14-28	Clay	CH	A-7	0	0	78-100	77-100	63-100	55-91	52-71	29-44
	28-41	Gravelly clay	CH	A-7	0	0	55-78	52-77	43-77	37-70	52-71	29-44
	41-60	Bedrock	---	---	0	0	0	0	0	0	---	---
713:												
Windage	0-1	Clay loam	CL	A-7	0	0	76-100	75-100	66-100	52-82	40-57	19-29
	1-28	Clay	CH	A-7	0	0	74-100	73-100	68-100	55-95	53-76	29-44
	28-35	Clay	CH	A-7	0	0	74-100	73-100	60-100	52-91	53-76	29-44
	35-41	Clay	CH	A-7	0	0	74-100	73-100	68-100	55-95	52-72	29-44
	41-60	Very paragravelly clay	GC	A-2	0	0	49-74	46-73	43-73	35-69	52-72	29-44
Ballast	0-4	Loam	CL	A-6	0	0	100	100	87-96	63-72	31-45	12-19
	4-12	Clay loam	CL	A-7	0	0	100	100	86-99	66-79	40-57	19-29
	12-24	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	24-35	Bedrock	---	---	0	0	0	0	0	0	---	---
721:												
Buoy	0-15	Gravelly loam	GC-GM	A-4	0	0	59-81	55-79	48-76	33-55	20-31	4-12
	15-18	Sandy loam	SC-SM	A-4	0	0	100	100	73-81	35-43	16-26	1-7
	18-45	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	45-60	Bedrock	---	---	0	0	0	0	0	0	---	---
722:												
Buoy, cobbly	0-5	Sandy loam	SC	A-2	0	0	81-100	79-100	59-82	29-45	26-37	7-13
	5-16	Sandy clay loam	CL	A-6	0	0	100	100	82-89	45-52	31-40	13-19
	16-24	Clay	CH	A-7	0	0	81-100	77-100	69-100	56-93	52-72	29-44
	24-43	Clay	CH	A-7	0	0	81-100	77-100	63-100	55-91	52-72	29-44
	43-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
723:												
Buoy	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-4	Sandy loam	SM	A-4	0	0	100	100	76-84	40-48	20-30	1-7
	4-18	Loamy sand	SM	A-2	0	0	100	100	76-83	27-34	0-22	NP-4
	18-26	Loamy sand	SM	A-2-4	0	0	84-100	80-100	61-83	21-34	0-22	NP-4
	26-39	Sandy clay	CH	A-7	0	0	82-100	78-100	54-89	32-62	48-68	25-41
	39-53	Clay	CH	A-7	0	0	81-100	77-100	63-100	55-91	52-72	29-44
	53-60	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
723:												
Lithic Argixerolls----	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-1	Loamy sand	SM	A-2	0	0	100	100	76-83	26-33	0-27	NP-4
	1-12	Sandy loam	SC-SM	A-4	0	0	100	100	72-88	34-50	17-37	1-13
	12-16	Clay loam	CH	A-7	0	0	100	100	82-95	63-76	40-57	19-29
	16-26	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
724:												
Buoy------------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-12	Fine sandy loam	SC-SM	A-4	0	0	87-100	86-100	76-96	33-45	20-30	2-7
	12-18	Loam	CL	A-6	0	0	100	100	83-92	61-70	29-40	12-19
	18-33	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	33-41	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	41-45	Fine sandy loam	SC-SM	A-4	0	0	100	100	89-96	38-45	17-26	2-7
	45-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
Ballast---------	0-5	Sandy clay loam	CL	A-7	0	0	100	100	79-87	46-54	40-53	19-25
	5-28	Sandy clay	CH	A-7	0	0	100	100	69-89	42-62	49-72	25-40
	28-31	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	31-39	Extremely paragravelly clay	CH	A-7	0	0	100	100	77-97	70-90	54-74	29-45
	39-49	Bedrock	---	---	0	0	0	0	0	0	---	---
Rock outcrop.												
725:												
Buoy------------	0-6	Gravelly fine sandy loam	SM	A-4	0	0	59-81	56-79	49-76	25-41	18-26	2-7
	6-18	Gravelly fine sandy loam	SC-SM	A-2	0	0	59-81	56-79	49-75	21-35	17-25	2-7
	18-30	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-71	29-44
	30-41	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-71	29-44
	41-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Typic Haploxeralfs---	0-2	Silt loam	CL	A-6	0	0	100	100	92-100	76-85	30-40	12-19
	2-8	Silt loam	CL	A-6	0	0	100	100	89-98	77-86	30-40	12-19
	8-20	Clay loam	CL	A-7	0	0	100	100	82-95	63-76	39-53	19-29
	20-31	Gravelly clay	CH	A-7	0	0	54-78	52-77	47-77	38-72	52-72	29-44
	31-60	Bedrock	---	---	0	0	0	0	0	0	---	---
730:												
Lodestone, very deep-----------	0-2	Clay loam	CH	A-7	0	0	77-100	75-100	62-95	48-76	40-57	19-29
	2-12	Clay	CH	A-7	0	0	75-100	74-100	67-100	54-93	52-72	29-44
	12-26	Clay	CH	A-7	0	0	75-100	74-100	61-100	53-91	52-72	29-44
	26-33	Clay	CH	A-7	0	0	75-100	74-100	61-100	53-91	52-72	29-44
	33-51	Clay	CH	A-7	0	0	100	100	77-97	70-90	54-74	29-45
	51-60	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
730:												
Ballast	0-7	Clay loam	CH	A-7	0	0	100	100	84-97	64-77	40-57	19-29
	7-11	Clay	CH	A-7	0	0	100	100	90-100	73-93	53-76	29-44
	11-26	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	26-39	Bedrock	---	---	0	0	0	0	0	0	---	---
Buoy	0-3	Fine sandy loam	SC-SM	A-2	0	0	81-93	79-93	73-93	31-43	23-32	7-13
	3-18	Gravelly fine sandy loam	SC	A-2	0	0	59-81	56-79	49-76	20-35	24-34	7-14
	18-24	Very gravelly clay loam	GC	A-7	0	0	36-58	30-54	25-52	19-42	39-53	19-29
	24-41	Clay	CH	A-7	0	0	79-100	77-100	63-100	55-91	52-72	29-44
	41-60	Bedrock	---	---	0	0	0	0	0	0	---	---
761:												
Lodestone	0-3	Clay loam	CH	A-7	0	0	100	100	84-97	64-77	43-59	19-29
	3-11	Clay	CH	A-7	0	0	100	100	90-100	73-93	53-74	29-44
	11-23	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	23-30	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	30-39	Bedrock	---	---	0	0	0	0	0	0	---	---
Typic Xerorthents	0-5	Gravelly loam	GC-GM	A-4	0	0	57-80	55-79	48-76	33-55	20-30	4-12
	5-10	Very gravelly fine sandy loam	GC-GM	A-1	0	0	34-58	31-56	27-53	11-25	16-25	1-7
	10-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Windage	0-10	Sandy clay loam	SC	A-6	0	0	76-100	75-100	63-90	34-52	33-45	13-19
	10-30	Gravelly sandy clay	SC	A-7	0	0	51-75	48-74	41-74	25-54	47-70	25-40
	30-33	Gravelly sandy clay	SC	A-7	0	0	51-75	48-74	38-73	23-51	49-72	25-40
	33-60	Very paragravelly sandy clay loam	GC	A-2	0	0	30-52	26-50	23-50	12-31	32-47	13-25
762:												
Lodestone	0-8	Clay loam	CH	A-7	0	0	100	100	81-94	63-76	43-59	19-29
	8-24	Clay	CH	A-7	0	0	100	100	81-100	71-91	53-74	29-44
	24-30	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	30-39	Bedrock	---	---	0	0	0	0	0	0	---	---
Ballast	0-2	Loam	CL	A-6	0	0	77-100	76-100	65-94	47-71	31-45	12-19
	2-8	Clay loam	CL	A-7	0	0	77-100	76-100	67-100	52-82	40-57	19-29
	8-12	Clay loam	CL	A-7	0	0	77-100	76-100	63-96	48-76	39-53	19-29
	12-19	Clay	CH	A-7	0	0	75-100	74-100	68-100	55-94	52-72	29-44
	19-23	Clay	CH	A-7	0	0	75-100	74-100	62-100	53-92	52-72	29-44
	23-48	Bedrock	---	---	0	0	0	0	0	0	---	---
Halyard	0-8	Silt loam	CL-ML	A-4	0	0	59-89	57-88	51-88	40-71	23-37	4-12
	8-13	Silt loam	CL	A-6	0	0	59-89	57-88	52-88	43-75	33-47	12-19
	13-22	Gravelly clay loam	CH	A-7	0	1-13	49-77	47-76	40-70	31-56	40-53	19-25
	22-30	Very gravelly clay	GC	A-2	0	0-16	25-53	20-50	18-50	14-46	52-74	28-43
	30-39	Extremely gravelly clay loam	GC	A-2	0	1-16	20-53	14-50	12-48	9-39	42-59	19-29
	39-60	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
763:												
Hawser----------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-12	Clay	CH	A-7	0	0	100	100	81-100	71-91	53-78	29-44
	12-39	Clay	CH	A-7	0	0	100	100	90-100	73-93	53-76	29-44
	39-47	Fine sandy loam	SC	A-6	0	0	100	100	88-96	36-44	26-39	7-14
	47-60	Fine sandy loam	SC	A-6	0	0	100	100	87-95	36-44	26-39	7-14
Lodestone, very deep-----------	0-2	Clay loam	CH	A-7	0	0	100	100	82-95	63-76	40-57	19-29
	2-8	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	8-18	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	18-26	Clay	CH	A-7	0	0	100	100	77-97	70-90	54-74	29-45
	26-39	Silty clay	CH	A-7	0	0	100	100	85-100	83-100	52-71	29-44
	39-59	Silty clay	CH	A-7	0	0	100	100	85-100	83-100	52-71	29-44
Buoy------------	0-<1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	<1-9	Loam	CL-ML	A-4	0	0	100	100	84-92	57-65	20-30	1-7
	9-14	Loam	CL	A-6	0	0	100	100	83-92	61-70	29-40	12-19
	14-28	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	28-41	Gravelly clay	CH	A-7	0	0	61-81	52-77	43-77	37-70	52-72	29-44
	41-60	Bedrock	---	---	0	0	0	0	0	0	---	---
780:												
Typic Argixerolls----	0-1	Sandy loam	SC-SM	A-4	0	0	100	100	71-79	34-42	17-30	1-7
	1-20	Gravelly sandy loam	SC	A-2	0	0	54-78	52-77	36-60	17-31	26-39	7-14
	20-28	Gravelly sandy clay loam	GC	A-2	0	0	53-77	51-76	38-67	20-42	33-48	14-25
	28-31	Gravelly sandy clay	SC	A-7	0	0	52-76	50-75	39-73	24-51	48-67	25-41
	31-60	Bedrock	---	---	0	0	0	0	0	0	---	---
800:												
Ballast---------	0-16	Clay loam	CL	A-7	0	0	100	100	88-100	69-82	40-57	19-29
	16-20	Clay	CH	A-7	0	0	100	100	90-100	73-93	53-76	29-44
	20-28	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	28-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Halyard---------	0-6	Loam	CL	A-4	0	0	77-100	76-100	62-92	43-66	23-37	4-12
	6-11	Clay loam	CL	A-7	0	0	77-100	76-100	67-100	52-82	40-57	19-29
	11-22	Clay	CH	A-7	0	0	75-100	74-100	67-100	54-93	53-76	29-44
	22-29	Clay	CH	A-7	0	0	75-100	74-100	60-100	53-91	53-76	29-44
	29-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Typic Argixerolls----	0-6	Silty clay loam	CL	A-7	0	0	100	100	96-100	86-99	40-57	19-29
	6-20	Clay	CH	A-7	0	0	100	100	90-100	73-93	53-76	29-44
	20-37	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
850:												
Typic Natrixeralfs---	0-2	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-3	Silt loam	CL	A-4	0	0	100	100	86-96	68-78	20-32	4-12
	3-6	Silt loam	CL	A-6	0	0	100	100	92-100	76-85	30-40	12-19
	6-12	Silty clay loam	CL	A-7	0	0	100	100	91-100	81-94	39-53	19-29
	12-22	Silty clay loam	CL	A-7	0	0	100	100	91-100	81-94	39-53	19-29
	22-24	Silty clay loam	CL	A-7	0	0	100	100	96-100	86-99	39-53	19-29
	24-60	Bedrock	---	---	0	0	0	0	0	0	---	---
Typic Haploxeralfs, dry-----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-3	Silt loam	CL-ML	A-4	0	0	100	100	85-95	66-76	0-26	NP-7
	3-8	Silty clay loam	CL	A-7	0	0	100	100	96-100	86-99	39-53	19-29
	8-18	Silty clay loam	CH	A-7	0	0	100	100	84-97	74-87	39-53	19-29
	18-28	Silty clay loam	CL	A-7	0	0	100	100	98-100	87-100	39-53	19-29
	28-47	Silt loam	CL	A-6	0	0	100	100	89-98	77-86	30-40	12-19
	47-49	Silt loam	CL	A-6	0	0	100	100	89-98	77-86	30-40	12-19
	49-59	Bedrock	---	---	0	0	0	0	0	0	---	---
851:												
Typic Haploxeralfs, dry-----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-3	Silt loam	CL-ML	A-4	0	0	100	100	85-95	66-76	0-26	NP-7
	3-8	Silty clay loam	CL	A-7	0	0	100	100	96-100	86-99	39-53	19-29
	8-18	Silty clay loam	CH	A-7	0	0	100	100	84-97	74-87	39-53	19-29
	18-28	Silty clay loam	CL	A-7	0	0	100	100	98-100	87-100	39-53	19-29
	28-47	Silt loam	CL	A-6	0	0	100	100	89-98	77-86	30-40	12-19
	47-49	Silt loam	CL	A-6	0	0	100	100	89-98	77-86	30-40	12-19
	49-59	Bedrock	---	---	0	0	0	0	0	0	---	---
Typic Natrixeralfs---	0-2	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	2-4	Silt loam	CL	A-6	0	0	100	100	92-100	76-85	30-40	12-19
	4-16	Silty clay loam	CL	A-7	0	0	100	100	91-100	81-94	39-53	19-29
	16-31	Silty clay	CH	A-7	0	0	100	100	97-100	92-100	52-72	29-44
	31-60	Silty clay	CH	A-7	0	0	100	100	97-100	92-100	52-72	29-44
852:												
Lithic Argixerolls, dry-----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-2	Loam	CL	A-4	0	0	77-100	76-100	64-90	45-65	26-35	7-12
	2-4	Gravelly clay loam	GC	A-7	0	0	53-77	50-76	45-76	35-63	43-57	19-29
	4-16	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
852:												
Typic Natrixeralfs---	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-5	Silty clay loam	CL	A-7	0	0	100	100	91-100	81-94	39-53	19-29
	5-12	Silty clay	CH	A-7	0	0	100	100	94-100	90-100	52-72	29-44
	12-15	Silty clay	CH	A-7	0	0	100	100	94-100	90-100	52-72	29-44
	15-31	Bedrock	---	---	0	0	0	0	0	0	---	---
853:												
Rock outcrop.												
Typic Haploxeralfs, dry-----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-3	Silt loam	CL-ML	A-4	0	0	100	100	85-95	66-76	0-26	NP-7
	3-8	Silty clay loam	CL	A-7	0	0	100	100	96-100	86-99	39-53	19-29
	8-18	Silty clay loam	CH	A-7	0	0	100	100	84-97	74-87	39-53	19-29
	18-28	Silty clay loam	CL	A-6	0	0	100	100	98-100	87-100	39-53	19-29
	28-47	Silt loam	CL	A-6	0	0	100	100	89-98	77-86	30-40	12-19
	47-49	Silt loam	CL		0	0	100	100	89-98	77-86	30-40	12-19
	49-59	Bedrock	---	---	0	0	0	0	0	0	---	---
860:												
Topdeck---------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-5	Silt loam	CL	A-6	0	0	77-100	76-100	70-100	58-85	33-45	12-19
	5-14	Silty clay loam	CL	A-7-6	0	0	84-100	84-100	80-100	72-94	43-53	19-25
	14-24	Bedrock	---	---	0	0	0	0	0	0	---	---
Halyard---------	0-3	Loam	CL	A-6	0	0	77-100	76-100	66-96	48-72	31-45	12-19
	3-16	Clay	CH	A-7	0	0	75-100	74-100	67-100	54-93	53-76	29-44
	16-31	Clay	CH	A-7	0	0	75-100	74-100	60-100	53-91	53-76	29-44
	31-39	Clay	CH	A-7	0	0	75-100	74-100	60-100	53-91	53-76	29-44
	39-60	Bedrock	---	---	0	0	0	0	0	0	---	---
861:												
Rock outcrop.												
Topdeck---------	0-<1	Gravelly loam	GC-GM	A-4	0	0	55-78	51-76	44-73	30-53	23-35	4-12
	<1-6	Gravelly loam	GC	A-4	0	0	55-78	51-76	41-69	29-50	23-35	4-12
	6-10	Gravelly loam	GC	A-7	0	0	55-78	51-76	43-70	31-53	33-45	12-19
	10-20	Bedrock	---	---	0	0	0	0	0	0	---	---
Spinnaker-------	0-1	Slightly decomposed plant material	PT	A-8	0	0	0	0	0	0	0-0	NP
	1-2	Gravelly sandy loam	SM	A-2	0	0	55-78	51-76	38-64	20-36	0-25	NP-7
	2-12	Gravelly sandy loam	SC-SM	A-1	0	0	55-78	51-76	37-61	17-32	0-25	NP-7
	12-22	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
900:												
Petrocalcic Palexeralfs----	0-<1	Very fine sandy loam	CL	A-6	0	0	100	100	92-100	54-62	26-39	7-14
	<1-4	Clay	CH	A-7	0	0	100	100	91-100	74-94	52-72	29-44
	4-11	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	11-31	Petrocalcic material			---	---	---	---	---	---	---	---
	31-60	Pertrocalcic material	SM		---	---	---	---	---	---	---	---
910:												
Hawser----------	0-2	Clay loam	CH	A-7	0	0	100	100	81-94	63-76	40-57	19-29
	2-17	Clay	CH	A-7	0	0	100	100	90-100	73-93	52-72	29-44
	17-60	Clay	CH	A-7	0	0	100	100	90-100	74-94	52-72	29-44
Hawser, moderately steep---------	0-2	Clay loam	CH	A-7	0	0	100	78-100	63-94	49-76	40-57	19-29
	2-17	Clay	CH	A-7	0	0	78-100	77-100	69-100	56-93	52-72	29-44
	17-60	Clay	CH	A-7	0	0	78-100	77-100	62-100	55-91	52-72	29-44
920:												
Typic Durixerolls----	0-1	Sandy loam	SC-SM	A-4	0	0	100	100	73-81	35-43	17-28	1-7
	1-19	Sandy loam	SC-SM	A-4	0	0	100	100	73-81	35-43	17-28	1-7
	19-23	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	23-27	Fine sandy loam	SC	A-4	0	0	100	100	87-97	34-44	20-31	4-12
	27-30	Duripan			---	---	---	---	---	---	---	---
	30-60	Bedrock	---	---	0	0	0	0	0	0	---	---
921:												
Typic Durixerolls----	0-20	Sandy loam	SC-SM	A-4	0	0	100	100	68-84	30-46	17-35	1-13
	20-31	Clay	CH	A-7	0	0	100	100	81-100	70-90	52-72	29-44
	31-33	Duripan			---	---	---	---	---	---	---	---
	33-60	Bedrock	---	---	0	0	0	0	0	0	---	---
930:												
Fluventic Haploxerolls---	0-8	Sandy clay loam	SC	A-6	0	0	100	100	84-91	45-52	33-43	13-19
	8-15	Sandy loam	SC	A-6	0	0	100	100	71-79	33-41	26-36	7-14
	15-30	Loamy sand	SM	A-2	0	0	100	100	76-83	26-33	0-22	NP-4
	30-31	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	31-35	Loamy sand	SM	A-2	0	0	100	100	76-83	26-33	0-22	NP-4
	35-39	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-72	29-44
	39-60	Loamy sand	SM	A-2	0	0	100	100	77-84	27-34	0-22	NP-4
940:												
Typic Durixeralfs----	0-1	Fine sandy loam	SC	A-2	0	0	80-93	79-93	69-90	27-41	20-30	4-12
	1-2	Clay loam	CL	A-7	0	0	79-100	78-100	67-99	52-79	39-53	19-29
	2->2	Duripan			0	0	0	0	0	0	0-0	NP
	>2-12	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 11.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
950:												
Ahoy------------	0-1	Silt loam	CL	A-6	0	0	93-100	93-100	84-100	70-85	31-47	12-19
	1-11	Silty clay loam	CL	A-7	0	0	86-100	85-100	85-100	75-100	39-56	19-28
	11-18	Fine sandy loam	SC	A-6	0	0	93-100	93-100	81-95	33-43	25-34	7-14
	18-60	Clay	CH	A-7	0	0	100	100	82-100	71-91	52-71	29-44
Ironshot--------	0-15	Sandy loam	SC-SM	A-4	0	0	100	100	68-84	30-46	17-37	1-13
	15-26	Loamy sand	SM	A-2	0	0	100	100	76-83	26-33	0-22	NP-4
	26-60	Sand	SP-SM	A-3	0	0	100	100	76-79	7-10	0-17	NP-1
970:												
Dune land.												
980:												
Lithic Haploxeralfs---	0-9	Loamy sand	SM	A-2	0	0	81-100	80-100	61-83	21-34	0-22	NP-4
	9-15	Gravelly sandy loam	SC	A-2	0	0	58-80	56-79	42-66	21-36	23-32	7-13
	15-25	Bedrock	---	---	0	0	0	0	0	0	---	---

Table 12.--Physical Properties of the Soils

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
100:							
Fiale	0-2	0	0.05-0.10	42.00-141.00	0	0	30-100
	2-4	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	1.0-4.0
	4-15	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	15-24	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	24-28	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	28-34	20-27	1.45-1.55	4.20-14.10	0.16-0.18	3.0-6.0	0.3-0.5
	34-48	0	---	1.41-4.23	0.01-0.02	0	0
	48-60	0	---	1.41-4.23	0.01-0.02	0	0
Tongva	0-6	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	6-18	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	18-24	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	24-60	0	---	1.41-4.23	0.01-0.02	0	0
Topdeck	0-3	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	3-7	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	7-11	0	---	0.01-1.41	0.01-0.02	0	0
	11-21	0	---	0.00-1.41	0	0	0
101:							
Spinnaker	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-3	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	3-8	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	8-11	0	---	1.41-4.23	0.01-0.02	0	0
	11-21	0	---	0.00-1.41	0	0	0
Tongva	0-7	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	7-19	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	19-23	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	0.5-1.0
	23-60	0	---	0.00-0.00	0.01-0.02	0	0
Fiale	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-8	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-3.0
	8-13	27-35	1.45-1.55	1.40-4.20	0.16-0.18	6.0-9.0	1.0-3.0
	13-20	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	20-25	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.7
	25-60	0	---	1.41-4.23	0.01-0.02	0	0
102:							
Fiale	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-4	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	1.0-3.0
	4-24	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	24-26	0	---	0.42-1.40	0.01-0.02	0	0
	26-60	0	---	1.41-4.23	0.01-0.02	0	0
Topdeck	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-2	8-27	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-3.0
	2-10	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	10-18	0	---	0.00-1.41	0	0	0
103:							
Fiale	0-2	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-4.0
	2-9	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	9-17	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	17-21	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	21-60	0	---	1.41-4.23	0.01-0.02	0	0
Topdeck	0-2	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	2.0-3.0
	2-17	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	2.0-3.0
	17-19	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	0.0-0.5
	19-29	0	---	0.00-1.41	0	0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
103:							
Rock outcrop.							
120:							
Miasotus	0-1	0	0.05-0.30	42.00-141.00	0	0	30-70
	1-3	4-12	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	0.5-1.0
	3-6	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	6-9	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	0.1-0.3
	9-15	27-40	1.40-1.50	0.42-1.41	0.07-0.12	6.0-9.0	0.1-0.3
	15-21	0	---	1.41-4.23	0.01-0.02	0	0
	21-31	0	---	0.00-1.41	0	0	0
Yardarm	0-1	0	0.05-0.30	42.00-141.00	0	0	30-70
	1-8	18-27	1.45-1.55	4.23-14.11	0.15-0.17	3.0-6.0	1.0-3.0
	8-22	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	0.5-0.9
	22-28	0	---	0.00-1.41	0.01-0.02	0	0
	28-37	0	---	0.00-1.41	0	0	0
130:							
Frigate	0-3	0	0.05-0.30	42.00-141.00	0	0	30-70
	3-4	8-18	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	2.0-4.0
	4-8	12-18	1.45-1.55	4.23-14.11	0.15-0.17	0.0-2.9	0.5-0.7
	8-15	12-18	1.45-1.55	4.23-14.11	0.15-0.17	0.0-2.9	0.4-0.6
	15-28	8-18	1.45-1.55	4.20-14.10	0.10-0.12	0.0-2.9	0.4-0.6
	28-31	18-27	1.45-1.55	4.20-14.10	0.10-0.12	3.0-6.0	0.4-0.6
	31-67	0	---	1.41-4.23	0.01-0.02	0	0
	67-69	0	---	0.00-1.41	0	0	0
Yardarm	0-2	4-12	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	1.0-3.0
	2-8	8-18	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	1.0-3.0
	8-13	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	0.2-0.8
	13-24	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	0.2-0.8
	24-28	0	---	1.41-4.23	0.01-0.02	0	0
	28-38	0	---	0.00-1.41	0	0	0
150:							
Halyard	0-2	0	0.05-0.10	42.00-141.00	0	0	30-100
	2-13	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	0.0-0.5
	13-22	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.3-0.7
	22-37	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	37-60	0	---	1.41-4.23	0.01-0.02	0	0
Topdeck	0-2	8-27	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-3.0
	2-4	8-27	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-3.0
	4-11	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	11-14	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	2.0-3.0
	14-16	0	---	14.00-42.00	0.01-0.02	0	0
	16-26	0	---	0.00-1.41	0	0	0
Tongva	0-2	12-27	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-3.0
	2-8	12-27	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-3.0
	8-13	27-40	1.40-1.50	1.40-4.20	0.15-0.19	3.0-6.0	0.5-1.0
	13-18	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	0.0-0.5
	18-24	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	0.0-0.5
	24-29	0	---	1.41-4.23	0.01-0.02	0	0
	29-39	0	---	0.00-1.41	0	0	0
152:							
Halyard	0-2	0	0.05-0.30	42.00-141.00	0	0	30-70
	2-5	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	5-22	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	22-34	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	1.0-3.0
	34-60	0	---	1.41-4.23	0.01-0.02	0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
152:							
Starboard--------------------	0-1	0	0.05-0.30	42.00-141.00	0	0	30-70
	1-7	8-27	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-4.0
	7-22	27-35	1.40-1.50	1.41-4.20	0.15-0.17	6.0-9.0	1.0-4.0
	22-60	0	---	1.41-4.23	0.01-0.02	0	0
153:							
Halyard----------------------	0-3	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-3.0
	3-16	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	16-31	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	31-39	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	39-60	0	---	1.41-4.23	0.01-0.02	0	0
Topdeck----------------------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-5	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	2.0-3.0
	5-14	27-35	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	2.0-3.0
	14-24	0	---	0.00-1.41	0	0	0
155:							
Halyard----------------------	0-2	0	0.05-0.10	42.00-141.00	0	0	30-100
	2-13	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	0.0-0.5
	13-22	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.3-0.7
	22-37	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	37-60	0	---	1.41-4.23	0.01-0.02	0	0
Fiale------------------------	0-2	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	2-4	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	4-14	60-70	1.25-1.45	0.42-1.41	0.14-0.16	12.0-16.0	1.0-3.0
	14-26	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.7
	26-60	0	---	1.41-4.23	0.01-0.02	0	0
160:							
Beaches.							
Abaft------------------------	0-5	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	5-13	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	13-59	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.0-0.5
180:							
Typic Argixerolls, very deep	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-15	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	1.0-3.0
	15-60	27-40	1.40-1.50	1.40-4.20	0.05-0.07	6.0-9.0	0.8-1.5
190:							
Typic Xerofluvents-----------	0-2	0	0.05-0.30	42.00-141.00	0	0	30-70
	2-24	4-12	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	0.5-1.0
	24-39	1-3	1.60-1.70	42.00-141.00	0.03-0.06	0.0-2.9	0.0-0.5
	39-72	1-3	1.60-1.70	42.00-141.00	0.01-0.11	0.0-2.9	0.3-2.0
Riverwash.							
200:							
Fantail, thin surface--------	0-1	0	0.05-0.30	42.00-141.00	0	0	30-70
	1-3	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	3-7	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	2.0-3.0
	7-13	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	2.0-3.0
	13-24	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	1.0-2.0
	24-29	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	0.5-1.0
	29-60	0	---	1.41-4.23	0.01-0.02	0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
200:							
Forestay	0-2	0	0.05-0.30	42.00-141.00	0	0	30-70
	2-4	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	4-15	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	15-27	12-20	1.55-1.60	4.20-14.10	0.06-0.07	3.0-6.0	1.0-3.0
	27-35	40-60	1.25-1.45	0.42-1.40	0.04-0.06	9.0-12.0	1.0-3.0
	35-45	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	1.0-3.0
	45-60	40-60	1.25-1.45	0.42-1.40	0.04-0.06	9.0-12.0	0.5-0.9
Fantail	0-2	0	0.05-0.30	42.00-141.00	0	0	30-70
	2-4	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	4-12	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	12-22	18-27	1.45-1.55	4.20-14.10	0.08-0.10	3.0-6.0	2.0-3.0
	22-35	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	0.5-1.0
	35-39	40-60	1.25-1.45	0.42-1.40	0.07-0.09	12.0-16.0	0.5-1.0
	39-60	0	---	1.41-4.23	0.01-0.02	0	0
210:							
Lospinos	0-6	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	1.0-3.0
	6-15	12-27	1.45-1.55	4.20-14.10	0.08-0.10	0.0-2.9	1.0-3.0
	15-20	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	1.0-3.0
	20-24	18-27	1.45-1.55	4.20-14.10	0.08-0.10	3.0-6.0	1.0-2.0
	24-60	0	---	1.41-4.23	0.01-0.02	0	0
Forestay	0-2	0	0.05-0.30	42.00-141.00	0	0	30-70
	2-3	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	2.0-3.0
	3-6	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	6-13	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	1.0-3.0
	13-22	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	0.5-0.9
	22-60	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	0.5-0.9
Forestay, strongly sloping	0-2	0	0.05-0.30	42.00-141.00	0	0	30-70
	2-3	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	2.0-3.0
	3-6	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	6-13	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	1.0-3.0
	13-22	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	0.5-0.9
	22-60	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	0.5-0.9
211:							
Lospinos	0-2	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	1.0-3.0
	2-8	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	1.0-3.0
	8-14	12-27	1.45-1.55	4.20-14.10	0.08-0.10	0.0-2.9	1.0-3.0
	14-23	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	1.0-3.0
	23-28	18-27	1.45-1.55	4.10-14.10	0.03-0.08	3.0-6.0	0.5-1.0
	28-60	0	---	1.41-4.23	0.01-0.02	0	0
212:							
Lospinos	0-2	27-40	1.40-1.50	1.40-4.20	0.11-0.15	3.0-6.0	1.0-3.0
	2-9	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	1.0-3.0
	9-19	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	1.0-3.0
	19-22	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	1.0-2.0
	22-60	0	---	1.41-4.23	0.01-0.02	0	0
Rock outcrop.							
230:							
Fantail	0-1	0	0.05-0.30	42.00-141.00	0	0	30-70
	1-3	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	3-7	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.3-0.7
	7-13	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	0.5-1.0
	13-24	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	0.5-1.0
	24-29	40-60	1.25-1.45	0.42-1.40	0.07-0.09	9.0-12.0	0.5-1.0
	29-60	0	---	1.41-4.23	0.01-0.02	0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
240:							
Delphine----------------------	0-1	4-12	1.45-1.55	4.20-14.10	0.10-0.12	0.0-2.9	1.0-2.0
	1-9	6-18	1.45-1.55	4.20-14.10	0.03-0.08	0.0-2.9	0.6-0.9
	9-14	18-27	1.45-1.55	1.40-4.00	0.04-0.12	3.0-6.0	0.6-0.9
	14-21	0	---	1.41-4.23	0.01-0.02	0	0
	21-31	0	---	0.00-1.41	0	0	0
Miasotus----------------------	0-1	12-18	1.45-1.55	4.23-14.11	0.15-0.17	0.0-2.9	0.5-1.0
	1-2	12-18	1.45-1.55	4.20-14.10	0.10-0.13	0.0-2.9	0.5-1.0
	2-8	18-27	1.40-1.50	4.20-14.10	0.08-0.10	3.0-6.0	0.1-0.3
	8-13	27-35	1.40-1.50	1.40-4.20	0.09-0.13	6.0-9.0	0.1-0.3
	13-19	27-40	1.40-1.50	0.42-1.41	0.09-0.13	6.0-9.0	0.1-0.3
	19-26	0	---	1.41-4.23	0.01-0.02	0	0
	26-36	0	---	0.00-1.41	0	0	0
Yardarm-----------------------	0-1	0	0.05-0.30	42.00-141.00	0	0	30-70
	1-19	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	19-35	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	0.5-1.0
	35-39	0	---	1.41-4.23	0.01-0.02	0	0
	39-49	0	---	0.00-1.41	0	0	0
241:							
Delphine----------------------	0-7	27-35	1.45-1.55	1.40-4.20	0.04-0.12	6.0-9.0	0.5-0.7
	7-15	27-35	1.45-1.55	1.40-4.20	0.04-0.12	6.0-9.0	0.5-0.7
	15-22	0	---	1.41-4.23	0.01-0.02	0	0
	22-31	0	---	0.00-1.41	0	0	0
Badland.							
Miasotus----------------------	0-3	4-12	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	0.5-1.0
	3-6	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	6-13	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	0.1-0.3
	13-17	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	0.1-0.3
	17-23	0	---	1.41-4.23	0.01-0.02	0	0
	23-33	0	---	0.00-1.41	0	0	0
250:							
Spinnaker---------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-1	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	1-14	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	14-18	0	---	1.41-4.23	0.01-0.02	0	0
	18-28	0	---	0.00-1.41	0	0	0
Starboard---------------------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-4	0	0.05-0.30	42.00-141.00	0	0	30-70
	4-7	1-8	1.55-1.65	42.00-141.00	0.04-0.06	0.0-2.9	0.5-1.0
	7-12	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	12-30	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-4.0
	30-35	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	35-60	0	---	1.41-4.23	0.01-0.02	0	0
Rock outcrop.							
251:							
Spinnaker---------------------	0-1	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	1-6	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	6-16	0	---	0.00-1.41	0	0	0
Rock outcrop.							

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
260:							
Starboard--------------------	0-1	0	0.05-0.30	42.00-141.00	0	0	30-70
	1-2	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	2-12	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	1.0-4.0
	12-30	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	30-60	0	---	1.41-4.23	0.01-0.02	0	0
Spinnaker--------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-2	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	0.0-0.5
	2-7	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	0.0-0.5
	7-14	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	0
	14-24	0	---	0.00-1.41	0	0	0
Rock outcrop.							
262:							
Halyard----------------------	0-6	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	1.0-3.0
	6-20	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	1.0-3.0
	20-29	40-60	1.35-1.45	0.42-1.40	0.07-0.09	9.0-12.0	1.0-3.0
	29-35	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	35-60	0	---	1.41-4.23	0.01-0.02	0	0
Fantail----------------------	0-3	0	0.05-0.30	42.00-141.00	0	0	30-70
	3-8	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	2.0-3.0
	8-14	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	0.3-0.7
	14-20	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-1.0
	20-30	60-80	1.25-1.35	0.07-0.42	0.06-0.08	12.0-16.0	0.5-1.0
	30-60	0	---	1.41-4.23	0.01-0.02	0	0
263:							
Starboard--------------------	0-1	0	0.05-0.30	42.00-141.00	0	0	30-70
	1-3	6-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	1.0-3.0
	3-18	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-3.0
	18-39	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-3.0
	39-60	0	---	1.41-4.23	0.01-0.02	0	0
Pachic Argixerolls-----------	0-4	0	0.05-0.10	42.00-141.00	0	0	30-100
	4-12	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	1.0-3.0
	12-20	12-27	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	0.1-3.0
	20-41	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	0.5-1.0
	41-60	0	---	1.41-4.23	0.01-0.02	0	0
Rock outcrop.							
270:							
Topdeck----------------------	0->1	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	>1-6	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	6-10	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	10-20	0	---	0.00-1.41	0	0	0
Rock outcrop.							
Spinnaker--------------------	0-1	0	1.45-1.55	141.00-705.00	0	0	30-100
	1-2	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	2-12	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	12-22	0	---	0.00-1.41	0	0	0
271:							
Topdeck----------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-6	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	6-12	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	12-18	27-40	1.40-1.50	0.42-1.41	0.11-0.15	6.0-9.0	0.0-0.5
	18-31	0	---	0.00-1.41	0	0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
271:							
Spinnaker--------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-2	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	2-10	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	10-18	0	---	1.41-4.23	0.01-0.02	0	0
	18-28	0	---	0.00-1.41	0	0	0
Tongva-----------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-3	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	3-16	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	16-22	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	0.5-1.0
	22-31	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	0.0-0.5
	31-60	0	---	1.41-4.23	0.01-0.02	0	0
272:							
Topdeck----------------------	0-2	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	2.0-3.0
	2-8	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	8-12	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	2.0-3.0
	12-16	0	---	0.00-1.41	0.01-0.02	0	0
	16-26	0	---	0.00-1.41	0	0	0
Starboard--------------------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-16	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	0.5-1.0
	16-26	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-4.0
	26-28	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	2.0-3.0
	28-60	0	---	1.41-4.23	0.01-0.02	0	0
Rock outcrop.							
273:							
Topdeck, overblown-----------	0-7	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	2.0-3.0
	7-19	27-40	1.40-1.50	1.40-4.20	0.11-0.15	3.0-6.0	2.0-3.0
	19-28	0	---	0.00-1.41	0	0	0
Typic Durixerolls, loamy subsoil---------------------	0-2	8-20	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-2.0
	2-13	12-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	1.0-2.0
	13-18	12-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	0.5-1.0
	18-19	---	---	0.00-0.00	0	---	0
	19-60	0	---	1.41-4.23	0.01-0.02	0	0
290:							
Rock outcrop.							
Topdeck----------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-4	6-12	1.50-1.60	4.00-14.00	0.09-0.11	0.0-2.9	2.0-3.0
	4-7	12-20	1.45-1.55	4.00-14.00	0.09-0.11	0.0-2.9	2.0-3.0
	7-18	0	---	0.00-1.41	0.01-0.02	0	0
	18-28	0	---	0.00-1.41	0	0	0
Starboard--------------------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-16	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	0.5-1.0
	16-26	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-4.0
	26-28	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	2.0-3.0
	28-60	0	---	1.41-4.23	0.01-0.02	0	0
291:							
Rock outcrop.							

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	Pct	g/cc	um/sec	In/in	Pct	Pct
291:							
Spinnaker--------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-2	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	2-10	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	10-18	0	---	1.41-4.23	0.01-0.02	0	0
	18-28	0	---	0.00-1.41	0	0	0
Topdeck----------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-2	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	2-4	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	4-19	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	0.0-0.5
	19-29	0	---	0.00-1.41	0	0	0
292:							
Rock outcrop.							
Buoy-------------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-12	2-12	1.50-1.60	14.00-42.00	0.15-0.17	0.0-2.9	2.0-3.0
	12-18	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	0.3-0.7
	18-33	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	33-41	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	41-45	2-12	1.50-1.60	14.00-42.00	0.15-0.17	0.0-2.9	0.5-1.0
	45-60	0	---	1.41-4.23	0.01-0.02	0	0
Bereme-----------------------	0-6	12-27	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	1.0-3.0
	6-10	12-18	1.50-1.60	4.20-14.10	0.12-0.14	0.0-2.9	1.0-3.0
	10-18	12-18	1.50-1.60	4.20-14.10	0.06-0.08	3.0-6.0	1.0-3.0
	18-24	0	---	0.00-1.41	---	0	0
	24-33	0	---	0.00-1.41	---	0	0
Typic Palexerolls------------	0-2	0	0.05-0.10	42.00-141.00	0	0	30-100
	2-5	8-12	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-4.0
	5-9	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	1.0-3.0
	9-19	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-0.7
	19-24	40-60	1.25-1.45	0.40-1.40	0.07-0.09	9.0-12.0	0.4-0.6
	24-60	0	---	1.41-4.23	0.01-0.02	0	0
300:							
Cumulic Haploxerolls---------	0-9	2-12	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	0.5-1.0
	9-35	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	1.0-3.0
	35-51	18-27	1.45-1.55	4.20-14.10	0.20-0.22	3.0-6.0	2.0-3.0
	51-67	2-6	1.55-1.65	42.00-141.00	0.02-0.03	3.0-6.0	2.0-3.0
310:							
Livigne----------------------	0-2	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	2-6	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	6-18	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	0.5-1.0
	18-60	0	---	1.41-4.23	0.01-0.02	0	0
Macool-----------------------	0-1	0	0.05-0.30	42.00-141.00	0	0	30-70
	1-2	4-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-3.0
	2-6	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	6-12	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	12-17	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-4.0
	17-28	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-3.0
	28-30	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-3.0
	30-38	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	38-50	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	0.5-1.0
	50-60	0	---	1.41-4.23	0.01-0.02	0	0
Badland.							

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
311:							
Livigne----------------------	0-2	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	2.0-3.0
	2-17	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	17-60	0	---	1.41-4.23	0.01-0.02	0	0
Gunwale----------------------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-2	0	0.05-0.30	42.00-141.00	0	0	30-70
	2-4	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	4-11	12-20	1.50-1.60	4.20-14.10	0.12-0.14	0.0-2.9	0.5-1.0
	11-22	27-35	1.45-1.55	1.40-4.20	0.16-0.18	6.0-9.0	0.5-1.0
	22-60	0	---	1.41-4.23	0.01-0.02	0	0
321:							
Rudder-----------------------	0-2	0	0.05-0.10	42.00-141.00	0	0	30-100
	2-4	0	0.05-0.30	42.00-141.00	0	0	30-70
	4-8	3-12	1.50-1.60	14.00-42.00	0.09-0.11	0.0-2.9	0.5-1.0
	8-22	12-20	1.50-1.60	4.00-14.00	0.09-0.11	0.0-2.9	0.5-1.0
	22-28	12-20	1.50-1.60	4.00-14.00	0.09-0.11	0.0-2.9	0.5-1.0
	28-32	0	---	1.41-4.23	0.01-0.02	0	0
	32-42	0	---	0.00-1.41	0	0	0
Spinnaker, moist-------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-2	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	2-10	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	10-18	0	---	1.41-4.23	0.01-0.02	0	0
	18-28	0	---	0.00-1.41	0	0	0
Rock outcrop.							
650:							
Abaft------------------------	0-5	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	5-13	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	13-59	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.0-0.5
651:							
Abaft------------------------	0-5	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	5-13	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	13-59	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.0-0.5
Abaft, moderately steep------	0-5	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	5-13	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	13-59	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.0-0.5
660:							
Pachic Haploxerolls----------	0-2	8-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	1.0-3.0
	2-20	8-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	1.0-3.0
	20-33	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	33-41	8-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	0.5-1.0
	41-63	1-3	1.60-1.70	141.00-423.00	0.02-0.04	0.0-2.9	0.0-0.5
670:							
Ironshot---------------------	0-7	8-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-4.0
	7-14	4-18	1.50-1.60	4.20-14.10	0.15-0.17	0.0-2.9	0.5-1.0
	14-20	4-12	1.50-1.60	14.00-42.00	0.15-0.17	0.0-2.9	0.5-0.7
	20-31	2-8	1.55-1.65	42.00-141.00	0.08-0.11	0.0-2.9	0.2-0.4
	31-66	2-8	1.55-1.65	42.00-141.00	0.08-0.11	0.0-2.9	0.2-0.4
Ahoy-------------------------	0-2	4-14	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-4.0
	2-16	6-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-4.0
	16-20	2-12	1.50-1.60	14.00-42.00	0.15-0.17	0.0-2.9	1.0-2.0
	20-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.7

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
680:							
Bereme------------------------	0-1	4-18	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-3.0
	1-12	12-18	1.50-1.60	4.20-14.10	0.12-0.14	0.0-2.9	1.0-3.0
	12-15	12-18	1.50-1.60	4.20-14.10	0.12-0.14	0.0-2.9	1.0-3.0
	15-24	0	---	0.00-1.41	0	0	0
Rock outcrop.							
681:							
Bereme------------------------	0-2	3-12	1.35-1.45	14.00-42.00	0.09-0.11	0.0-2.9	1.0-3.0
	2-15	12-20	1.35-1.45	4.00-14.00	0.09-0.11	0.0-2.9	1.0-3.0
	15-19	0	---	0.00-1.41	0.01-0.02	0	0
	19-29	0	---	0.00-1.41	0	0	0
Rock outcrop.							
690:							
Typic Xerorthents-------------	0-5	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	0.5-0.7
	5-10	4-12	1.50-1.60	14.10-42.30	0.11-0.13	0.0-2.0	0.5-0.7
	10-60	0	---	1.41-4.23	0.01-0.02	0	0
Ultic Haploxeralfs------------	0-4	0	0.05-0.10	42.00-141.00	0	0	30-100
	4-10	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	10-31	35-55	1.35-1.45	1.41-4.20	0.13-0.15	9.0-12.0	0.3-0.5
	31-39	35-55	1.35-1.45	1.41-4.20	0.13-0.15	9.0-12.0	0.3-0.5
	39-48	0	---	0.00-1.41	0	0	0
Rock outcrop.							
700:							
Ahoy--------------------------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-4	0	0.05-0.30	42.00-141.00	0	0	30-70
	4-13	12-18	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	1.0-4.0
	13-20	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	1.0-3.0
	20-26	4-18	1.50-1.60	4.20-14.10	0.16-0.19	0.0-2.9	1.0-3.0
	26-33	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	33-60	60-70	1.25-1.45	0.42-1.41	0.14-0.16	12.0-16.0	0
Hawser, moderately steep------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-7	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-4.0
	7-16	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	16-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
Ahoy, moderately steep--------	0-2	0	0.05-0.10	42.00-141.00	0	0	30-100
	2-16	12-19	1.50-1.60	4.20-14.10	0.12-0.14	3.0-6.0	1.0-4.0
	16-18	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	1.0-3.0
	18-41	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	41-61	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0
Hawser------------------------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-7	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-4.0
	7-18	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	18-37	40-60	1.25-1.45	0.42-1.41	0.14-0.16	12.0-16.0	1.0-3.0
	37-41	40-60	1.25-1.45	0.42-1.41	0.14-0.16	12.0-16.0	1.0-3.0
	41-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
710:							
Windage----------------------	0-2	0	0.05-0.30	42.00-141.00	0	0	30-70
	2-5	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-3.0
	5-12	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	12-24	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	24-31	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-1.0
	31-37	40-60	1.25-1.45	0.42-1.41	0.14-0.16	12.0-16.0	0.5-1.0
	37-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.2-0.8
Typic Xerorthents------------	0-5	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	0.5-0.7
	5-10	4-12	1.50-1.60	14.10-42.30	0.11-0.13	0.0-2.0	0.5-0.7
	10-60	0	---	1.41-4.23	0.01-0.02	0	0
Buoy-------------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-12	8-18	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	2.0-3.0
	12-47	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.3-0.7
	47-51	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	0.5-1.0
	51-60	0	---	1.41-4.23	0.01-0.02	0	0
711:							
Windage----------------------	0-2	0	0.05-0.30	42.00-141.00	0	0	30-70
	2-7	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-3.0
	7-22	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	22-31	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	31-39	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	39-43	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	43-51	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	0.2-0.8
	51-60	27-40	1.40-1.50	1.40-4.20	0.14-0.16	6.0-9.0	0.2-0.8
Hawser-----------------------	0-4	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	1.0-3.0
	4-18	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	18-28	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	28-35	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	35-41	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	41-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
Typic Haploxeralfs-----------	0-2	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	2-8	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	8-20	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	0.5-0.8
	20-31	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-0.8
	31-60	0	---	1.41-4.23	0.01-0.02	0	0
712:							
Windage----------------------	0->1	0	0.05-0.30	42.00-141.00	0	0	30-70
	>1-2	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	2-10	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	10-18	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	18-30	40-60	1.25-1.45	0.42-1.41	0.14-0.16	12.0-16.0	0.5-1.0
	30-43	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	43-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.2-0.8
Buoy-------------------------	0-9	8-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-3.0
	9-14	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	2.0-3.0
	14-28	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.3-0.7
	28-41	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.3-0.7
	41-60	0	---	1.41-4.23	0.01-0.02	0	0
713:							
Windage----------------------	0-1	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	1-28	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	28-35	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	35-41	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	41-60	40-60	1.25-1.35	0.40-1.40	0.14-0.16	9.0-12.0	0.5-1.0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
713:							
Ballast----------------------	0-4	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-3.0
	4-12	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	12-24	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	24-26	0	---	1.41-4.23	0.01-0.02	0	0
	26-35	0	---	0.00-1.41	0	0	0
721:							
Buoy------------------------	0-15	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	0.5-0.9
	15-18	4-12	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	0.5-0.9
	18-45	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	45-60	0	---	1.41-4.23	0.01-0.02	0	0
722:							
Buoy, cobbly-----------------	0-5	12-20	1.50-1.60	4.20-14.10	0.12-0.14	0.0-2.9	2.0-3.0
	5-16	20-27	1.45-1.55	4.20-14.10	0.16-0.18	3.0-6.0	0.3-0.7
	16-24	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	24-43	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	43-60	0	---	1.41-4.23	0.01-0.02	0	0
Rock outcrop.							
723:							
Buoy------------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-4	4-12	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	2.0-3.0
	4-18	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.3-0.7
	18-26	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-0.9
	26-39	35-55	1.35-1.45	1.41-4.20	0.13-0.15	9.0-12.0	0.5-0.9
	39-53	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	53-60	0	---	1.41-4.23	0.01-0.02	0	0
Lithic Argixerolls-----------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-1	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	1.0-3.0
	1-12	4-20	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-3.0
	12-16	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	1.0-3.0
	16-26	0	---	0.00-1.41	0	0	0
Rock outcrop.							
724:							
Buoy------------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-12	5-12	1.50-1.60	14.00-42.00	0.15-0.17	0.0-2.9	2.0-3.0
	12-18	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	0.3-0.7
	18-33	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	33-41	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	41-45	5-12	1.50-1.60	14.00-42.00	0.15-0.17	0.0-2.9	0.5-1.0
	45-60	0	---	1.41-4.23	0.01-0.02	0	0
Rock outcrop.							
Ballast----------------------	0-5	27-35	1.45-1.55	1.40-4.20	0.16-0.18	6.0-9.0	1.0-3.0
	5-28	35-55	1.35-1.45	1.41-4.20	0.13-0.15	9.0-12.0	1.0-3.0
	28-31	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	31-39	40-60	1.35-1.45	0.40-1.40	0.13-0.15	12.0-16.0	0.5-1.0
	39-39	0	---	1.41-4.23	0.01-0.02	0	0
	39-49	0	---	0.00-1.41	0	0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
725:							
Buoy-------------------------	0-6	5-12	1.50-1.60	14.00-42.00	0.09-0.13	0.0-2.9	0.8-0.9
	6-18	5-12	1.50-1.60	14.00-42.00	0.09-0.13	0.0-2.9	0.6-0.8
	18-30	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.7
	30-41	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.7
	41-60	0	---	1.41-4.23	0.01-0.02	0	0
Typic Haploxeralfs-----------	0-2	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	2-8	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	8-20	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	0.5-0.8
	20-31	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-0.8
	31-60	0	---	1.41-4.23	0.01-0.02	0	0
730:							
Lodestone, very deep---------	0-2	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	1.0-3.0
	2-12	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	12-26	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	26-33	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	33-51	40-60	1.25-1.45	0.42-1.41	0.14-0.16	12.0-16.0	0.5-0.9
	51-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
Ballast----------------------	0-7	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	7-11	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	11-26	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	26-30	0	---	1.41-4.23	0.01-0.02	0	0
	30-39	0	---	0.00-1.41	0	0	0
Buoy-------------------------	0-3	12-20	1.50-1.60	14.00-42.00	0.15-0.17	0.0-2.9	0.5-0.9
	3-18	12-20	1.50-1.60	4.20-14.10	0.09-0.13	3.0-6.0	0.3-0.7
	18-24	27-40	1.40-1.50	1.40-4.20	0.07-0.12	6.0-9.0	0.5-1.0
	24-41	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	41-60	0	---	1.41-4.23	0.01-0.02	0	0
761:							
Lodestone--------------------	0-3	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	2.0-4.0
	3-11	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-2.0
	11-23	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	23-30	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	30-39	0	---	0.00-1.41	0	0	0
Typic Xerorthents------------	0-5	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	0.5-0.7
	5-10	4-12	1.50-1.60	14.10-42.30	0.11-0.13	0.0-2.0	0.5-0.7
	10-60	0	---	1.41-4.23	0.01-0.02	0	0
Windage----------------------	0-10	20-27	1.45-1.55	4.20-14.10	0.16-0.18	3.0-6.0	1.0-3.0
	10-30	35-55	1.35-1.45	0.42-1.40	0.11-0.13	6.0-9.0	1.0-3.0
	30-33	35-55	1.35-1.45	0.42-1.40	0.11-0.13	9.0-12.0	1.0-3.0
	33-60	20-35	1.45-1.55	1.40-4.20	0.08-0.10	3.0-6.0	0.5-1.0
762:							
Lodestone--------------------	0-8	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	2.0-4.0
	8-24	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-2.0
	24-30	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	30-39	0	---	0.00-1.41	0	0	0
Ballast----------------------	0-2	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-3.0
	2-8	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	8-12	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	0.5-1.0
	12-19	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	19-23	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	23-39	0	---	1.41-4.23	0.01-0.02	0	0
	39-48	0	---	0.00-1.41	0	0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	Pct	g/cc	um/sec	In/in	Pct	Pct
762:							
Halyard-----------------------	0-8	8-18	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	2.0-4.0
	8-13	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	2.0-4.0
	13-22	27-35	1.45-1.55	4.20-14.10	0.10-0.14	6.0-9.0	1.0-3.0
	22-30	40-60	1.35-1.45	0.42-1.40	0.09-0.14	3.0-6.0	2.0-4.0
	30-39	27-40	1.40-1.50	1.40-4.20	0.09-0.14	9.0-12.0	1.0-3.0
	39-60	0	---	1.41-4.23	0.01-0.02	0	0
763:							
Hawser------------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-12	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-4.0
	12-39	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	39-47	12-20	1.50-1.60	4.20-14.10	0.15-0.17	3.0-6.0	1.0-3.0
	47-60	12-20	1.50-1.60	4.20-14.10	0.15-0.17	3.0-6.0	1.0-3.0
Lodestone, very deep---------	0-2	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	1.0-3.0
	2-8	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	8-18	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	18-26	40-60	1.25-1.45	0.42-1.41	0.14-0.16	12.0-16.0	0.5-0.9
	26-39	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.3-0.7
	39-59	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.3-0.7
Buoy--------------------------	0->1	0	0.05-0.10	42.00-141.00	0	0	30-100
	>1-9	4-12	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-3.0
	9-14	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	0.3-0.7
	14-28	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	28-41	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-1.0
	41-60	0	---	1.41-4.23	0.01-0.02	0	0
780:							
Typic Argixerolls------------	0-1	4-12	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-3.0
	1-20	12-20	1.50-1.60	4.00-14.00	0.09-0.11	3.0-6.0	1.0-3.0
	20-28	20-35	1.45-1.55	1.40-4.20	0.12-0.14	6.0-9.0	0.5-0.7
	28-31	35-55	1.35-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.4-0.6
	31-60	0	---	1.41-4.23	0.01-0.02	0	0
800:							
Ballast-----------------------	0-16	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	16-20	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	20-28	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	28-60	0	---	1.41-4.23	0.01-0.02	0	0
Halyard-----------------------	0-6	8-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-4.0
	6-11	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	1.0-3.0
	11-22	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	22-29	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	29-33	0	---	1.41-4.23	0.01-0.02	0	0
	33-60	0	---	0.00-1.41	0.01-0.02	0	0
Typic Argixerolls------------	0-6	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	1.0-3.0
	6-20	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	20-28	0	---	1.41-4.23	0.01-0.02	0	0
	28-37	0	---	0.00-1.41	0	0	0
850:							
Typic Natrixeralfs-----------	0-2	0	0.05-0.10	42.00-141.00	0	0	30-100
	2-3	8-18	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	0.5-1.5
	3-6	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	6-12	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	12-22	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	22-24	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	24-60	0	---	1.41-4.23	0.01-0.02	0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
850:							
Typic Haploxeralfs, dry------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-3	2-12	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	0.5-0.9
	3-8	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	8-18	27-40	1.45-1.55	0.42-1.41	0.18-0.20	6.0-9.0	0.5-0.9
	18-28	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	28-47	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	47-49	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	49-59	0	---	0.00-0.00	0	0	0
851:							
Typic Haploxeralfs, dry------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-3	2-12	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	0.5-0.9
	3-8	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	8-18	27-40	1.45-1.55	0.42-1.41	0.18-0.20	6.0-9.0	0.5-0.9
	18-28	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	28-47	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	47-49	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	49-59	0	---	0.00-0.00	0	0	0
Typic Natrixeralfs-----------	0-2	0	0.05-0.10	42.00-141.00	0	0	30-100
	2-4	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	4-16	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	16-31	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-0.9
	31-60	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-0.9
852:							
Lithic Argixerolls, dry------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-2	12-18	1.45-1.55	4.20-14.10	0.17-0.19	0.0-2.9	2.0-3.0
	2-4	27-40	1.40-1.50	1.40-4.20	0.11-0.15	6.0-9.0	2.0-3.0
	4-6	0	---	1.41-4.23	0.01-0.02	0	0
	6-16	0	---	0.00-1.41	0	0	0
Typic Natrixeralfs-----------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-5	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	5-12	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-0.9
	12-15	40-60	1.25-1.45	0.42-1.40	0.11-0.13	9.0-12.0	0.5-0.9
	15-21	0	---	1.41-4.23	0.01-0.02	0	0
	21-31	0	---	0.00-1.41	0	0	0
853:							
Rock outcrop.							
Typic Haploxeralfs, dry------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-3	2-12	1.45-1.55	4.00-14.00	0.20-0.22	0.0-2.9	0.5-0.9
	3-8	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	8-18	27-40	1.45-1.55	0.42-1.41	0.18-0.20	6.0-9.0	0.5-0.9
	18-28	27-40	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	0.5-0.9
	28-47	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	47-49	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	0.5-0.9
	49-59	0	---	0.00-0.00	0	0	0
860:							
Topdeck----------------------	0-1	0	0.05-0.10	42.00-141.00	0	0	30-100
	1-5	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	2.0-3.0
	5-14	27-35	1.45-1.55	1.40-4.20	0.18-0.20	6.0-9.0	2.0-3.0
	14-24	0	---	0.00-1.41	0	0	0
Halyard----------------------	0-3	18-27	1.45-1.55	4.20-14.10	0.17-0.19	3.0-6.0	1.0-3.0
	3-16	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	16-31	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	31-39	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	1.0-3.0
	39-60	0	---	1.41-4.23	0.01-0.02	0	0

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
861:							
Rock outcrop.							
Topdeck----------------------	0->1	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	>1-6	8-18	1.45-1.55	4.20-14.10	0.10-0.14	0.0-2.9	2.0-3.0
	6-10	18-27	1.45-1.55	4.20-14.10	0.10-0.14	3.0-6.0	2.0-3.0
	10-20	0	---	0.00-1.41	0	0	0
Spinnaker--------------------	0-1	0	1.45-1.55	141.00-705.00	0	0	30-100
	1-2	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	2-12	3-12	1.45-1.55	14.00-42.00	0.09-0.11	0.0-2.9	0.0-0.5
	12-22	0	---	0.00-1.41	0	0	0
900:							
Petrocalcic Palexeralfs------	0->1	12-20	1.50-1.60	4.20-14.10	0.16-0.19	3.0-6.0	1.0-3.0
	>1-4	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	4-11	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	11-31	---	---	0.00-0.00	0	---	0
	31-60	---	1.50-1.60	14.00-42.00	0.10-0.14	0.0-2.9	0.2-0.4
910:							
Hawser-----------------------	0-2	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	1.0-3.0
	2-17	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	17-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
Hawser, moderately steep-----	0-2	27-40	1.40-1.50	0.42-1.41	0.15-0.19	6.0-9.0	1.0-3.0
	2-17	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
	17-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-0.9
920:							
Typic Durixerolls------------	0-1	4-12	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-2.0
	1-19	4-12	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-2.0
	19-23	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	23-27	8-18	1.50-1.60	4.20-14.10	0.15-0.17	0.0-2.9	0.5-1.0
	27-30	---	---	0.00-0.00	---	---	0
	30-60	0	---	1.41-4.23	0.01-0.02	0	0
921:							
Typic Durixerolls------------	0-20	4-20	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-2.0
	20-31	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	31-33	---	1.25-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0
	33-60	0	---	1.41-4.23	0.01-0.02	0	0
930:							
Fluventic Haploxerolls-------	0-8	20-27	1.45-1.55	4.20-14.10	0.16-0.18	3.0-6.0	1.0-2.0
	8-15	12-20	1.50-1.60	4.20-14.10	0.12-0.14	3.0-6.0	1.0-1.5
	15-30	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	30-31	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	31-35	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
	35-39	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.5-1.0
	39-60	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-1.0
940:							
Typic Durixeralfs------------	0-1	8-18	1.50-1.60	4.20-14.10	0.15-0.17	0.0-2.9	0.5-0.7
	1-2	27-40	1.40-1.50	1.40-4.20	0.15-0.19	6.0-9.0	0.5-0.7
	2->2	0	---	0.00-0.00	0	0	0
	>2-12	0	---	0.00-1.41	0	0	0
950:							
Ahoy-------------------------	0-1	18-27	1.45-1.55	4.00-14.00	0.20-0.22	3.0-6.0	1.0-4.0
	1-11	27-40	1.45-1.55	1.40-4.20	0.18-0.20	3.0-6.0	1.0-3.0
	11-18	12-20	1.50-1.60	4.20-14.10	0.15-0.17	3.0-6.0	0.5-0.9
	18-60	40-60	1.25-1.45	0.42-1.41	0.14-0.16	9.0-12.0	0.4-0.7

Table 12.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	*g/cc*	*um/sec*	*In/in*	*Pct*	*Pct*
950:							
Ironshot---------------------	0-15	4-20	1.50-1.60	14.00-42.00	0.12-0.14	0.0-2.9	1.0-3.0
	15-26	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.6-0.9
	26-60	1-4	1.60-1.70	42.00-141.00	0.06-0.08	0.0-2.0	0.3-0.5
970:							
Dune land.							
980:							
Lithic Haploxeralfs----------	0-9	1-8	1.55-1.65	42.00-141.00	0.06-0.08	0.0-2.9	0.5-0.7
	9-15	12-20	1.50-1.60	4.00-14.00	0.09-0.11	0.0-2.9	0.4-0.6
	15-25	0	---	0.00-1.41	0	0	0

Table 13.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
100:						
Fiale	0-2	50-103	5.6-6.5	0	0	0
	2-4	18-40	7.4-7.8	0	0	0
	4-15	26-52	6.6-7.3	0	0	0
	15-24	26-52	6.6-7.3	0	0	0
	24-28	26-52	6.6-7.3	0	0	0
	28-34	9.5-15	7.4-7.8	0	0	0
	34-48	---	---	0	0	0
	48-60	---	---	0	0	0
Tongva	0-6	16-23	6.6-7.3	0	0	0
	6-18	22-32	6.6-7.3	0	0	0
	18-24	22-32	6.6-7.3	0	0	0
	24-60	---	---	0	0	0
Topdeck	0-3	16-23	6.6-7.3	0	0	0
	3-7	22-32	6.6-7.3	0	0	0
	7-11	---	---	0	0	0
	11-21	---	---	0	0	0
101:						
Spinnaker	0-<1	50-103	5.6-6.5	0	0	0
	<1-3	2.6-10	6.6-7.3	0	0	0
	3-8	2.6-10	6.6-7.3	0	0	0
	8-11	---	---	0	0	0
	11-21	---	---	0	0	0
Tongva	0-7	16-23	6.6-7.3	0	0	0
	7-19	16-23	6.6-7.3	0	0	0
	19-23	15-22	6.6-7.3	0	0	0
	23-60	---	---	0	0	0
Fiale	0-1	50-103	5.6-6.5	0	0	0
	1-8	13-26	7.4-7.8	0	0	0
	8-13	18-33	7.4-7.8	0	0	0
	13-20	26-52	7.4-7.8	0	0	0
	20-25	20-32	7.4-7.9	0	0	0
	25-60	---	---	0	0	0
102:						
Fiale	0-1	50-103	5.6-6.5	0	0	0
	1-4	18-37	7.4-7.8	0	0	0
	4-24	26-52	7.4-7.8	0	0	0
	24-26	---	---	0	0	0
	26-60	---	---	0	0	0
Topdeck	0-<1	50-103	5.6-6.5	0	0	0
	<1-2	7.5-23	6.6-7.3	0	0	0
	2-10	16-23	6.6-7.3	0	0	0
	10-18	---	---	0	0	0
103:						
Fiale	0-2	26-57	6.1-6.5	0	0	0
	2-9	26-52	7.4-7.8	0	0	0
	9-17	26-52	7.4-7.8	0	0	0
	17-21	26-52	7.4-7.8	0	0	0
	21-60	---	---	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
103:						
Topdeck	0-2	3.1-11	6.6-7.3	0	0	0
	2-17	22-32	7.4-7.8	0	0	0
	17-19	19-30	7.4-7.8	0	0	0
	19-29	---	---	0	0	0
Rock outcrop.						
120:						
Miasotus	0-1	---	5.6-6.5	0	0	0
	1-3	3.8-10	6.1-6.5	0	0	0
	3-6	7.5-16	5.6-6.0	0	0	0
	6-9	20-30	6.1-6.5	0	0	0
	9-15	20-30	6.1-6.5	0	0	0
	15-21	---	---	0	0	0
	21-31	---	---	0	0	0
Yardarm	0-1	---	5.6-6.5	0	0	0
	1-8	15-23	5.6-6.0	0	0	0
	8-22	21-31	6.1-6.5	0	0	0
	22-28	---	---	0	0	0
	28-37	---	---	0	0	0
130:						
Frigate	0-3	---	4.0-5.0	0	0	0
	3-4	7.5-16	6.1-6.5	0	0	0
	4-8	10-15	5.6-6.0	0	0	0
	8-15	10-15	6.1-6.5	0	0	0
	15-28	7.0-15	5.6-6.0	0	0	0
	28-31	15-21	5.6-6.0	0	0	0
	31-67	---	---	0	0	0
	67-69	---	---	0	0	0
Yardarm	0-2	3.9-11	5.6-6.0	0	0	0
	2-8	7.3-16	6.1-6.5	0	0	0
	8-13	21-31	5.6-6.0	0	0	0
	13-24	21-31	5.6-6.0	0	0	0
	24-28	---	---	0	0	0
	28-38	---	---	0	0	0
150:						
Halyard	0-2	50-103	5.6-6.5	0	0	0
	2-13	3.4-15	6.6-7.3	0	0	0
	13-22	17-32	6.6-7.3	1-6	0	0
	22-37	26-52	6.6-7.3	0	0	0
	37-60	---	---	0	0	0
Topdeck	0-2	7.5-23	6.1-6.5	0	0	0
	2-4	7.5-23	6.6-7.3	0	0	0
	4-11	16-23	6.6-7.3	0	0	0
	11-14	22-32	6.6-7.3	0	0	0
	14-16	---	---	0	0	0
	16-26	---	---	0	0	0
Tongva	0-2	11-23	6.6-7.3	0	0	0
	2-8	11-23	6.6-7.3	0	0	0
	8-13	21-31	5.1-5.5	0	0	0
	13-18	19-30	6.6-7.3	0	0	0
	18-24	19-30	6.6-7.3	0	0	0
	24-29	---	---	0	0	0
	29-39	---	---	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
152:						
Halyard-------------------------	0-2	---	5.6-6.5	0	0	0
	2-5	18-37	6.6-7.3	0	0	0
	5-22	26-52	7.4-7.8	0	0	0
	22-34	26-52	7.4-7.8	0	0	0
	34-60	---	---	0	0	0
Starboard-----------------------	0-1	---	5.1-5.5	0	0	0
	1-7	7.5-23	6.1-6.5	0	0	0
	7-22	22-29	6.1-6.5	0	0	0
	22-60	---	---	0	0	0
153:						
Halyard-------------------------	0-3	13-26	6.6-7.3	0	0	0
	3-16	26-52	7.4-7.8	0	0	0
	16-31	26-52	7.4-7.8	0	0	0
	31-39	26-52	7.4-7.8	0	0	0
	39-60	---	---	0	0	0
Topdeck-------------------------	0-1	50-103	5.6-6.5	0	0	0
	1-5	16-23	6.6-7.3	0	0	0
	5-14	22-29	6.6-7.3	0	0	0
	14-24	---	---	0	0	0
155:						
Halyard-------------------------	0-2	50-103	5.6-6.5	0	0	0
	2-13	3.4-15	6.6-7.3	0	0	0
	13-22	17-32	6.6-7.3	1-6	0	0
	22-37	26-52	6.6-7.3	0	0	0
	37-60	---	---	0	0	0
Fiale---------------------------	0-2	26-52	6.6-7.3	0	0	0
	2-4	26-52	6.6-7.3	0	0	0
	4-14	36-60	7.4-7.8	0	0	0
	14-26	20-32	7.4-7.8	0	0	0
	26-60	---	---	0	0	0
160:						
Beaches.						
Abaft---------------------------	0-5	1.0-6.4	6.6-7.3	0	0	0
	5-13	1.0-6.4	6.6-7.3	0	0	0
	13-59	0.8-6.1	6.6-7.3	0	0	0
180:						
Typic Argixerolls, very deep----	0-1	50-103	5.6-6.5	0	0	0
	1-15	20-31	6.6-7.3	0	0	0
	15-60	20-29	6.6-7.3	0	0	0
190:						
Typic Xerofluvents--------------	0-2	---	5.6-6.5	0	0	0
	2-24	3.3-9.1	6.6-7.3	0	0	0
	24-39	0.8-2.6	6.6-7.3	0	0	0
	39-72	0.9-2.9	6.6-7.3	0	0	0
Riverwash.						

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
200:						
Fantail, thin surface-----------	0-1	---	5.6-6.5	0	0	0
	1-3	8.1-19	6.6-7.3	0	0	0
	3-7	32-52	6.6-7.3	0	0	0
	7-13	32-52	6.6-7.3	0	0	0
	13-24	26-46	6.6-7.3	0	0	0
	24-29	20-36	6.6-7.3	0	0	0
	29-60	---	---	0	0	0
Forestay------------------------	0-2	---	5.1-5.5	0	0	0
	2-4	---	5.1-5.5	0	0	0
	4-15	16-26	6.1-6.5	0	0	0
	15-27	9.1-20	5.1-5.5	0	0	0
	27-35	---	3.5-4.4	0	0	0
	35-45	---	3.5-4.4	0	0	0
	45-60	---	3.5-4.4	0	0	0
Fantail-------------------------	0-2	---	5.6-6.5	0	0	0
	2-4	8.1-19	6.6-7.3	0	0	0
	4-12	16-26	6.6-7.3	0	0	0
	12-22	16-26	6.6-7.3	0	0	0
	22-35	20-36	6.6-7.3	0	0	0
	35-39	20-36	6.6-7.3	0	0	0
	39-60	---	---	0	0	0
210:						
Lospinos------------------------	0-6	3.0-11	6.1-6.5	0	0	0
	6-15	10-23	5.6-6.0	0	0	0
	15-20	22-32	5.6-6.0	0	0	0
	20-24	15-22	5.1-5.5	0	0	0
	24-60	---	---	0	0	0
Forestay------------------------	0-2	---	5.1-5.5	0	0	0
	2-3	---	5.1-5.5	0	0	0
	3-6	---	5.1-5.5	0	0	0
	6-13	---	3.5-4.4	0	0	0
	13-22	---	3.5-4.4	0	0	0
	22-60	---	3.5-4.4	0	0	0
Forestay, strongly sloping------	0-2	---	5.1-5.5	0	0	0
	2-3	---	5.1-5.5	0	0	0
	3-6	---	5.1-5.5	0	0	0
	6-13	---	3.5-4.4	0	0	0
	13-22	---	3.5-4.4	0	0	0
	22-60	---	3.5-4.4	0	0	0
211:						
Lospinos------------------------	0-2	7.3-16	5.1-5.5	0	0	0
	2-8	7.3-16	5.6-6.0	0	0	0
	8-14	10-23	5.6-6.0	0	0	0
	14-23	22-32	5.6-6.0	0	0	0
	23-28	15-22	5.6-6.0	0	0	0
	28-60	---	---	0	0	0
212:						
Lospinos------------------------	0-2	22-32	5.6-6.0	0	0	0
	2-9	22-32	5.6-6.0	0	0	0
	9-19	22-32	5.6-6.0	0	0	0
	19-22	22-32	5.1-5.5	0	0	0
	22-60	---	---	0	0	0
Rock outcrop.						

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
230:						
Fantail	0-1	---	5.6-6.5	0	0	0
	1-3	16-26	6.6-7.3	0	0	0
	3-7	17-32	7.4-7.8	1-6	0	0
	7-13	20-36	6.6-7.3	0-1	0	0
	13-24	20-36	6.6-7.3	0-1	0	0
	24-29	20-36	6.6-7.3	0-1	0	0
	29-60	---	---	0	0	0
240:						
Delphine	0-1	3.9-11	6.1-6.5	0	0	0
	1-9	5.5-15	6.1-6.5	0	0	0
	9-14	15-22	6.1-6.5	0	0	0
	14-21	---	---	0	0	0
	21-31	---	---	0	0	0
Miasotus	0-1	10-15	6.1-6.5	0	0	0
	1-2	10-15	5.6-6.0	0	0	0
	2-8	14-21	6.1-6.5	0	0	0
	8-13	20-26	6.1-6.5	0	0	0
	13-19	20-30	6.1-6.5	0	0	0
	19-26	---	---	0	0	0
	26-36	---	---	0	0	0
Yardarm	0-1	---	5.6-6.5	0	0	0
	1-19	22-32	6.1-6.5	0	0	0
	19-35	21-31	6.1-6.5	0	0	0
	35-39	---	---	0	0	0
	39-49	---	---	0	0	0
241:						
Delphine	0-7	21-27	6.1-6.5	0	0	0
	7-15	21-27	6.1-6.5	0	0	0
	15-22	---	---	0	0	0
	22-31	---	---	0	0	0
Badland.						
Miasotus	0-3	3.8-10	5.6-6.0	0	0	0
	3-6	16-23	5.6-6.0	0	0	0
	6-13	20-30	6.1-6.5	0	0	0
	13-17	20-30	6.1-6.5	0	0	0
	17-23	---	---	0	0	0
	23-33	---	---	0	0	0
250:						
Spinnaker	0-<1	50-103	5.6-6.5	0	0	0
	<1-1	2.6-10	6.6-7.3	0	0	0
	1-14	2.6-10	6.6-7.3	0	0	0
	14-18	---	---	0	0	0
	18-28	---	---	0	0	0
Starboard	0-1	---	5.1-5.5	0	0	0
	1-4	---	5.6-6.5	0	0	0
	4-7	1.1-7.3	6.1-6.5	0	0	0
	7-12	16-23	6.6-7.3	0	0	0
	12-30	22-33	6.1-6.5	0	0	0
	30-35	16-23	6.6-7.3	0	0	0
	35-60	---	---	0	0	0
Rock outcrop.						

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
251:						
Spinnaker	0-1	2.6-10	6.6-7.3	0	0	0
	1-6	2.6-10	6.6-7.3	0	0	0
	6-16	---	---	0	0	0
Rock outcrop.						
260:						
Starboard	0-1	---	5.1-5.5	0	0	0
	1-2	7.5-16	6.6-7.3	0	0	0
	2-12	15-23	6.1-6.5	0	0	0
	12-30	16-23	6.6-7.3	0	0	0
	30-60	---	---	0	0	0
Spinnaker	0-<1	50-103	5.6-6.5	0	0	0
	<1-2	6.2-15	6.6-7.3	0	0	0
	2-7	6.2-15	6.6-7.3	0	0	0
	7-14	13-19	6.6-7.3	0	0	0
	14-24	---	---	0	0	0
Rock outcrop.						
262:						
Halyard	0-6	18-37	6.6-7.3	0	0	0
	6-20	26-52	7.4-7.8	0	0	0
	20-29	26-52	7.4-7.8	0	0	0
	29-35	26-52	7.4-7.8	0	0	0
	35-60	---	---	0	0	0
Fantail	0-3	---	5.6-6.5	0	0	0
	3-8	23-37	6.6-7.3	0	0	0
	8-14	12-23	6.6-7.3	0	0	0
	14-20	20-36	6.1-6.5	0	0	0
	20-30	29-47	6.1-6.5	0	0	0
	30-60	---	---	0	0	0
263:						
Starboard	0-1	---	5.1-5.5	0	0	0
	1-3	5.6-16	6.6-7.3	0	0	0
	3-18	---	5.1-5.5	0	0	0
	18-39	---	5.1-5.5	0	0	0
	39-60	---	---	0	0	0
Pachic Argixerolls	0-4	50-103	5.6-6.5	0	0	0
	4-12	7.3-16	7.4-7.8	0	0	0
	12-20	9.6-23	7.4-7.8	0	0	0
	20-41	21-31	6.6-7.3	0	0	0
	41-60	---	---	0	0	0
Rock outcrop.						
270:						
Topdeck	0-<1	7.5-16	6.6-7.3	0	0	0
	<1-6	7.5-16	6.6-7.3	0	0	0
	6-10	16-23	6.6-7.3	0	0	0
	10-20	---	---	0	0	0
Rock outcrop.						

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	mmhos/cm	
270:						
Spinnaker------------------------	0-1	50-103	5.6-6.5	0	0	0
	1-2	2.6-10	6.6-7.3	0	0	0
	2-12	2.6-10	6.6-7.3	0	0	0
	12-22	---	---	0	0	0
271:						
Topdeck-------------------------	0-<1	50-103	5.6-6.5	0	0	0
	<1-6	7.5-16	6.6-7.3	0	0	0
	6-12	16-23	6.6-7.3	0	0	0
	12-18	19-30	6.6-7.3	0	0	0
	18-31	---	---	0	0	0
Spinnaker------------------------	0-<1	50-103	5.6-6.5	0	0	0
	<1-2	2.6-10	6.6-7.3	0	0	0
	2-10	2.6-10	6.6-7.3	0	0	0
	10-18	---	---	0	0	0
	18-28	---	---	0	0	0
Tongva--------------------------	0-<1	50-103	5.6-6.5	---	0	0
	<1-3	7.5-16	6.6-7.3	0	0	0
	3-16	16-23	6.6-7.3	0	0	0
	16-22	21-31	5.1-5.5	0	0	0
	22-31	19-30	6.6-7.3	0	0	0
	31-60	---	---	---	0	0
272:						
Topdeck-------------------------	0-2	3.1-11	6.6-7.3	0	0	0
	2-8	16-23	6.6-7.3	0	0	0
	8-12	22-32	6.6-7.3	0	0	0
	12-16	---	---	0	0	0
	16-26	---	---	0	0	0
Starboard-----------------------	0-1	---	5.1-5.5	0	0	0
	1-16	15-22	6.1-6.5	0	0	0
	16-26	15-23	6.1-6.5	0	0	0
	26-28	22-32	6.6-7.3	0	0	0
	28-60	---	---	0	0	0
Rock outcrop.						
273:						
Topdeck, overblown--------------	0-7	3.1-11	6.6-7.3	0	0	0
	7-19	22-32	6.6-7.3	0	0	0
	19-28	---	---	0	0	0
Typic Durixerolls, loamy subsoil	0-2	7.8-17	7.4-7.8	0	0	0
	2-13	11-16	7.4-7.8	0	0	0
	13-18	8.5-12	7.4-7.8	0	0	0
	18-19	---	---	0	0	0
	19-60	---	---	0	0	0
290:						
Rock outcrop.						
Topdeck-------------------------	0-<1	50-103	5.6-6.5	0	0	0
	<1-4	5.8-11	6.6-7.3	0	0	0
	4-7	11-17	6.6-7.3	0	0	0
	7-18	---	---	0	0	0
	18-28	---	---	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
290:						
Starboard	0-1	---	5.1-5.5	0	0	0
	1-16	15-22	6.1-6.5	0	0	0
	16-26	15-23	6.1-6.5	0	0	0
	26-28	22-32	6.6-7.3	0	0	0
	28-60	---	---	0	0	0
291:						
Rock outcrop.						
Spinnaker	0-<1	50-103	5.6-6.5	0	0	0
	<1-2	2.6-10	6.6-7.3	0	0	0
	2-10	2.6-10	6.6-7.3	0	0	0
	10-18	---	---	0	0	0
	18-28	---	---	0	0	0
Topdeck	0-<1	50-103	5.6-6.5	0	0	0
	<1-2	7.5-16	6.6-7.3	0	0	0
	2-4	16-23	6.6-7.3	0	0	0
	4-19	19-30	6.6-7.3	0	0	0
	19-29	---	---	0	0	0
292:						
Rock outcrop.						
Buoy	0-<1	50-103	5.6-6.5	0	0	0
	<1-12	2.1-11	6.6-7.3	0	0	0
	12-18	14-21	7.4-7.8	0-1	0	0
	18-33	30-45	7.4-7.8	0-1	0	0
	33-41	20-36	7.9-8.4	2-3	0	0
	41-45	2.0-10	7.4-7.8	2-3	0	0
	45-60	0	7.4-7.8	0	0	0
Bereme	0-6	10-23	6.1-6.5	0	0	0
	6-10	10-16	6.6-7.3	0	0	0
	10-18	10-16	6.6-7.3	0	0	0
	18-24	---	---	0	0	0
	24-33	---	---	0	0	0
Typic Palexerolls	0-2	50-103	5.6-6.5	---	0	0
	2-5	8.1-14	6.6-7.3	---	0	0
	5-9	6.4-19	7.4-7.8	---	0	0
	9-19	20-32	7.4-7.8	---	0	0
	19-24	19-31	7.4-7.8	0	0	0
	24-60	---	---	---	0	0
300:						
Cumulic Haploxerolls	0-9	2.4-11	6.6-7.3	0	0	0
	9-35	15-23	6.6-7.3	0-1	0	0
	35-51	16-23	6.6-7.3	0	0	0
	51-67	2.8-7.0	6.6-7.3	0	0	0
310:						
Livigne	0-2	16-23	6.6-7.3	0	0	0
	2-6	31-47	6.6-7.3	0	0	0
	6-18	15-22	6.6-7.3	0	0	0
	18-60	---	---	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
310:						
Macool	0-1	---	5.6-6.5	0	0	0
	1-2	4.4-19	6.6-7.3	0	0	0
	2-6	16-26	6.6-7.3	0	0	0
	6-12	16-26	6.6-7.3	0	0	0
	12-17	18-40	6.1-6.5	0	0	0
	17-28	20-52	7.4-7.8	0	0	0
	28-30	20-52	7.4-7.8	0	0	0
	30-38	20-36	7.4-7.8	0	0	0
	38-50	15-26	6.1-6.5	0	0	0
	50-60	---	---	0	0	0
Badland.						
311:						
Livigne	0-2	22-32	6.6-7.3	0	0	0
	2-17	22-32	6.6-7.3	0	0	0
	17-60	---	---	0	0	0
Gunwale	0-1	---	4.0-5.0	0	0	0
	1-2	---	5.6-6.5	0	0	0
	2-4	---	5.1-5.5	0	0	0
	4-11	---	4.5-5.0	0	0	0
	11-22	---	4.5-5.0	0	0	0
	22-60	---	---	0	0	0
321:						
Rudder	0-2	---	4.0-5.0	0	0	0
	2-4	---	5.6-6.5	0	0	0
	4-8	---	4.5-5.0	0	0	0
	8-22	---	4.5-5.0	0	0	0
	22-28	---	4.5-5.0	0	0	0
	28-32	---	---	0	0	0
	32-42	---	---	0	0	0
Spinnaker, moist	0-<1	50-103	5.6-6.5	0	0	0
	<1-2	2.6-10	6.6-7.3	0	0	0
	2-10	2.6-10	6.6-7.3	0	0	0
	10-18	---	---	0	0	0
	18-28	---	---	0	0	0
Rock outcrop.						
650:						
Abaft	0-5	1.0-6.4	6.6-7.3	0	0	0
	5-13	1.0-6.4	6.6-7.3	0	0	0
	13-59	0.8-6.1	6.6-7.3	0	0	0
651:						
Abaft	0-5	1.0-6.4	6.6-7.3	0	0	0
	5-13	1.0-6.4	6.6-7.3	0	0	0
	13-59	0.8-6.1	6.6-7.3	0	0	0
Abaft, moderately steep	0-5	1.0-6.4	6.6-7.3	0	0	0
	5-13	1.0-6.4	6.6-7.3	0	0	0
	13-59	0.8-6.1	6.6-7.3	0	0	0
660:						
Pachic Haploxerolls	0-2	7.3-16	6.6-7.3	0	0	0
	2-20	7.3-16	6.1-6.5	0	0	0
	20-33	1.1-7.3	6.6-7.3	0	0	0
	33-41	7.1-15	6.6-7.3	0	0	0
	41-63	1.0-2.9	6.6-7.3	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	mmhos/cm	
670:						
Ironshot------------------------	0-7	7.5-16	6.1-6.5	0	0	0
	7-14	3.8-15	6.6-7.3	0	0	0
	14-20	3.8-10	7.4-7.8	0	0	0
	20-31	2.0-7.0	7.4-7.8	0	0	0
	31-66	2.0-7.0	7.4-7.8	0	0	0
Ahoy----------------------------	0-2	4.4-16	6.1-6.5	0	0	0
	2-16	6.3-20	6.1-6.5	0	0	0
	16-20	2.1-11	7.1-7.5	0	0	0
	20-60	20-32	7.1-7.5	0	0	0
680:						
Bereme--------------------------	0-1	3.9-16	6.6-7.3	0	0	0
	1-12	10-16	6.6-7.3	0	0	0
	12-15	10-16	6.6-7.3	0	0	0
	15-24	---	---	0	0	0
Rock outcrop.						
681:						
Bereme--------------------------	0-2	3.0-11	6.6-7.3	0	0	0
	2-15	10-17	6.6-7.3	0	0	0
	15-19	---	---	0	0	0
	19-29	---	---	0	0	0
Rock outcrop.						
690:						
Typic Xerorthents---------------	0-5	6.1-13	6.6-7.3	0	0	0
	5-10	3.3-8.9	6.6-7.3	0	0	0
	10-60	---	---	0	0	0
Ultic Haploxeralfs--------------	0-4	---	4.0-5.0	0	0	0
	4-10	1.0-6.1	5.1-5.5	0	0	0
	10-31	---	5.1-5.5	0	0	0
	31-39	---	4.5-5.0	0	0	0
	39-48	---	---	0	0	0
Rock outcrop.						
700:						
Ahoy----------------------------	0-1	50-103	5.6-6.5	0	0	0
	1-4	---	5.6-6.5	0	0	0
	4-13	9.1-20	6.1-6.5	0	0	0
	13-20	18-37	7.4-7.8	0	0	0
	20-26	3.5-19	7.4-7.8	0	0	0
	26-33	26-52	7.4-7.8	0	0	0
	33-60	9.5-11	7.4-7.8	0	0	0
Hawser, moderately steep--------	0-<1	50-103	5.6-6.5	---	0	0
	<1-7	26-57	6.1-6.5	0	0	0
	7-16	26-52	7.4-7.8	0	0	0
	16-60	26-52	7.4-7.8	0	0	0
Ahoy, moderately steep----------	0-2	50-103	5.6-6.5	---	0	0
	2-16	9.1-21	6.1-6.5	0	0	0
	16-18	1.1-9.2	7.4-7.8	0	0	0
	18-41	26-52	7.4-7.8	0	0	0
	41-61	6.7-9.5	7.4-7.8	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
700:						
Hawser	0-1	50-103	5.6-6.5	---	0	0
	1-7	26-57	6.1-6.5	0	0	0
	7-18	26-52	7.4-7.8	0	0	0
	18-37	26-52	7.4-7.8	0	0	0
	37-41	26-52	7.4-7.8	0	0	0
	41-60	6.7-9.5	7.4-7.8	0	0	0
710:						
Windage	0-2	---	5.6-6.5	0	0	0
	2-5	13-26	6.6-7.3	0	0	0
	5-12	18-37	6.6-7.3	0	0	0
	12-24	26-52	7.4-7.8	0	0	0
	24-31	20-36	7.4-7.8	0	0	0
	31-37	20-36	7.4-7.8	0	0	0
	37-60	16-33	7.4-7.8	0	0	0
Typic Xerorthents	0-5	6.1-13	6.6-7.3	0	0	0
	5-10	3.3-8.9	6.6-7.3	0	0	0
	10-60	---	---	0	0	0
Buoy	0-<1	50-103	5.6-6.5	0	0	0
	<1-12	8.1-19	6.6-7.3	0	0	0
	12-47	17-32	7.4-7.8	0-1	0	0
	47-51	15-26	7.9-8.4	2-3	0	0
	51-60	0	7.9-8.4	0	0	0
711:						
Windage	0-2	---	5.6-6.5	0	0	0
	2-7	13-26	6.6-7.3	0	0	0
	7-22	18-37	6.6-7.3	0	0	0
	22-31	26-52	7.4-7.8	0	0	0
	31-39	20-36	7.4-7.8	0	0	0
	39-43	20-36	7.4-7.8	0	0	0
	43-51	12-23	7.4-7.8	0	0	0
	51-60	12-23	7.4-7.8	0	0	0
Hawser	0-4	26-52	7.4-7.8	1-3	0	0
	4-18	20-35	6.6-7.3	1-3	0	0
	18-28	20-35	6.6-7.3	1-3	0	0
	28-35	20-35	7.4-7.8	1-3	0	0
	35-41	20-35	7.4-7.8	1-3	0	0
	41-60	20-35	7.4-7.8	1-3	0	0
Typic Haploxeralfs	0-2	10-16	7.4-7.8	0	0	0
	2-8	10-16	7.4-7.8	0	0	0
	8-20	14-21	6.6-7.3	0	0	0
	20-31	20-30	6.6-7.3	0	0	0
	31-60	---	---	0	0	0
712:						
Windage	0-<1	---	5.6-6.5	0	0	0
	<1-2	18-37	6.6-7.3	0	0	0
	2-10	18-37	6.6-7.3	0	0	0
	10-18	26-52	7.4-7.8	0	0	0
	18-30	20-36	7.4-7.8	0	0	0
	30-43	20-36	7.4-7.8	0	0	0
	43-60	16-33	7.4-7.8	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
712:						
Buoy	0-9	7.5-16	6.6-7.3	0	0	0
	9-14	16-23	6.6-7.3	0	0	0
	14-28	30-44	7.4-7.8	0-1	0	0
	28-41	30-44	7.4-7.8	0-1	0	0
	41-60	0	7.4-7.8	0	0	0
713:						
Windage	0-1	18-37	6.6-7.3	0	0	0
	1-28	26-52	6.6-7.3	0	0	0
	28-35	26-52	7.4-7.8	0	0	0
	35-41	20-36	7.4-7.8	0	0	0
	41-60	20-36	7.4-7.8	0	0	0
Ballast	0-4	13-26	7.9-8.4	0	0	0
	4-12	18-37	7.9-8.4	1-5	0	0
	12-24	20-36	7.9-8.4	20-40	0	0
	24-26	---	---	20-40	0	0
	26-35	---	---	20-40	0	0
721:						
Buoy	0-15	5.1-12	6.6-7.3	0	0	0
	15-18	3.8-10	6.6-7.3	0	0	0
	18-45	30-44	7.4-7.8	0	0	0
	45-60	0	7.4-7.8	0	0	0
722:						
Buoy, cobbly	0-5	11-20	6.6-7.3	0	0	0
	5-16	9.5-16	7.4-7.8	0-1	0	0
	16-24	30-45	7.4-7.8	0-1	0	0
	24-43	20-36	7.9-8.4	2-3	0	0
	43-60	0	7.9-8.4	0	0	0
Rock outcrop.						
723:						
Buoy	0-<1	50-103	5.6-6.5	0	0	0
	<1-4	4.0-11	6.6-7.3	0	0	0
	4-18	0.7-5.7	7.4-7.8	0-1	0	0
	18-26	1.1-7.2	7.4-7.8	0-1	0	0
	26-39	27-41	7.9-8.4	2-3	0	0
	39-53	30-44	7.4-7.8	2-3	0	0
	53-60	---	---	0	0	0
Lithic Argixerolls	0-<1	50-103	5.6-6.5	0	0	0
	<1-1	1.5-8.8	6.6-7.3	0	0	0
	1-12	4.5-18	6.6-7.3	0	0	0
	12-16	20-31	6.6-7.3	0	0	0
	16-26	---	---	0	0	0
Rock outcrop.						
724:						
Buoy	0-<1	50-103	5.6-6.5	0	0	0
	<1-12	5.4-13	6.6-7.3	0	0	0
	12-18	8.7-16	7.4-7.8	0-1	0	0
	18-33	30-45	7.4-7.8	0-1	0	0
	33-41	20-36	7.9-8.4	2-3	0	0
	41-45	4.6-10	7.4-7.8	2-3	0	0
	45-60	---	---	0	0	0
Rock outcrop.						

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
724:						
Ballast	0-5	18-33	6.6-7.3	0	0	0
	5-28	23-48	7.4-7.8	0	0	0
	28-31	20-36	7.9-8.4	1-5	0	0
	31-39	20-36	8.5-9.0	20-40	0	0
	39-39	---	---	20-40	0	0
	39-49	---	---	20-40	0	0
725:						
Buoy	0-6	4.7-10	6.1-6.5	0	0	0
	6-18	4.7-10	6.6-7.3	0	0	0
	18-30	30-44	7.4-7.8	0	0	0
	30-41	20-32	7.4-7.8	0	0	0
	41-60	---	---	0	0	0
Typic Haploxeralfs	0-2	10-16	7.4-7.8	0	0	0
	2-8	10-16	7.4-7.8	0	0	0
	8-20	14-21	6.6-7.3	0	0	0
	20-31	20-30	6.6-7.3	0	0	0
	31-60	---	---	0	0	0
730:						
Lodestone, very deep	0-2	18-37	7.4-7.8	0	0	0
	2-12	20-35	7.4-7.8	0	0	0
	12-26	20-35	7.4-7.8	1-3	0	0
	26-33	20-35	7.9-8.4	15-30	0	0
	33-51	20-35	8.5-9.0	15-40	0	0
	51-60	20-35	8.5-9.0	15-30	0	0
Ballast	0-7	18-37	7.9-8.4	0	0	0
	7-11	26-52	7.9-8.4	15-30	0	0
	11-26	20-36	7.9-8.4	15-30	0	0
	26-30	---	---	15-30	0	0
	30-39	---	---	15-30	0	0
Buoy	0-3	10-17	6.6-7.3	0	0	0
	3-18	10.0-16	7.4-7.8	0-1	0	0
	18-24	21-31	7.4-7.8	0-1	0	0
	24-41	30-45	7.9-8.4	2-3	0	0
	41-60	---	---	0	0	0
761:						
Lodestone	0-3	23-40	7.4-7.8	0	0	0
	3-11	26-46	7.4-7.8	2-6	0	0
	11-23	20-36	7.9-8.4	10-30	0	0
	23-30	20-36	7.9-8.4	10-30	0	0
	30-39	---	---	10-30	0	0
Typic Xerorthents	0-5	6.1-13	6.6-7.3	0	0	0
	5-10	3.3-8.9	6.6-7.3	0	0	0
	10-60	---	---	0	0	0
Windage	0-10	14-26	6.6-7.3	0	0	0
	10-30	23-48	6.6-7.3	0	0	0
	30-33	23-48	7.4-7.8	0	0	0
	33-60	11-23	7.4-7.8	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	mmhos/cm	
762:						
Lodestone	0-8	23-40	7.4-7.8	0	0	0
	8-24	26-46	7.4-7.8	2-6	0	0
	24-30	20-36	7.9-8.4	10-30	0	0
	30-39	---	---	10-30	0	0
Ballast	0-2	13-26	7.9-8.4	0	0	0
	2-8	18-37	7.9-8.4	1-5	0	0
	8-12	15-26	7.9-8.4	20-40	0	0
	12-19	20-36	7.9-8.4	20-40	0	0
	19-23	20-36	7.9-8.4	20-40	0	0
	23-39	---	---	20-40	0	0
	39-48	---	---	20-40	0	0
Halyard	0-8	8.1-20	7.4-7.8	0	0	0
	8-13	16-29	7.4-7.8	0	0	0
	13-22	18-33	7.4-7.8	0	0	0
	22-30	32-57	7.4-7.8	0	0	0
	30-39	18-37	7.4-7.8	0	0	0
	39-60	---	---	0	0	0
763:						
Hawser	0-<1	50-103	5.6-6.5	0	0	0
	<1-12	26-57	6.1-6.5	0	0	0
	12-39	26-52	7.4-7.8	0	0	0
	39-47	9.1-20	7.4-7.8	0	0	0
	47-60	9.1-20	7.4-7.8	0	0	0
Lodestone, very deep	0-2	18-37	7.9-8.4	0-2	0	0
	2-8	20-35	7.9-8.4	0-5	0	0
	8-18	20-35	7.9-8.4	0-2	0	0
	18-26	20-35	7.9-8.4	0-15	0	0
	26-39	17-32	7.9-8.4	25-55	0	0
	39-59	17-32	7.4-7.8	1-5	0	0
Buoy	0-<1	50-103	5.6-6.5	0	0	0
	<1-9	4.4-13	6.6-7.3	0	0	0
	9-14	8.7-16	7.4-7.8	0-1	0	0
	14-28	30-45	7.4-7.8	0-1	0	0
	28-41	20-36	7.9-8.4	2-3	0	0
	41-60	---	---	0	0	0
780:						
Typic Argixerolls	0-1	4.5-12	7.4-7.8	0	0	0
	1-20	11-18	6.6-7.3	0	0	0
	20-28	15-24	6.6-7.3	0	0	0
	28-31	23-35	7.4-7.8	0	0	0
	31-60	---	---	0	0	0
800:						
Ballast	0-16	18-37	6.6-7.3	0	0	0
	16-20	26-52	7.4-7.8	1-5	0	0
	20-28	20-36	7.9-8.4	20-40	0	0
	28-60	---	---	20-40	0	0
Halyard	0-6	8.1-20	6.1-6.5	0	0	0
	6-11	18-37	6.1-6.5	0	0	0
	11-22	26-52	6.1-6.5	0	0	0
	22-29	26-52	6.6-7.3	0	0	0
	29-33	---	---	0	0	0
	33-60	---	---	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
800:						
Typic Argixerolls---------------	0-6	20-31	6.6-7.3	0	0	0
	6-20	27-43	6.6-7.3	0	0	0
	20-28	---	---	0	0	0
	28-37	---	---	0	0	0
850:						
Typic Natrixeralfs--------------	0-2	50-103	5.6-6.5	0	0	0
	2-3	5.4-12	8.5-9.0	0	0	0
	3-6	10-16	8.5-9.0	0	0	0
	6-12	14-22	8.5-9.0	0	0	0
	12-22	14-22	8.5-9.0	1-3	0	0
	22-24	14-22	8.5-9.0	1-3	0.0-60.0	13-15
	24-60	---	---	0	0	0
Typic Haploxeralfs, dry---------	0-1	50-103	5.6-6.5	0	0	0
	1-3	1.8-8.3	8.5-9.0	0	0	0
	3-8	14-22	8.5-9.0	0	0	0
	8-18	14-22	7.9-8.4	0	0	0
	18-28	14-22	7.9-8.4	1-3	0	0
	28-47	10-16	8.5-9.0	2-6	0	0
	47-49	10-16	7.9-8.4	4-8	0	0
	49-59	---	---	0	0	0
851:						
Typic Haploxeralfs, dry---------	0-1	50-103	5.6-6.5	0	0	0
	1-3	1.8-8.3	8.5-9.0	0	0	0
	3-8	14-22	8.5-9.0	0	0	0
	8-18	14-22	7.9-8.4	0	0	0
	18-28	14-22	7.9-8.4	1-3	0	0
	28-47	10-16	8.5-9.0	2-6	0	0
	47-49	10-16	7.9-8.4	4-8	0	0
	49-59	---	---	0	0	0
Typic Natrixeralfs--------------	0-2	50-103	5.6-6.5	0	0	0
	2-4	10-16	8.5-9.0	0	0	0
	4-16	14-22	8.5-9.0	0	0	0
	16-31	20-30	8.5-9.0	1-2	0	0
	31-60	20-30	8.5-9.0	2-4	0.0-60.0	13-16
852:						
Lithic Argixerolls, dry---------	0-1	50-103	5.6-6.5	0	0	0
	1-2	12-17	6.6-7.3	0	0	0
	2-4	22-31	6.6-7.3	0	0	0
	4-6	---	---	0	0	0
	6-16	---	---	0	0	0
Typic Natrixeralfs--------------	0-1	50-103	5.6-6.5	0	0	0
	1-5	14-22	8.5-9.0	0	0	0
	5-12	20-30	8.5-9.0	0	0	0
	12-15	20-30	8.5-9.0	1-3	0.0-60.0	13-15
	15-21	---	---	1-3	0	0
	21-31	---	---	1-3	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
853:						
Rock outcrop.						
Typic Haploxeralfs, dry---------	0-1	50-103	5.6-6.5	0	0	0
	1-3	1.8-8.3	8.5-9.0	0	0	0
	3-8	14-22	8.5-9.0	0	0	0
	8-18	14-22	7.9-8.4	0	0	0
	18-28	14-22	7.9-8.4	1-3	0	0
	28-47	10-16	8.5-9.0	2-6	0	0
	47-49	10-16	7.9-8.4	4-8	0	0
	49-59	---	---	0	0	0
860:						
Topdeck-------------------------	0-1	50-103	5.6-6.5	0	0	0
	1-5	16-23	6.6-7.3	0	0	0
	5-14	22-29	6.6-7.3	0	0	0
	14-24	---	---	0	0	0
Halyard-------------------------	0-3	13-26	6.6-7.3	0	0	0
	3-16	26-52	7.4-7.8	0	0	0
	16-31	26-52	7.4-7.8	0	0	0
	31-39	26-52	7.4-7.8	0	0	0
	39-60	---	---	0	0	0
861:						
Rock outcrop.						
Topdeck-------------------------	0-<1	7.5-16	6.6-7.3	0	0	0
	<1-6	7.5-16	6.6-7.3	0	0	0
	6-10	16-23	6.6-7.3	0	0	0
	10-20	---	---	0	0	0
Spinnaker-----------------------	0-1	50-103	5.6-6.5	0	0	0
	1-2	2.6-10	6.6-7.3	0	0	0
	2-12	2.6-10	6.6-7.3	0	0	0
	12-22	---	---	0	0	0
900:						
Petrocalcic Palexeralfs---------	0-<1	9.1-20	7.4-7.8	1-2	0	0
	<1-4	20-36	7.4-7.8	1-2	0	0
	4-11	20-35	7.4-7.8	1-3	0	0
	11-31	---	---	5-15	0	0
	31-60	---	7.9-8.4	4-14	0	0
910:						
Hawser--------------------------	0-2	18-37	6.6-7.3	0	0	0
	2-17	20-36	6.6-7.3	0	0	0
	17-60	20-36	6.6-7.3	0	0	0
Hawser, moderately steep--------	0-2	18-37	6.6-7.3	0	0	0
	2-17	20-36	6.6-7.3	0	0	0
	17-60	20-36	6.6-7.3	0	0	0
920:						
Typic Durixerolls---------------	0-1	4.5-12	6.6-7.3	0	0	0
	1-19	4.5-12	6.6-7.3	0	0	0
	19-23	26-38	7.9-8.4	0	0	0
	23-27	5.8-12	7.9-8.4	1-2	0	0
	27-30	---	---	1-2	0	0
	30-60	---	---	0	0	0

Table 13.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100g*	*pH*	*Pct*	*mmhos/cm*	
921:						
Typic Durixerolls---------------	0-20	4.5-17	7.4-7.8	0	0	0
	20-31	26-38	7.4-7.8	0	0	0
	31-33	---	---	1-3	0	0
	33-60	---	---	1-3	0	0
930:						
Fluventic Haploxerolls----------	0-8	16-22	7.4-7.8	1-2	0	0
	8-15	11-17	7.4-7.8	1-2	0	0
	15-30	0.8-5.8	7.4-7.8	1-2	0	0
	30-31	26-38	7.4-7.8	1-2	0	0
	31-35	0.8-5.8	7.4-7.8	1-2	0	0
	35-39	26-38	7.4-7.8	1-2	0	0
	39-60	0.8-5.8	7.4-7.8	1-2	0	0
940:						
Typic Durixeralfs---------------	0-1	5.4-11	6.6-7.3	1-3	0	0
	1-2	14-21	6.6-7.3	1-3	0	0
	2->2	---	---	1-3	0	0
	>2-12	---	---	1-3	0	0
950:						
Ahoy----------------------------	0-1	15-23	6.1-6.5	0	0	0
	1-11	18-37	7.4-7.8	0	0	0
	11-18	10-17	7.4-7.8	0	0	0
	18-60	19-32	7.4-7.8	0	0	0
Ironshot------------------------	0-15	3.9-17	6.6-7.3	0	0	0
	15-26	1.1-7.2	6.6-7.3	0	0	0
	26-60	1.1-3.8	6.6-7.3	0	0	0
970:						
Dune land.						
980:						
Lithic Haploxeralfs-------------	0-9	1.1-7.2	6.6-7.3	0	0	0
	9-15	10-16	6.6-7.3	0	0	0
	15-25	---	---	0	0	0

Table 14.--Erosion Properties of the Soils

(Entries under "Erosion factors" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
		K	Kf	T		
	In					
100:						
Fiale	0-2	---	---	3	7	38
	2-4	.32	.32			
	4-15	.15	.15			
	15-24	.15	.15			
	24-28	.15	.15			
	28-34	.24	.24			
	34-48	---	---			
	48-60	---	---			
Tongva	0-6	.37	.37	3	5	56
	6-18	.32	.32			
	18-24	.32	.32			
	24-60	---	---			
Topdeck	0-3	.37	.37	1	7	38
	3-7	.32	.32			
	7-11	---	---			
	11-21	---	---			
101:						
Spinnaker	0-<1	---	---	1	5	56
	<1-3	.15	.24			
	3-8	.15	.24			
	8-11	---	---			
	11-21	---	---			
Tongva	0-7	.37	.37	3	5	56
	7-19	.37	.37			
	19-23	.20	.37			
	23-60	---	---			
Fiale	0-1	---	---	3	7	38
	1-8	.37	.37			
	8-13	.24	.24			
	13-20	.15	.15			
	20-25	.15	.15			
	25-60	---	---			
102:						
Fiale	0-1	---	---	3	7	38
	1-4	.17	.32			
	4-24	.15	.15			
	24-26	---	---			
	26-60	---	---			
Topdeck	0-<1	---	---	1	7	38
	<1-2	.37	.37			
	2-10	.20	.37			
	10-18	---	---			
103:						
Fiale	0-2	.15	.15	3	4	86
	2-9	.15	.15			
	9-17	.15	.15			
	17-21	.15	.15			
	21-60	---	---			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
103:						
Topdeck-------------------------------	0-2	.15	.24	1	7	38
	2-17	.32	.32			
	17-19	.32	.32			
	19-29	---	---			
Rock outcrop.						
120:						
Miasotus------------------------------	0-1	---	---	2	3	86
	1-3	.24	.24			
	3-6	.20	.37			
	6-9	.10	.32			
	9-15	.10	.32			
	15-21	---	---			
	21-31	---	---			
Yardarm-------------------------------	0-1	---	---	3	6	48
	1-8	.24	.43			
	8-22	.17	.32			
	22-28	---	---			
	28-37	---	---			
130:						
Frigate-------------------------------	0-3	---	---	3	5	56
	3-4	.43	.43			
	4-8	.24	.43			
	8-15	.24	.43			
	15-28	.15	.43			
	28-31	.15	.43			
	31-67	---	---			
	67-69	---	---			
Yardarm-------------------------------	0-2	.43	.43	3	6	48
	2-8	.43	.43			
	8-13	.17	.32			
	13-24	.10	.32			
	24-28	---	---			
	28-38	---	---			
150:						
Halyard-------------------------------	0-2	---	---	3	3	86
	2-13	.20	.37			
	13-22	.10	.15			
	22-37	.15	.15			
	37-60	---	---			
Topdeck-------------------------------	0-2	.37	.37	1	7	38
	2-4	.37	.37			
	4-11	.37	.37			
	11-14	.17	.32			
	14-16	---	---			
	16-26	---	---			
Tongva--------------------------------	0-2	.37	.37	3	5	56
	2-8	.37	.37			
	8-13	.32	.32			
	13-18	.17	.32			
	18-24	.17	.32			
	24-29	---	---			
	29-39	---	---			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
152:						
Halyard	0-2	---	---	3	3	86
	2-5	.32	.32			
	5-22	.15	.15			
	22-34	.10	.15			
	34-60	---	---			
Starboard	0-1	---	---	3	5	56
	1-7	.37	.37			
	7-22	.17	.32			
	22-60	---	---			
153:						
Halyard	0-3	.37	.37	3	3	86
	3-16	.15	.15			
	16-31	.15	.15			
	31-39	.15	.15			
	39-60	---	---			
Topdeck	0-1	---	---	1	7	38
	1-5	.43	.43			
	5-14	.37	.37			
	14-24	---	---			
155:						
Halyard	0-2	---	---	3	3	86
	2-13	.20	.37			
	13-22	.10	.15			
	22-37	.15	.15			
	37-60	---	---			
Fiale	0-2	.15	.15	3	7	38
	2-4	.15	.15			
	4-14	.15	.15			
	14-26	.15	.15			
	26-60	---	---			
160:						
Beaches	---	---	---	5	1	180
Abaft	0-5	.17	.17	5	2	134
	5-13	.17	.17			
	13-59	.17	.17			
180:						
Typic Argixerolls, very deep	0-1	---	---	5	5	56
	1-15	.17	.32			
	15-60	.05	.32			
190:						
Typic Xerofluvents	0-2	---	---	5	3	86
	2-24	.24	.24			
	24-39	.02	.17			
	39-72	.02	.17			
Riverwash.						

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
200:						
Fantail, thin surface	0-1	---	---	3	6	48
	1-3	.20	.37			
	3-7	.10	.15			
	7-13	.05	.15			
	13-24	.05	.15			
	24-29	.05	.15			
	29-60	---	---			
Forestay	0-2	---	---	4	6	48
	2-4	.20	.37			
	4-15	.20	.37			
	15-27	.10	.24			
	27-35	.02	.15			
	35-45	.10	.15			
	45-60	.02	.15			
Fantail	0-2	---	---	4	6	48
	2-4	.20	.37			
	4-12	.20	.37			
	12-22	.10	.37			
	22-35	.05	.15			
	35-39	.05	.15			
	39-60	---	---			
210:						
Lospinos	0-6	.15	.24	3	6	48
	6-15	.10	.37			
	15-20	.10	.32			
	20-24	.10	.37			
	24-60	---	---			
Forestay	0-2	---	---	4	6	48
	2-3	.43	.43			
	3-6	.37	.37			
	6-13	.10	.15			
	13-22	.05	.15			
	22-60	.05	.15			
Forestay, strongly sloping	0-2	---	---	4	6	48
	2-3	.43	.43			
	3-6	.37	.37			
	6-13	.10	.15			
	13-22	.05	.15			
	22-60	.05	.15			
211:						
Lospinos	0-2	.20	.37	3	6	48
	2-8	.20	.37			
	8-14	.10	.37			
	14-23	.10	.32			
	23-28	.05	.37			
	28-60	---	---			
212:						
Lospinos	0-2	.17	.32	3	6	48
	2-9	.10	.32			
	9-19	.10	.32			
	19-22	.10	.32			
	22-60	---	---			
Rock outcrop.						

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
230:						
Fantail	0-1	---	---	4	6	48
	1-3	.20	.37			
	3-7	.10	.15			
	7-13	.05	.15			
	13-24	.05	.15			
	24-29	.05	.15			
	29-60	---	---			
240:						
Delphine	0-1	.15	.43	2	6	48
	1-9	.10	.43			
	9-14	.10	.32			
	14-21	---	---			
	21-31	---	---			
Miasotus	0-1	.24	.43	2	3	86
	1-2	.15	.43			
	2-8	.10	.43			
	8-13	.20	.32			
	13-19	.20	.32			
	19-26	---	---			
	26-36	---	---			
Yardarm	0-1	---	---	3	6	48
	1-19	.32	.32			
	19-35	.17	.32			
	35-39	---	---			
	39-49	---	---			
241:						
Delphine	0-7	.10	.32	2	8	0
	7-15	.10	.32			
	15-22	---	---			
	22-31	---	---			
Badland.						
Miasotus	0-3	.24	.24	2	3	86
	3-6	.20	.37			
	6-13	.10	.32			
	13-17	.10	.32			
	17-23	---	---			
	23-33	---	---			
250:						
Spinnaker	0-<1	---	---	1	5	56
	<1-1	.15	.24			
	1-14	.15	.24			
	14-18	---	---			
	18-28	---	---			
Starboard	0-1	---	---	3	5	56
	1-4	---	---			
	4-7	.10	.15			
	7-12	.37	.37			
	12-30	.32	.32			
	30-35	.20	.37			
	35-60	---	---			
Rock outcrop.						

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
251:						
Spinnaker	0-1	.15	.24	1	5	56
	1-6	.15	.24			
	6-16	---	---			
Rock outcrop.						
260:						
Starboard	0-1	---	---	3	5	56
	1-2	.20	.37			
	2-12	.20	.37			
	12-30	.20	.37			
	30-60	---	---			
Spinnaker	0-<1	---	---	1	4	86
	<1-2	.20	.37			
	2-7	.20	.37			
	7-14	.20	.37			
	14-24	---	---			
Rock outcrop.						
262:						
Halyard	0-6	.17	.32	3	3	86
	6-20	.10	.15			
	20-29	.05	.15			
	29-35	.15	.15			
	35-60	---	---			
Fantail	0-3	---	---	4	7	38
	3-8	.32	.32			
	8-14	.32	.32			
	14-20	.10	.15			
	20-30	.05	.15			
	30-60	---	---			
263:						
Starboard	0-1	---	---	3	5	56
	1-3	.37	.37			
	3-18	.37	.37			
	18-39	.37	.37			
	39-60	---	---			
Pachic Argixerolls	0-4	---	---	3	6	48
	4-12	.20	.37			
	12-20	.37	.37			
	20-41	.10	.32			
	41-60	---	---			
Rock outcrop.						
270:						
Topdeck	0-<1	.20	.37	1	7	38
	<1-6	.20	.37			
	6-10	.20	.37			
	10-20	---	---			
Rock outcrop.						

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
270:						
Spinnaker	0-1	---	---	1	5	56
	1-2	.15	.24			
	2-12	.15	.24			
	12-22	---	---			
271:						
Topdeck	0-<1	---	---	1	7	38
	<1-6	.20	.37			
	6-12	.20	.37			
	12-18	.17	.32			
	18-31	---	---			
Spinnaker	0-<1	---	---	1	5	56
	<1-2	.15	.24			
	2-10	.15	.24			
	10-18	---	---			
	18-28	---	---			
Tongva	0-<1	---	---	3	5	56
	<1-3	.20	.37			
	3-16	.20	.37			
	16-22	.17	.32			
	22-31	.17	.32			
	31-60	---	---			
272:						
Topdeck	0-2	.15	.24	1	7	38
	2-8	.20	.37			
	8-12	.32	.32			
	12-16	---	---			
	16-26	---	---			
Starboard	0-1	---	---	3	5	56
	1-16	.37	.37			
	16-26	.37	.37			
	26-28	.32	.32			
	28-60	---	---			
Rock outcrop.						
273:						
Topdeck, overblown	0-7	.15	.24	1	4	86
	7-19	.17	.32			
	19-28	---	---			
Typic Durixerolls, loamy subsoil	0-2	.24	.24	1	3	86
	2-13	.37	.37			
	13-18	.37	.37			
	18-19	---	---			
	19-60	---	---			
290:						
Rock outcrop.						
Topdeck	0-<1	---	---	1	7	38
	<1-4	.15	.24			
	4-7	.15	.24			
	7-18	---	---			
	18-28	---	---			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
290:						
Starboard	0-1	---	---	3	5	56
	1-16	.37	.37			
	16-26	.37	.37			
	26-28	.32	.32			
	28-60	---	---			
291:						
Rock outcrop.						
Spinnaker	0-<1	---	---	1	7	38
	<1-2	.15	.24			
	2-10	.15	.24			
	10-18	---	---			
	18-28	---	---			
Topdeck	0-<1	---	---	1	7	38
	<1-2	.20	.37			
	2-4	.20	.37			
	4-19	.17	.32			
	19-29	---	---			
292:						
Rock outcrop.						
Buoy	0-<1	---	---	3	6	48
	<1-12	.28	.28			
	12-18	.37	.37			
	18-33	.15	.15			
	33-41	.15	.15			
	41-45	.28	.28			
	45-60	---	---			
Bereme	0-6	.37	.37	1	3	86
	6-10	.24	.24			
	10-18	.10	.24			
	18-24	---	---			
	24-33	---	---			
Typic Palexerolls	0-2	---	---	3	5	56
	2-5	.37	.37			
	5-9	.20	.37			
	9-19	.10	.15			
	19-24	.05	.15			
	24-60	---	---			
300:						
Cumulic Haploxerolls	0-9	.43	.43	4	5	56
	9-35	.43	.43			
	35-51	.43	.43			
	51-67	.02	.17			
310:						
Livigne	0-2	.37	.37	1	5	56
	2-6	.15	.15			
	6-18	.37	.37			
	18-60	---	---			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
310:						
Macool	0-1	---	---	3	5	56
	1-2	.37	.37			
	2-6	.37	.37			
	6-12	.37	.37			
	12-17	.32	.32			
	17-28	.15	.15			
	28-30	.15	.15			
	30-38	.15	.15			
	38-50	.32	.32			
	50-60	---	---			
Badland.						
311:						
Livigne	0-2	.32	.32	1	5	56
	2-17	.32	.32			
	17-60	---	---			
Gunwale	0-1	---	---	2	5	56
	1-2	---	---			
	2-4	.37	.37			
	4-11	.24	.24			
	11-22	.24	.24			
	22-60	---	---			
321:						
Rudder	0-2	---	---	3	6	48
	2-4	---	---			
	4-8	.15	.24			
	8-22	.15	.24			
	22-28	.15	.24			
	28-32	---	---			
	32-42	---	---			
Spinnaker, moist	0-<1	---	---	1	5	56
	<1-2	.15	.24			
	2-10	.15	.24			
	10-18	---	---			
	18-28	---	---			
Rock outcrop.						
650:						
Abaft	0-5	.17	.17	5	2	134
	5-13	.17	.17			
	13-59	.17	.17			
651:						
Abaft	0-5	.17	.17	5	2	134
	5-13	.17	.17			
	13-59	.17	.17			
Abaft, moderately steep	0-5	.17	.17	5	2	134
	5-13	.17	.17			
	13-59	.17	.17			
660:						
Pachic Haploxerolls	0-2	.37	.37	5	5	56
	2-20	.37	.37			
	20-33	.17	.17			
	33-41	.37	.37			
	41-63	.02	.17			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
670:						
Ironshot	0-7	.37	.37	5	5	56
	7-14	.28	.28			
	14-20	.28	.28			
	20-31	.15	.15			
	31-66	.15	.15			
Ahoy	0-2	.37	.37	4	6	48
	2-16	.37	.37			
	16-20	.28	.28			
	20-60	.15	.15			
680:						
Bereme	0-1	.24	.24	1	3	86
	1-12	.24	.24			
	12-15	.24	.24			
	15-24	---	---			
Rock outcrop.						
681:						
Bereme	0-2	.15	.24	1	3	86
	2-15	.15	.24			
	15-19	---	---			
	19-29	---	---			
Rock outcrop.						
690:						
Typic Xerorthents	0-5	.20	.37	1	6	48
	5-10	.17	.28			
	10-60	---	---			
Ultic Haploxeralfs	0-4	---	---	3	2	134
	4-10	.17	.17			
	10-31	.15	.15			
	31-39	.15	.15			
	39-48	---	---			
Rock outcrop.						
700:						
Ahoy	0-1	---	---	4	6	48
	1-4	---	---			
	4-13	.43	.43			
	13-20	.37	.37			
	20-26	.49	.49			
	26-33	.15	.15			
	33-60	.15	.15			
Hawser, moderately steep	0-<1	---	---	5	4	86
	<1-7	.15	.15			
	7-16	.15	.15			
	16-60	.15	.15			
Ahoy, moderately steep	0-2	---	---	4	3	86
	2-16	.24	.24			
	16-18	.17	.17			
	18-41	.15	.15			
	41-61	.15	.15			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
700:						
Hawser	0-1	---	---	5	4	86
	1-7	.15	.15			
	7-18	.15	.15			
	18-37	.15	.15			
	37-41	.15	.15			
	41-60	.15	.15			
710:						
Windage	0-2	---	---	5	5	56
	2-5	.37	.37			
	5-12	.32	.32			
	12-24	.15	.15			
	24-31	.10	.15			
	31-37	.15	.15			
	37-60	.15	.15			
Typic Xerorthents	0-5	.20	.37	1	6	48
	5-10	.17	.28			
	10-60	---	---			
Buoy	0-<1	---	---	3	6	48
	<1-12	.43	.43			
	12-47	.15	.15			
	47-51	.32	.32			
	51-60	---	---			
711:						
Windage	0-2	---	---	5	5	56
	2-7	.37	.37			
	7-22	.32	.32			
	22-31	.15	.15			
	31-39	.15	.15			
	39-43	.15	.15			
	43-51	.17	.32			
	51-60	.20	.32			
Hawser	0-4	.32	.32	5	4	86
	4-18	.15	.15			
	18-28	.15	.15			
	28-35	.15	.15			
	35-41	.15	.15			
	41-60	.15	.15			
Typic Haploxeralfs	0-2	.43	.43	3	6	48
	2-8	.43	.43			
	8-20	.32	.32			
	20-31	.10	.15			
	31-60	---	---			
712:						
Windage	0-<1	---	---	5	4	86
	<1-2	.32	.32			
	2-10	.32	.32			
	10-18	.15	.15			
	18-30	.15	.15			
	30-43	.15	.15			
	43-60	.15	.15			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
712:						
Buoy	0-9	.37	.37	3	6	48
	9-14	.37	.37			
	14-28	.15	.15			
	28-41	.10	.15			
	41-60	---	---			
713:						
Windage	0-1	.32	.32	5	4	86
	1-28	.15	.15			
	28-35	.15	.15			
	35-41	.15	.15			
	41-60	.15	.15			
Ballast	0-4	.37	.37	2	5	56
	4-12	.32	.32			
	12-24	.15	.15			
	24-26	---	---			
	26-35	---	---			
721:						
Buoy	0-15	.20	.37	3	6	48
	15-18	.24	.24			
	18-45	.15	.15			
	45-60	---	---			
722:						
Buoy, cobbly	0-5	.24	.24	3	6	48
	5-16	.24	.24			
	16-24	.15	.15			
	24-43	.15	.15			
	43-60	---	---			
Rock outcrop.						
723:						
Buoy	0-<1	---	---	3	6	48
	<1-4	.24	.24			
	4-18	.17	.17			
	18-26	.17	.17			
	26-39	.10	.24			
	39-53	.15	.15			
	53-60	---	---			
Lithic Argixerolls	0-<1	---	---	1	2	134
	<1-1	.17	.17			
	1-12	.24	.24			
	12-16	.32	.32			
	16-26	---	---			
Rock outcrop.						
724:						
Buoy	0-<1	---	---	3	6	48
	<1-12	.28	.28			
	12-18	.37	.37			
	18-33	.15	.15			
	33-41	.15	.15			
	41-45	.28	.28			
	45-60	---	---			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
724:						
Ballast	0-5	.24	.24	2	5	56
	5-28	.15	.15			
	28-31	.15	.15			
	31-39	.15	.15			
	39-39	---	---			
	39-49	---	---			
Rock outcrop.						
725:						
Buoy	0-6	.15	.28	3	6	48
	6-18	.15	.28			
	18-30	.15	.15			
	30-41	.15	.15			
	41-60	---	---			
Typic Haploxeralfs	0-2	.43	.43	2	6	48
	2-8	.43	.43			
	8-20	.32	.32			
	20-31	.10	.15			
	31-60	---	---			
730:						
Lodestone, very deep	0-2	.32	.32	5	4	86
	2-12	.15	.15			
	12-26	.15	.15			
	26-33	.15	.15			
	33-51	.15	.15			
	51-60	.15	.15			
Ballast	0-7	.32	.32	2	5	56
	7-11	.15	.15			
	11-26	.15	.15			
	26-30	---	---			
	30-39	---	---			
Buoy	0-3	.28	.28	3	6	48
	3-18	.15	.28			
	18-24	.10	.32			
	24-41	.15	.15			
	41-60	---	---			
761:						
Lodestone	0-3	.32	.32	2	4	86
	3-11	.15	.15			
	11-23	.15	.15			
	23-30	.15	.15			
	30-39	---	---			
Typic Xerorthents	0-5	.20	.37	1	6	48
	5-10	.17	.28			
	10-60	---	---			
Windage	0-10	.24	.24	5	5	56
	10-30	.15	.24			
	30-33	.15	.24			
	33-60	.10	.28			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In					
762:						
Lodestone	0-8	.32	.32	2	4	86
	8-24	.15	.15			
	24-30	.15	.15			
	30-39	---	---			
Ballast	0-2	.37	.37	2	5	56
	2-8	.32	.32			
	8-12	.32	.32			
	12-19	.15	.15			
	19-23	.15	.15			
	23-39	---	---			
	39-48	---	---			
Halyard	0-8	.43	.43	3	3	86
	8-13	.43	.43			
	13-22	.20	.37			
	22-30	.15	.24			
	30-39	.05	.32			
	39-60	---	---			
763:						
Hawser	0-<1	---	---	5	4	86
	<1-12	.15	.15			
	12-39	.15	.15			
	39-47	.28	.28			
	47-60	.28	.28			
Lodestone, very deep	0-2	.32	.32	3	4	86
	2-8	.15	.15			
	8-18	.15	.15			
	18-26	.15	.15			
	26-39	.32	.32			
	39-59	.32	.32			
Buoy	0-<1	---	---	3	6	48
	<1-9	.37	.37			
	9-14	.37	.37			
	14-28	.15	.15			
	28-41	.10	.15			
	41-60	---	---			
780:						
Typic Argixerolls	0-1	.24	.24	3	3	86
	1-20	.15	.24			
	20-28	.15	.28			
	28-31	.15	.24			
	31-60	---	---			
800:						
Ballast	0-16	.32	.32	2	5	56
	16-20	.15	.15			
	20-28	.15	.15			
	28-60	---	---			
Halyard	0-6	.37	.37	3	3	86
	6-11	.32	.32			
	11-22	.15	.15			
	22-29	.15	.15			
	29-33	---	---			
	33-60	---	---			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
800:						
Typic Argixerolls	0-6	.37	.37	2	4	86
	6-20	.15	.15			
	20-28	---	---			
	28-37	---	---			
850:						
Typic Natrixeralfs	0-2	---	---	2	6	48
	2-3	.43	.43			
	3-6	.43	.43			
	6-12	.37	.37			
	12-22	.37	.37			
	22-24	.37	.37			
	24-60	---	---			
Typic Haploxeralfs, dry	0-1	---	---	3	6	48
	1-3	.43	.43			
	3-8	.37	.37			
	8-18	.37	.37			
	18-28	.37	.37			
	28-47	.43	.43			
	47-49	.43	.43			
	49-59	---	---			
851:						
Typic Haploxeralfs, dry	0-1	---	---	3	6	48
	1-3	.43	.43			
	3-8	.37	.37			
	8-18	.37	.37			
	18-28	.37	.37			
	28-47	.43	.43			
	47-49	.43	.43			
	49-59	---	---			
Typic Natrixeralfs	0-2	---	---	2	6	48
	2-4	.43	.43			
	4-16	.37	.37			
	16-31	.32	.32			
	31-60	.32	.32			
852:						
Lithic Argixerolls, dry	0-1	---	---	1	3	86
	1-2	.37	.37			
	2-4	.17	.32			
	4-6	---	---			
	6-16	---	---			
Typic Natrixeralfs	0-1	---	---	2	3	86
	1-5	.37	.37			
	5-12	.32	.32			
	12-15	.32	.32			
	15-21	---	---			
	21-31	---	---			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In					
853:						
Rock outcrop.						
Typic Haploxeralfs, dry	0-1	---	---	3	6	48
	1-3	.43	.43			
	3-8	.37	.37			
	8-18	.37	.37			
	18-28	.37	.37			
	28-47	.43	.43			
	47-49	.43	.43			
	49-59	---	---			
860:						
Topdeck	0-1	---	---	1	7	38
	1-5	.43	.43			
	5-14	.37	.37			
	14-24	---	---			
Halyard	0-3	.37	.37	3	3	86
	3-16	.15	.15			
	16-31	.15	.15			
	31-39	.15	.15			
	39-60	---	---			
861:						
Rock outcrop.						
Topdeck	0-<1	.20	.37	1	7	38
	<1-6	.20	.37			
	6-10	.20	.37			
	10-20	---	---			
Spinnaker	0-1	---	---	1	5	56
	1-2	.15	.24			
	2-12	.15	.24			
	12-22	---	---			
900:						
Petrocalcic Palexeralfs	0-<1	.49	.49	1	3	86
	<1-4	.15	.15			
	4-11	.15	.15			
	11-31	---	---			
	31-60	.20	.20			
910:						
Hawser	0-2	.32	.32	5	4	86
	2-17	.15	.15			
	17-60	.15	.15			
Hawser, moderately steep	0-2	.32	.32	5	4	86
	2-17	.15	.15			
	17-60	.15	.15			
920:						
Typic Durixerolls	0-1	.24	.24	2	3	86
	1-19	.24	.24			
	19-23	.15	.15			
	23-27	.28	.28			
	27-30	---	---			
	30-60	---	---			

Table 14.--Erosion Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
		K	Kf	T		
	In					
921:						
Typic Durixerolls	0-20	.24	.24	2	3	86
	20-31	.15	.15			
	31-33	---	---			
	33-60	---	---			
930:						
Fluventic Haploxerolls	0-8	.24	.24	4	4L	86
	8-15	.24	.24			
	15-30	.17	.17			
	30-31	.15	.15			
	31-35	.17	.17			
	35-39	.15	.15			
	39-60	.17	.17			
940:						
Typic Durixeralfs	0-1	.28	.28	1	3	86
	1-2	.32	.32			
	2->2	---	---			
	>2-12	---	---			
950:						
Ahoy	0-1	.43	.43	4	6	48
	1-11	.37	.37			
	11-18	.28	.28			
	18-60	.15	.15			
Ironshot	0-15	.24	.24	5	3	86
	15-26	.17	.17			
	26-60	.17	.17			
970:						
Dune land	---	---	---	5	1	160
980:						
Lithic Haploxeralfs	0-9	.17	.17	1	2	134
	9-15	.15	.24			
	15-25	---	---			

Table 15.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
100:									
Fiale	D	Jan-Dec	---	---	---	---	None	---	None
Tongva	B	Jan-Dec	---	---	---	---	None	---	None
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
101:									
Spinnaker	D	Jan-Dec	---	---	---	---	None	---	None
Tongva	B	Jan-Dec	---	---	---	---	None	---	None
Fiale	D	Jan-Dec	---	---	---	---	None	---	None
102:									
Fiale	D	Jan-Dec	---	---	---	---	None	---	None
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
103:									
Fiale	D	Jan-Dec	---	---	---	---	None	---	None
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
120:									
Miasotus	D	Jan-Dec	---	---	---	---	None	---	None
Yardarm	C	Jan-Dec	---	---	---	---	None	---	None
130:									
Frigate	B	Jan-Dec	---	---	---	---	None	---	None
Yardarm	C	Jan-Dec	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
150:									
Halyard	C	Jan-Dec	---	---	---	---	None	---	None
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
Tongva	B	Jan-Dec	---	---	---	---	None	---	None
152:									
Halyard	C	Jan-Dec	---	---	---	---	None	---	None
Starboard	B	Jan-Dec	---	---	---	---	None	---	None
153:									
Halyard	C	Jan-Dec	---	---	---	---	None	---	None
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
155:									
Halyard	C	Jan-Dec	---	---	---	---	None	---	None
Fiale	D	Jan-Dec	---	---	---	---	None	---	None
160:									
Beaches	A								
		January	---	---	---	---	None	Brief	Frequent
		February	---	---	---	---	None	Brief	Frequent
		March	---	---	---	---	None	Brief	Frequent
		April	---	---	---	---	None	Brief	Frequent
		May	---	---	---	---	None	Brief	Frequent
		June	---	---	---	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
		August	---	---	---	---	None	Brief	Frequent
		September	---	---	---	---	None	Brief	Frequent
		October	---	---	---	---	None	Brief	Frequent
		November	---	---	---	---	None	Brief	Frequent
		December	---	---	---	---	None	Brief	Frequent
Abaft	A	Jan-Dec	---	---	---	---	None	---	None
180:									
Typic Argixerolls, very deep	B	Jan-Dec	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
190:									
Typic Xerofluvents	A								
		January	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		February	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		March	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		April	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		May	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		June	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		July	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		August	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		September	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		October	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		November	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
		December	---	---	0.0-0.1	Very brief	Occasional	Brief	Frequent
Riverwash	---								
		January	---	---	---	Brief	Occasional	Brief	Frequent
		February	---	---	---	Brief	Occasional	Brief	Frequent
		March	---	---	---	Brief	Occasional	Brief	Frequent
		April	---	---	---	Brief	Occasional	Brief	Frequent
		May	---	---	---	Brief	Occasional	Brief	Frequent
		June	---	---	---	Brief	Occasional	Brief	Frequent
		July	---	---	---	Brief	Occasional	Brief	Frequent
		August	---	---	---	Brief	Occasional	Brief	Frequent
		September	---	---	---	Brief	Occasional	Brief	Frequent
		October	---	---	---	Brief	Occasional	Brief	Frequent
		November	---	---	---	Brief	Occasional	Brief	Frequent
		December	---	---	---	Brief	Occasional	Brief	Frequent
200:									
Fantail, thin surface	C	Jan-Dec	---	---	---	---	None	---	None
Forestay	D	Jan-Dec	---	---	---	---	None	---	None
Fantail	C	Jan-Dec	---	---	---	---	None	---	None
210:									
Lospinos	B	Jan-Dec	---	---	---	---	None	---	None
Forestay	D	Jan-Dec	---	---	---	---	None	---	None
Forestay, strongly sloping	D	Jan-Dec	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
211:									
Lospinos	B	Jan-Dec	---	---	---	---	None	---	None
212:									
Lospinos	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
230:									
Fantail	C	Jan-Dec	---	---	---	---	None	---	None
240:									
Delphine	D	Jan-Dec	---	---	---	---	None	---	None
Miasotus	D	Jan-Dec	---	---	---	---	None	---	None
Yardarm	C	Jan-Dec	---	---	---	---	None	---	None
241:									
Delphine	D	Jan-Dec	---	---	---	---	None	---	None
Badland	D	Jan-Dec	---	---	---	---	None	---	None
Miasotus	D	Jan-Dec	---	---	---	---	None	---	None
250:									
Spinnaker	D	Jan-Dec	---	---	---	---	None	---	None
Starboard	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
251:									
Spinnaker	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
260:									
Starboard	B	Jan-Dec	---	---	---	---	None	---	None
Spinnaker	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
262:									
Halyard	C	Jan-Dec	---	---	---	---	None	---	None
Fantail	C	Jan-Dec	---	---	---	---	None	---	None
263:									
Starboard	B	Jan-Dec	---	---	---	---	None	---	None
Pachic Argixerolls	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
270:									
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
Spinnaker	D	Jan-Dec	---	---	---	---	None	---	None
271:									
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
Spinnaker	D	Jan-Dec	---	---	---	---	None	---	None
Tongva	B	Jan-Dec	---	---	---	---	None	---	None
272:									
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
Starboard	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
273:									
Topdeck, overblown	D	Jan-Dec	---	---	---	---	None	---	None
Typic Durixerolls, loamy subsoil	D	Jan-Dec	---	---	---	---	None	---	None
290:									
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
Starboard	B	Jan-Dec	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
291:									
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
Spinnaker	D	Jan-Dec	---	---	---	---	None	---	None
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
292:									
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
Buoy	C	Jan-Dec	---	---	---	---	None	---	None
Bereme	D	Jan-Dec	---	---	---	---	None	---	None
Typic Palexerolls	D	Jan-Dec	---	---	---	---	None	---	None
300:									
Cumulic Haploxerolls	B								
		January	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		February	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		March	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		April	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		May	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		June	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		July	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		August	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		September	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		October	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		November	---	---	0.0-0.0	---	None	Extremely brief	Very rare
		December	---	---	0.0-0.0	---	None	Extremely brief	Very rare

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
310:									
Livigne	D	Jan-Dec	---	---	---	---	None	---	None
Macool	C	Jan-Dec	---	---	---	---	None	---	None
Badland	---	Jan-Dec	---	---	---	---	None	---	None
311:									
Livigne	D	Jan-Dec	---	---	---	---	None	---	None
Gunwale	B	Jan-Dec	---	---	---	---	None	---	None
321:									
Rudder	B	Jan-Dec	---	---	---	---	None	---	None
Spinnaker, moist	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
650:									
Abaft	A	Jan-Dec	---	---	---	---	None	---	None
651:									
Abaft	A	Jan-Dec	---	---	---	---	None	---	None
Abaft, moderately steep	A	Jan-Dec	---	---	---	---	None	---	None
660:									
Pachic Haploxerolls	B	Jan-Dec	---	---	---	---	None	---	None
670:									
Ironshot	A	Jan-Dec	---	---	---	---	None	---	None
Ahoy	C	Jan-Dec	---	---	---	---	None	---	None
680:									
Bereme	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
681:									
Bereme	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
690:									
Typic Xerorthents	D	Jan-Dec	---	---	---	---	None	---	None
Ultic Haploxeralfs	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
700:									
Ahoy	C	Jan-Dec	---	---	---	---	None	---	None
Hawser, moderately steep	D	Jan-Dec	---	---	---	---	None	---	None
Ahoy, moderately steep	C	Jan-Dec	---	---	---	---	None	---	None
Hawser	D	Jan-Dec	---	---	---	---	None	---	None
710:									
Windage	C	Jan-Dec	---	---	---	---	None	---	None
Typic Xerorthents	D	Jan-Dec	---	---	---	---	None	---	None
Buoy	C	Jan-Dec	---	---	---	---	None	---	None
711:									
Windage	C	Jan-Dec	---	---	---	---	None	---	None
Hawser	D	Jan-Dec	---	---	---	---	None	---	None
Typic Haploxeralfs	C	Jan-Dec	---	---	---	---	None	---	None
712:									
Windage	C	Jan-Dec	---	---	---	---	None	---	None
Buoy	C	Jan-Dec	---	---	---	---	None	---	None
713:									
Windage	C	Jan-Dec	---	---	---	---	None	---	None
Ballast	C	Jan-Dec	---	---	---	---	None	---	None
721:									
Buoy	C	Jan-Dec	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
722:									
Buoy, cobbly	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
723:									
Buoy	C	Jan-Dec	---	---	---	---	None	---	None
Lithic Argixerolls	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
724:									
Buoy	C	Jan-Dec	---	---	---	---	None	---	None
Ballast	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
725:									
Buoy	C	Jan-Dec	---	---	---	---	None	---	None
Typic Haploxeralfs	C	Jan-Dec	---	---	---	---	None	---	None
730:									
Lodestone, very deep	D	Jan-Dec	---	---	---	---	None	---	None
Ballast	C	Jan-Dec	---	---	---	---	None	---	None
Buoy	C	Jan-Dec	---	---	---	---	None	---	None
761:									
Lodestone	D	Jan-Dec	---	---	---	---	None	---	None
Typic Xerorthents	D	Jan-Dec	---	---	---	---	None	---	None
Windage	C	Jan-Dec	---	---	---	---	None	---	None
762:									
Lodestone	D	Jan-Dec	---	---	---	---	None	---	None
Ballast	C	Jan-Dec	---	---	---	---	None	---	None
Halyard	C	Jan-Dec	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
763:									
Hawser	D	Jan-Dec	---	---	---	---	None	---	None
Lodestone, very deep	D	Jan-Dec	---	---	---	---	None	---	None
Buoy	C	Jan-Dec	---	---	---	---	None	---	None
780:									
Typic Argixerolls	B	Jan-Dec	---	---	---	---	None	---	None
800:									
Ballast	C	Jan-Dec	---	---	---	---	None	---	None
Halyard	C	Jan-Dec	---	---	---	---	None	---	None
Typic Argixerolls	B	Jan-Dec	---	---	---	---	None	---	None
850:									
Typic Natrixeralfs	C	Jan-Dec	---	---	---	---	None	---	None
Typic Haploxeralfs, dry	C	Jan-Dec	---	---	---	---	None	---	None
851:									
Typic Haploxeralfs, dry	C	Jan-Dec	---	---	---	---	None	---	None
Typic Natrixeralfs	C	Jan-Dec	---	---	---	---	None	---	None
852:									
Lithic Argixerolls, dry	C	Jan-Dec	---	---	---	---	None	---	None
Typic Natrixeralfs	C	Jan-Dec	---	---	---	---	None	---	None
853:									
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
Typic Haploxeralfs, dry	C	Jan-Dec	---	---	---	---	None	---	None
860:									
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None
Halyard	C	Jan-Dec	---	---	---	---	None	---	None
861:									
Rock outcrop	---	Jan-Dec	---	---	---	---	None	---	None
Topdeck	D	Jan-Dec	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
861:									
Spinnaker	D	Jan-Dec	---	---	---	---	None	---	None
900:									
Petrocalcic Palexeralfs	D	Jan-Dec	---	---	---	---	None	---	None
910:									
Hawser	D	Jan-Dec	---	---	---	---	None	---	None
Hawser, moderately steep	D	Jan-Dec	---	---	---	---	None	---	None
920:									
Typic Durixerolls	D	Jan-Dec	---	---	---	---	None	---	None
921:									
Typic Durixerolls	D	Jan-Dec	---	---	---	---	None	---	None
930:									
Fluventic Haploxerolls	B								
		January	---	---	0.0-0.1	Very brief	Rare	Extremely brief	Very rare
		February	---	---	0.0-0.1	Very brief	Rare	Extremely brief	Very rare
		March	---	---	0.0-0.1	Very brief	Rare	Extremely brief	Very rare
		April	---	---	0.0-0.1	Very brief	Rare	Extremely brief	Very rare
		May	---	---	0.0-0.1	Very brief	None	Extremely brief	Very rare
		June	---	---	0.0-0.1	Very brief	None	Extremely brief	Very rare
		July	---	---	0.0-0.1	Very brief	None	Extremely brief	Very rare
		August	---	---	0.0-0.1	Very brief	None	Extremely brief	Very rare
		September	---	---	0.0-0.1	Very brief	None	Extremely brief	Very rare
		October	---	---	0.0-0.1	Very brief	None	Extremely brief	Very rare
		November	---	---	0.0-0.1	Very brief	Rare	Extremely brief	Very rare
		December	---	---	0.0-0.1	Very brief	Rare	Extremely brief	Very rare

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
940:									
Typic Durixeralfs	D	Jan-Dec	---	---	---	---	None	---	None
950:									
Ahoy	C	Jan-Dec	---	---	---	---	None	---	None
Ironshot	A	Jan-Dec	---	---	---	---	None	---	None
970:									
Dune land	A	Jan-Dec	---	---	---	---	None	---	None
980:									
Lithic Haploxeralfs	D	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
100:							
Fiale	Bedrock (paralithic)	20-35	---	---	High	High	Low
Tongva	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Moderate	Low
Topdeck	Bedrock (paralithic)	7-10	---	Strongly cemented	High	Moderate	Low
	Bedrock (lithic)	10-20		Indurated			
101:							
Spinnaker	Bedrock (paralithic)	6-11	---	Strongly cemented	High	Low	Low
	Bedrock (lithic)	6-18		Indurated			
Tongva	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Low	Low
Fiale	Bedrock (paralithic)	20-35	---	---	High	High	Low
102:							
Fiale	Bedrock (paralithic)	20-35	---	---	Low	High	Low
Topdeck	Bedrock (lithic)	10-20	---	Indurated	Low	Low	Low
103:							
Fiale	Bedrock (paralithic)	20-35	---	---	High	High	Low
Topdeck	Bedrock (lithic)	10-20	---	Indurated	High	Moderate	Low
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
120:							
Miasotus	Bedrock (paralithic)	10-20	---	Moderately cemented	High	Moderate	Low
	Bedrock (lithic)	11-39		Strongly cemented			

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
120:							
Yardarm	Bedrock (paralithic)	20-39	---	---	High	Moderate	Low
	Bedrock (lithic)	20-40					
130:							
Frigate	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Low	Moderate
	Bedrock (lithic)	35-79		Indurated			
Yardarm	Bedrock (paralithic)	20-39	---	---	High	Moderate	Moderate
	Bedrock (lithic)	20-40					
150:							
Halyard	Bedrock (paralithic)	20-39	---	Moderately cemented	High	High	Low
Topdeck	Bedrock (paralithic)	10-16	---	Strongly cemented	High	Low	Low
	Bedrock (lithic)	10-20		Indurated			
Tongva	Bedrock (lithic)	20-39	---	Indurated	High	Moderate	Low
	Bedrock (paralithic)			Moderately cemented			
152:							
Halyard	Bedrock (paralithic)	20-39	---	Moderately cemented	Medium	High	Low
Starboard	Bedrock (paralithic)	20-39	---	Moderately cemented	Low	Moderate	Low
153:							
Halyard	Bedrock (paralithic)	20-39	---	Moderately cemented	Low	High	Low
Topdeck	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
155:							
Halyard	Bedrock (paralithic)	20-39	---	Moderately cemented	Low	High	Low
Fiale	Bedrock (paralithic)	20-35	---	Moderately cemented	Low	High	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
160:							
Beaches	---	---	---	---	High	Moderate	Moderate
Abaft	---	---	---	---	High	Low	Low
180:							
Typic Argixerolls, very deep	---	---	---	---	Low	Moderate	Low
190:							
Typic Xerofluvents	---	---	---	---	Low	Low	Low
Riverwash	---	---	---	---	Low	---	---
200:							
Fantail, thin surface	Abrupt textural change	2-28	---	Moderately cemented	High	High	Low
	Bedrock (paralithic)	20-39					
Forestay	Abrupt textural change	6-28	---	---	High	Moderate	Moderate
Fantail	Abrupt textural change	2-28	---	Moderately cemented	High	High	Low
	Bedrock (paralithic)	20-39					
210:							
Lospinos	Bedrock (paralithic)	21-39	---	Moderately cemented	High	Moderate	Moderate
Forestay	Abrupt textural change	6-28	---	Moderately cemented	High	High	High
Forestay, strongly sloping	Abrupt textural change	6-28	---	Moderately cemented	High	High	High
211:							
Lospinos	Bedrock (paralithic)	21-39	---	Moderately cemented	Medium	Moderate	Moderate

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
212:							
Lospinos	Bedrock (paralithic)	21-39	---	Moderately cemented	High	High	Moderate
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
230:							
Fantail	Abrupt textural change	2-28	---	Moderately cemented	High	High	Low
	Bedrock (paralithic)	20-39					
240:							
Delphine	Bedrock (paralithic)	11-19	---	---	High	Low	Low
	Bedrock (lithic)	17-22					
Miasotus	Bedrock (paralithic)	10-20	---	Moderately cemented	High	Moderate	Low
	Bedrock (lithic)	21-39		Strongly cemented			
Yardarm	Bedrock (paralithic)	20-39	---	---	High	Moderate	Low
	Bedrock (lithic)	20-40					
241:							
Delphine	Bedrock (paralithic)	11-19	---	---	High	Moderate	Low
	Bedrock (lithic)	17-22					
Badland	Bedrock (paralithic)	---	---	Moderately cemented	High	Moderate	Moderate
Miasotus	Bedrock (paralithic)	10-20	---	Moderately cemented	High	Moderate	Low
	Bedrock (lithic)	21-39		Strongly cemented			
250:							
Spinnaker	Bedrock (lithic)	6-18	---	Indurated	High	Low	Low
	Bedrock (paralithic)	8-14		Strongly cemented			
Starboard	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Moderate	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
250:							
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
251:							
Spinnaker	Bedrock (lithic)	6-18	---	Indurated	High	Low	Low
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
260:							
Starboard	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Low	Low
Spinnaker	Bedrock (lithic)	6-18	---	Indurated	High	Low	Low
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
262:							
Halyard	Bedrock (paralithic)	20-39	---	Moderately cemented	High	High	Low
Fantail	Abrupt textural change	2-28	---	Moderately cemented	High	High	Low
	Bedrock (paralithic)	20-39					
263:							
Starboard	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Low	Moderate
Pachic Argixerolls	Bedrock (paralithic)	39-59	---	Moderately cemented	High	Moderate	Low
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
270:							
Topdeck	Bedrock (lithic)	10-20	---	Indurated	High	Low	Low
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
Spinnaker	Bedrock (lithic)	6-18	---	Indurated	High	Low	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
271:							
Topdeck	Bedrock (lithic)	10-20	---	Indurated	High	Low	Low
Spinnaker	Bedrock (lithic)	6-18	---	Indurated	High	Low	Low
	Bedrock (paralithic)	8-14		Strongly cemented			
Tongva	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Moderate	Low
272:							
Topdeck	Bedrock (paralithic)	10-16	---	Strongly cemented	High	Low	Low
	Bedrock (lithic)	10-20		Indurated			
Starboard	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Low	Low
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
273:							
Topdeck, overblown	Bedrock (lithic)	10-20	---	Indurated	High	Moderate	Low
Typic Durixerolls, loamy subsoil	Duripan	10-20	---	Indurated	High	Low	Low
	Bedrock (paralithic)	10-20					
290:							
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
Topdeck	Bedrock (paralithic)	7-18	---	Strongly cemented	High	Low	Low
	Bedrock (lithic)	10-20		Indurated			
Starboard	Bedrock (paralithic)	20-39	---	Strongly cemented	High	Low	Low
291:							
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
Spinnaker	Bedrock (lithic)	6-18	---	Indurated	High	Low	Low
	Bedrock (paralithic)	8-14		Strongly cemented			
Topdeck	Bedrock (lithic)	10-20	---	Indurated	High	Moderate	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*				
292:							
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
Buoy	Abrupt textural change	10-28	---	---	High	Moderate	Low
	Bedrock (paralithic)	39-59					
Bereme	Bedrock (lithic)	10-20	---	Very strongly cemented	High	Low	Low
Typic Palexerolls	Abrupt textural change	4-12	---	---	High	Moderate	Low
	Bedrock (paralithic)	20-39					
300:							
Cumulic Haploxerolls	Abrupt textural change	---	---	---	Low	Low	Low
310:							
Livigne	Bedrock (paralithic)	10-20	---	Moderately cemented	High	Moderate	Low
Macool	Bedrock (paralithic)	40-50	---	Moderately cemented	High	High	Low
Badland	Bedrock (paralithic)	---	---	Moderately cemented	High	---	---
311:							
Livigne	Bedrock (paralithic)	10-20	---	Moderately cemented	High	High	Low
Gunwale	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Moderate	Moderate
321:							
Rudder	Bedrock (paralithic)	20-39	---	Moderately cemented	High	Low	High
	Bedrock (lithic)	21-41		Strongly cemented			
Spinnaker, moist	Bedrock (lithic)	6-18	---	Indurated	High	Low	Low
	Bedrock (paralithic)	8-14		Strongly cemented			

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*				
321:							
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
650:							
Abaft	---	---	---	---	High	Low	Low
651:							
Abaft	---	---	---	---	High	Low	Low
Abaft, moderately steep	---	---	---	---	High	Low	Low
660:							
Pachic Haploxerolls	Strongly contrasting textural stratification	---	---	---	Low	Low	Low
670:							
Ironshot	---	---	---	---	Low	Low	Low
Ahoy	Abrupt textural change	16-28	---	---	Low	High	Low
680:							
Bereme	Bedrock (lithic)	10-20	---	Very strongly cemented	High	Low	Low
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
681:							
Bereme	Bedrock (lithic)	10-20	---	Very strongly cemented	High	Low	Low
	Bedrock (paralithic)	14-16		Strongly cemented			
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
690:							
Typic Xerorthents	Bedrock (paralithic)	10-20	---	Very weakly cemented	High	Low	Low
Ultic Haploxeralfs	Abrupt textural change	4-16	---	Very strongly cemented	High	High	Moderate
	Bedrock (lithic)	20-39					
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*				
700:							
Ahoy	Abrupt textural change	16-28	---	---	Low	High	Low
Hawser, moderately steep	---	---	---	---	Medium	High	Low
Ahoy, moderately steep	Abrupt textural change	16-28	---	---	Medium	Moderate	Low
Hawser	---	---	---	---	Low	High	Low
710:							
Windage	---	---	---	---	High	High	Low
Typic Xerorthents	Bedrock (paralithic)	10-20	---	Very weakly cemented	High	Low	Low
Buoy	Abrupt textural change	10-28	---	---	High	High	Low
	Bedrock (paralithic)	39-59					
711:							
Windage	---	---	---	---	High	Moderate	Low
Hawser	---	---	---	---	High	High	Low
Typic Haploxeralfs	Bedrock (paralithic)	20-39	---	---	High	Moderate	Low
712:							
Windage	---	---	---	---	High	High	Low
Buoy	Abrupt textural change	10-28	---	---	High	Moderate	Low
	Bedrock (paralithic)	39-59					
713:							
Windage	---	---	---	---	High	High	Low
Ballast	Bedrock (lithic)	22-40	---	---	High	High	Low
	Bedrock (paralithic)						

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
721:							
Buoy	Abrupt textural change	10-28	---	---	Medium	Moderate	Low
	Bedrock (paralithic)	39-59					
722:							
Buoy, cobbly	Abrupt textural change	10-28	---	---	Medium	High	Low
	Bedrock (paralithic)	39-59					
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
723:							
Buoy	Abrupt textural change	10-28	---	---	High	Moderate	Low
	Bedrock (paralithic)	39-59					
Lithic Argixerolls	Bedrock (lithic)	10-20	---	Strongly cemented	High	Low	Low
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
724:							
Buoy	Abrupt textural change	10-28	---	---	High	Moderate	Low
	Bedrock (paralithic)	39-59					
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
Ballast	Bedrock (paralithic)	22-40	---	---	High	High	Low
	Bedrock (lithic)						
725:							
Buoy	Abrupt textural change	10-28	---	---	Medium	Moderate	Low
	Bedrock (paralithic)	39-59					
Typic Haploxeralfs	Bedrock (paralithic)	20-39	---	---	Medium	Moderate	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*				
730:							
Lodestone, very deep	---	---	---	---	High	High	Low
Ballast	Bedrock (paralithic)	22-40	---	---	High	High	Low
	Bedrock (lithic)						
Buoy	Abrupt textural change	10-28	---	---	High	Moderate	Low
	Bedrock (paralithic)	39-59					
761:							
Lodestone	Bedrock (lithic)	22-35	---	---	High	High	Low
Typic Xerorthents	Bedrock (paralithic)	10-20	---	Very weakly cemented	High	Low	Low
Windage	---	---	---	---	High	Moderate	Low
762:							
Lodestone	Bedrock (lithic)	22-35	---	---	High	High	Low
Ballast	Bedrock (paralithic)	22-40	---	---	High	High	Low
	Bedrock (lithic)						
Halyard	Bedrock (paralithic)	20-39	---	Moderately cemented	High	High	Low
763:							
Hawser	Abrupt textural change	31-40	---	---	High	High	Low
Lodestone, very deep	---	---	---	---	High	High	Low
Buoy	Abrupt textural change	10-28	---	---	High	Moderate	Low
	Bedrock (paralithic)	39-59					
780:							
Typic Argixerolls	Bedrock (paralithic)	20-39	---	---	High	Moderate	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*				
800:							
Ballast----------------------	Bedrock (paralithic)	20-40	---	---	High	High	Low
Halyard----------------------	Bedrock (paralithic)	20-39	---	Moderately cemented	High	High	Low
Typic Argixerolls-----------	Bedrock (paralithic)	20-39	---	---	High	Moderate	Low
	Bedrock (lithic)	21-41					
850:							
Typic Natrixeralfs----------	Natric	2-8	---	---	Medium	High	Low
	Bedrock (paralithic)	20-39					
Typic Haploxeralfs, dry-----	Bedrock (lithic)	39-60	---	Indurated	Medium	Moderate	Low
851:							
Typic Haploxeralfs, dry-----	Bedrock (lithic)	39-59	---	---	High	Moderate	Low
Typic Natrixeralfs----------	Natric	2-8	---	---	High	High	Low
852:							
Lithic Argixerolls, dry-----	Bedrock (paralithic)	3-6	---	---	Low	Moderate	Low
	Bedrock (lithic)	6-20					
Typic Natrixeralfs----------	Natric	4-16	---	Strongly cemented	Low	High	Low
	Bedrock (paralithic)	13-17		Indurated			
	Bedrock (lithic)	20-39					
853:							
Rock outcrop----------------	Bedrock (lithic)	---	---	Indurated	---	---	---
Typic Haploxeralfs, dry-----	Bedrock (lithic)	39-59	---	---	High	Moderate	Low
860:							
Topdeck---------------------	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
Halyard----------------------	Bedrock (paralithic)	20-39	---	Moderately cemented	Low	High	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Soil slippage potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
861:							
Rock outcrop	Bedrock (lithic)	---	---	Indurated	---	---	---
Topdeck	Bedrock (lithic)	10-20	---	Indurated	High	Low	Low
Spinnaker	Bedrock (lithic)	6-18	---	Indurated	High	Low	Low
900:							
Petrocalcic Palexeralfs	Petrocalcic	10-20	---	Very strongly cemented	Low	High	Low
910:							
Hawser	---	---	---	---	Low	High	Low
Hawser, moderately steep	---	---	---	---	Medium	High	Low
920:							
Typic Durixerolls	Abrupt textural change	4-20	---	Indurated	Low	Moderate	Low
	Duripan	20-39		Strongly cemented			
	Bedrock (paralithic)	20-40					
921:							
Typic Durixerolls	Abrupt textural change	12-24	---	Indurated	High	Moderate	Low
	Duripan	20-39		Strongly cemented			
	Bedrock (paralithic)	20-40					
930:							
Fluventic Haploxerolls	Abrupt textural change	20-39	---	---	Low	Moderate	Low
940:							
Typic Durixeralfs	Duripan	2-3	---	Indurated	High	Moderate	Low
	Bedrock (lithic)	2-4		Very strongly cemented			
950:							
Ahoy	Abrupt textural change	16-28	---	---	Low	High	Low
Ironshot	---	---	---	---	Low	Low	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Soil slippage potential	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	*In*				
970:							
Dune land	---	---	---	---	High	Moderate	Moderate
980:							
Lithic Haploxeralfs	Bedrock (lithic)	10-20	---	Very strongly cemented	High	Low	Low

Table 17.--Taxonomic Classification of the Soils

Soil name	Family or higher taxonomic class
Abaft	Mixed, thermic Typic Xeropsamments
Ahoy	Fine-loamy over clayey, mixed over smectitic, superactive, thermic Vertic Argixerolls
Ballast	Fine, smectitic, thermic Typic Calcixerolls
Bereme	Loamy, mixed, superactive, thermic Lithic Argixerolls
Buoy	Coarse-loamy over clayey, mixed over smectitic, superactive, thermic Typic Palexeralfs
Cumulic Haploxerolls	Cumulic Haploxerolls
Delphine	Loamy-skeletal, mixed, superactive, thermic, shallow Typic Haploxeralfs
Fantail	Clayey-skeletal, smectitic, thermic Pachic Argixerolls
Fiale	Fine, smectitic, thermic Aridic Haploxererts
Fluventic Haploxerolls	Fluventic Haploxerolls
Forestay	Clayey-skeletal, smectitic, mesic Ultic Palexerolls
Frigate	Loamy-skeletal, mixed, superactive, isomesic Typic Haploxerepts
Gunwale	Fine-loamy, mixed, superactive, isomesic Ultic Haploxeralfs
Halyard	Fine, smectitic, thermic Pachic Argixerolls
Hawser	Very-fine, smectitic, thermic Aridic Haploxererts
Ironshot	Coarse-loamy, mixed, superactive, thermic Typic Haploxerolls
Lithic Argixerolls	Lithic Argixerolls
Lithic Haploxeralfs	Loamy, mixed, superactive, thermic Lithic Haploxeralfs
Livigne	Loamy, mixed, superactive, thermic, shallow Typic Argixerolls
Lodestone	Fine, smectitic, thermic Aridic Calcixererts
Lospinos	Loamy-skeletal, mixed, superactive, thermic Pachic Argixerolls
Macool	Fine, smectitic, mesic Typic Argixerolls
Miasotus	Loamy-skeletal, mixed, superactive, mesic, shallow Typic Haploxeralfs
Pachic Argixerolls	Loamy-skeletal, mixed, superactive, mesic Pachic Argixerolls
Pachic Haploxerolls	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, thermic Pachic Haploxerolls
Petrocalcic Palexeralfs	Clayey, smectitic, thermic, shallow Petrocalcic Palexeralfs
Rudder	Coarse-loamy, mixed, superactive, isomesic Typic Haploxerepts
Spinnaker	Loamy, mixed, superactive, thermic Lithic Haploxerepts
Starboard	Fine-loamy, mixed, superactive, mesic Pachic Argixerolls
Tongva	Fine-loamy, mixed, superactive, thermic Pachic Argixerolls
Topdeck	Loamy, mixed, superactive, thermic Lithic Argixerolls
Typic Argixerolls	Typic Argixerolls
Typic Durixeralfs	Typic Durixeralfs
Typic Durixerolls	Typic Durixerolls
Typic Haploxeralfs	Typic Haploxeralfs
Typic Natrixeralfs	Typic Natrixeralfs
Typic Palexerolls	Clayey-skeletal, smectitic, thermic Typic Palexerolls
Typic Xerofluvents	Typic Xerofluvents
Typic Xerorthents	Typic Xerorthents
Ultic Haploxeralfs	Ultic Haploxeralfs
Windage	Fine, smectitic, thermic Pachic Argixerolls
Yardarm	Fine-loamy, mixed, superactive, mesic Typic Argixerolls

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