United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
Regents of the University
of California (Agricultural
Experiment Station)
and United States
Department of the Interior,
Bureau of Land
Management

Soil Survey of Fresno County, California, Western Part

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

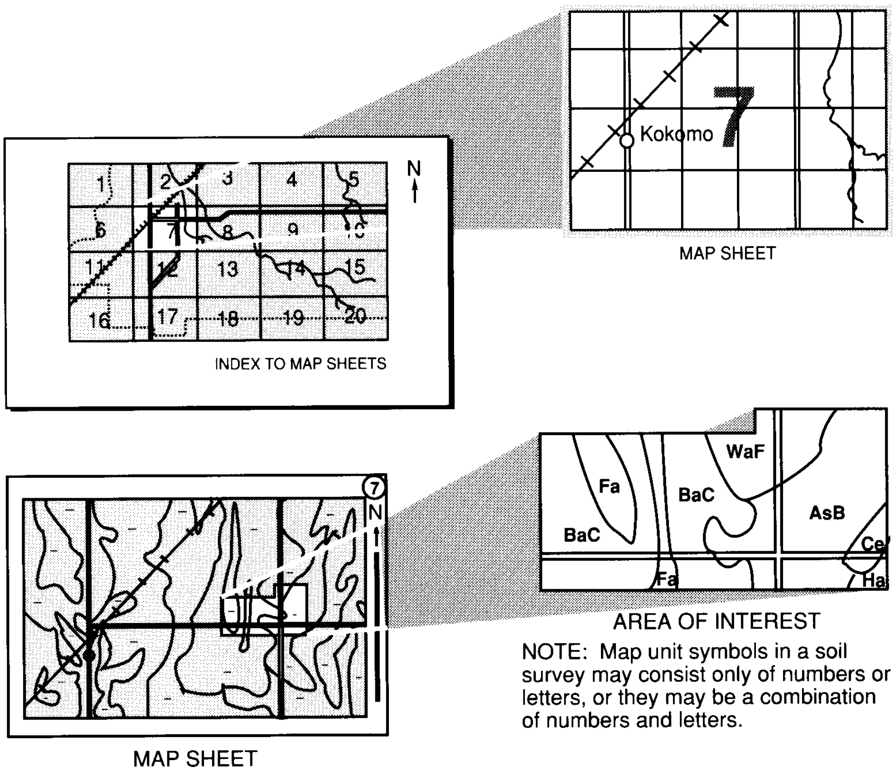
Detailed Soil Maps

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.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

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.

Major fieldwork for this soil survey was completed in 1998. Soil names and descriptions were approved in 2000. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1998. This survey was made cooperatively by the Natural Resources Conservation Service, the Regents of the University of California (Agricultural Experiment Station), and United States Department of the Interior, Bureau of Land Management. The United States Department of the Interior, Bureau of Land Management Management, and the California Department of Conservation provided financial assistance for the survey. The survey is part of the technical assistance furnished to the Excelsior/Kings River, Firebaugh, Panoche, Poso, Tranquillity, and Westside Resource Conservation Districts.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Lettuce and almonds grown in an area of Cerini clay loam near the intersection of Highways 198 and 269.

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 2006

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

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

Lincoln E. Burton
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Fresno County, California, Western Part

By Kerry D. Arroues, United States Department of Agriculture,
Natural Resources Conservation Service

Fieldwork by Kerry D. Arroues, Paul W. Benedict, Andrew
Conlin, Steven Fedje, Paul G. Nazar, Kit Paris, John C. Rule,
and Bry Schmidt, United States Department of Agriculture,
Natural Resources Conservation Service

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

This soil survey updates three older reconnaissance soil surveys and three older detailed soil survey reports that include portions of the western part of Fresno County. The three older reconnaissance soil surveys that include portions of the soil survey area are “Reconnoissance Soil Survey of the Lower San Joaquin Valley, California” (USDA, BoS, 1918), “Reconnoissance Soil Survey of the Middle San Joaquin Valley, California” (USDA, BoS, 1919), and “Reconnoissance Soil Survey of the Upper San Joaquin Valley, California” (USDA, BoS, 1921). The three older detailed soil surveys are “Soils of Western Fresno County, California” (Harradine, 1950); “Soil Survey of the Coalinga Area, California” (Harradine and others, 1952); and “Soil Survey of the Mendota Area, California” (Harradine and others, 1956). The current survey provides additional information not included in prior surveys and has larger maps, which show the soils in greater detail.

This soil survey area includes portions of the west side of the San Joaquin Valley and of the east side of the Diablo Range in the California Coast Ranges (fig. 1). It encompasses an area of approximately 1,386,400 acres. It is bordered on the north by Merced County, on the east by the San Joaquin River and Fresno Slough, on the southeast by Kings County, on the southwest by Monterey County, and on the west by San Benito County.

The lowest elevation in the survey area is 108 feet near the San Joaquin River, in the northeast corner of the survey area, and the highest elevation is 4,970 feet on Condon Peak, near Joaquin Ridge.

Irrigated cropland, livestock grazing, and urban and homesite development are the primary land uses in the survey area. Other land uses include recreation and wildlife habitat.

Figure 1.—Location of the western part of Fresno County in California.

General Nature of the Survey Area

The following paragraphs give general information about the western part of Fresno County. They describe history and development; permanent settlements; mining activities; transportation infrastructure; agricultural development; physiography, relief, and drainage; and climate.

For the purposes of this survey, the term “West Side” indicates areas west of the middle of the San Joaquin Valley. The “West Side” includes all areas west of the Fresno Slough and the San Joaquin River and the east part of the California Coast Ranges that drain into the survey area.

History and Development

Prepared by Robin M. Roberts, MA, NRCS Earth Team Volunteer, with assistance from Randall T. Milliken, Ph.D., Far Western Anthropological Research Group, Inc., Davis, California, and William L. Preston, Ph.D., California Polytechnic University, San Luis Obispo.

The history of the western part of Fresno County can be divided into periods roughly corresponding to geological, political, and/or economic changes. These periods are the prehistoric period (up to 12,000 years ago), the period of the early Native Americans (12,000 years ago to 1540 AD), the proto-historic period (1540 to 1769), the early European period (1769 to 1846), the early American period (1846 to 1864), the oil boom (1864 to 1890), the transition period (1890 to 1923), the early agricultural period (1923 to 1945), and the modern agricultural period (1945 to the present). While these time periods are somewhat arbitrary, they mark political or economic changes that impacted land use within the survey boundaries. These periods lend structure to what would otherwise be a confusing series of parallel events. It is important to realize that, with the exception of specific historical events, changes took place gradually and tended to overlap each other. Seldom does any record of human endeavor yield neat patterns.

Prehistoric Period (up to 12,000 years ago)

Originally, the California Central Valley was part of a large, ocean-covered basin that, according to the geologic record, dates at least from the Silurian Period (approximately 400 million years ago). In its earliest form, the ancient Sierra Nevada was uplifted about 200 mya during the Jurassic Period by the subduction of the Pacific plate beneath the North American Plate (Hill, 1975; Hinds, 1952).

During the Cretaceous Period (75 to 65 mya), additional uplift that created what was to become part of the modern Sierra Nevada Mountains occurred. The general structure of the ancient San Joaquin basin took shape somewhat later, during the Paleocene Epoch (65 to 54.8 mya). Parts of the current San Joaquin Valley, particularly north of Coalinga, rose above sea level for the first time about 53 mya (during the Eocene Epoch) at approximately the same time that the Diablo Range (in the Coast Range) was uplifted. The Buttonwillow, Maricopa, and Tejon depocenters were created during this period. They later became Tulare, Buena Vista, and Kern Lakes (Hinds, 1952).

Further uplift during the middle Miocene Epoch about 10 mya significantly raised the Diablo Range and the Temblor Range north of McKittrick in present-day Kern County (Hinds, 1952; Wallace, 1991). At approximately the same time, after a period of erosion, renewed uplift occurred in the Sierra Nevada region (Hill, 1975).

Rapid sedimentation in the southern San Joaquin Valley took place in the late Miocene and early Pliocene Epochs (7 to 5 mya). At this time, there was a major seaway between the valley and the Pacific Ocean, between modern Monterey Bay and Coalinga. This seaway, along with others that had opened elsewhere through the Coast Ranges, was closed by the end of the Pliocene, leaving the California Central valley an isolated inland sea (Hinds, 1952).

A major deformation of the Coast Ranges creating the Elk Hills, the Kettleman Hills, and Wheeler Ridge occurred about 2 mya. This deformation was followed by a period of rapid sedimentation in the San Joaquin Valley (McPhee, 1993).

A final uplift of the Sierra Nevada Mountains ended about 10,000 years ago, about the same time as the end of the last ice age, leaving the mountains looking much as they do today (Small and Anderson, 1995; McMillan and others, 2002).

About 700,000 years ago, the continued filling of the valley by sediment from the Sierra Nevada and Coast Range mountains left only Lake Corcoran and Lake Clyde as the last remaining widespread ancient lakes. By the end of the Pleistocene, 10,000 years ago, the valley was completely filled, except for Tulare, Buena Vista, and Kern Lakes, which remained in the depressions left by the Buttonwillow, Maricopa, and Tejon depocenters. Fossil records of these later time periods are abundant in the arroyos and canyons of the West Side (Davis and others, 1959; Hinds, 1952).

The Early Native Americans (12,000 years ago to 1540 AD)

The valley was a plain with a great variety of botanical and animal life when the first humans arrived 11,000 to 12,000 years ago. The fossil record indicates that the valley these humans encountered included grasslands, marshlands, woodlands, rivers, lakes, and vernal pools (Simmons, 1983, p. 3; Toth, 1991, p. 53).

Loosely called “paleoamericans” (Bonnichsen and Turnmire, 1999, p. 1), the *homo sapien sapiens* arriving in California during the late Pleistocene and early Holocene are associated with the making of distinctive projectile points that identify the Clovis-Point Culture (Haury and others, 1959; Rogers and others, 1992, p. 286). Archaeological evidence places the Clovis-Point people in the Central Valley about 9,000 years ago (Aikens, 1978, p. 138; Riddell and Olsen, 1969, pp. 121-130).

Recently dated cave discoveries in Nevada provide evidence that the earliest Native Americans in western North America made numerous practical items from wood and plant fiber. These items included sophisticated footwear from three different types of animal skins (Tuohy and Dansie, 1997). Only the stone tools of the earliest settlers, however, have been recovered in the southern San Joaquin Valley (Wallace, 1978a).

By 7000 BC, a resident population known as the Western Pluvial Lakes Tradition was scattered across California (Moratto, 1984, p. 111). This resident population was displaced first by people of the Hokaltekan language group who were, in turn, pushed out of the Central Valley by members of the Penutian linguistic stock moving in from the north and east (Elsasser, 1960, pp. 1-20). The disparate populations fragmented, developing customs, languages, and lifestyles that varied according to the climate and resources of each locale (Tiller, 1996, p. 227). Eventually, the Penutian speakers in the San Joaquin Valley came to be called *Yo' kutch*, meaning either "people" (Kroeber, 1976, p. 488) or "everybody" (Latta, 1949, p. 1).

The Proto-Historic Period (1540 to 1769)

The Proto-historic period represents the time following the first visits by Europeans to California and before the arrival of the first white settlers. There is little written documentation regarding the residents at that time, and little contact between European explorers and the native Californian peoples occurred, but the latter gradually became aware of the former. It has not been determined exactly how and to what degree the native population in the survey area may have been affected by the ever-closer approach of European explorers to the shores of California, though Preston (1981, p. 48) suggests that the influence was negligible.

The Proto-historic period along the west side of the San Joaquin Valley is known as the Panoche Complex and falls within the Late Phase 2 Period of the Central California Taxonomic System (Breschini and Haversat, 1987; Moratto, 1984, p. 11).

The central San Joaquin Valley had become exclusively inhabited by members of the *Yokuts* language group by the time of the Spanish entry into California (Kroeber, 1976, p. 477; Latta, 1949, p. 1; Tiller, 1996, p. 233; Wallace, 1978b). The Yokuts were once thought to have inhabited the Coast Range valleys of western Fresno County as well, but some evidence suggests that speakers of another Penutian linguistic group, the Ohlone/Costanoan language family, occupied the valleys of the Panoche and Little Panoche Creeks (Milliken, 1994). Farther south, Salian speakers, members of the Hokan language stock, are thought to have lived in the Coast Range valleys in the vicinity of modern-day Coalinga (Gibson, 1983). These Ohlone/Costanoan and Salian bands lived a semi-nomadic life, moving from one traditional living area to another as the seasons and food supply dictated (Milliken, 1994). The Yokuts later moved into the Coast Range hills after the Ohlone/Costanoans and Salians had been removed to Franciscan missions during the period 1770 to 1810.

The largest populations of Yokuts-speaking tribes were along the San Joaquin River and the Fresno Slough, including the *Eyuslahua* (Latta, 1949, pp. 14-15: *Kah-watch'-wah* or "grass nut people") at Firebaugh, the *Copcha* at Mendota (Latta, 1949: *Hoyima*), the *Wilmichi* at the south end of Fresno Slough, and the *Tachi* along the lower Kings River. While they maintained semi-permanent villages along permanent streams, they moved out onto the western plains in spring and summer to hunt and gather wild plants (Latta, 1949, pp. 3-15; Milliken, 2003).

The earliest residents had little permanent impact on the land, except in local areas where the refuse of their long-term occupations resulted in "kitchen midden" soils. The only permanent "structures" left by the *Yokuts* are grinding rocks located at dwelling locations where acorns were "processed" for thousands of years. Dwellings were temporarily erected when needed at each of the traditional locations used by individual tribal groups. A more subtle impact on soil development derives from the practice of setting deliberate fires for a variety of reasons, including the stimulation of certain seed plants and basketry plants (Anderson and Moratto, 1996).

In the hills and mountains, the Chapana Band of Ohlone/Castanoans inhabited the Panoche Creek watershed, while the Staquel and Chenen bands of Salinan speakers utilized the Los Gatos-Jacalitos Creek watershed during the Panoche (proto-historic) Period. Excavations at CA-FRE-1333, in the White Creek drainage north of Coalinga, suggest that many sites on the eastern slope of the Coast Ranges could be occupied only during the wet season (Breschini and Haversat, 1987, p. 40). During the summer, the local bands probably camped in very small groups near springs and seeps in the most shaded upland canyons.

The Early European Period (1769 to 1846)

Europeans came to California in 1769, when the conquest of Alta California under Don Gaspar de Portolá, military and civil commander of California and Fray Junipero Serra, Father President of the California missions, commenced. Beginning with the first mission in San Diego in 1769 and the first presidio in Monterey in 1770, the Spanish established a series of missions, pueblos, and presidios along the coast and inland on the west face of the Coast Ranges.

In 1792, Don Pedro Fagés explored the periphery of the San Joaquin Valley from the Tejon Pass (which he named "grapevine") to the south around the west side of the valley from Suisan Bay northeast of San Francisco to the Pacheco Pass area, near the present-day San Luis Reservoir (Rehart, 1997, p. 159). In his account of that expedition, Fages described the West Side as barren and devoid of human occupation (Heizer and Whipple, 1971, p. 79).

The first Europeans came into the central San Joaquin Valley in 1806, when Gabriel Moraga led an expedition inland. Moraga named the valley and the river he encountered *San Joaquin* (Cook, 1960). The first Spanish explorers originally called the resident Yokuts *Tularenos* ("people of the bulrushes") and were on good terms with them, but as Spanish treatment of them worsened, so did the relations (Preston, 1981, p. 53).

When secularization took place in 1834, many of the Native Americans near the missions fled inland to the Central Valley to escape Mexican rule. By this time, fully two-thirds of the estimated 300,000 or more resident dwellers that existed in California when the Spanish first came in 1769 had died from introduced disease (Cook, 1955, p. 70; Rose, 2000, p. 19; Tiller, 1996, p. 229).

A number of ranchos were established around the periphery of the survey area. The largest one was the *Rancho Laguna de Taché* directly outside the extreme southern edge of the survey area. Generally, the foothills and adjacent valleys were less attractive than the moister valleys lying to the east or the foothills and mountains of the cooler and wetter seaward side of the Coast Range favored by early settlers. In addition, the lack of any perennial streams draining the eastern slope of the Coast Range made existence there very tenuous.

Other than a few trails, there was little development of the infrastructure of the survey area by either the Spanish or Mexican regimes. Travel through the area at this time was primarily along the El Camino Viejo (the Old Road), which ran along the eastern base of the Coast Range foothills, following the general path of the modern Interstate 5 (Simmons, 1983, p. 4). Spanish and Mexican military expeditions produced sketchy maps and surveys, several of which have survived to the present day (Cook, 1960 and 1962).

Assessing the impact of the early Spanish and Mexican regimes is difficult. The impact stems largely from grazing by feral cattle and horses and the inadvertent importation of non-native plants. Grazing accelerated the spread of exotic plant species and contributed to mechanical erosion caused by soil compaction. In addition, competition with native animals likely produced biotic alterations that are difficult to determine (Preston, 1981, p. 60).

The Early American Period (1846 to 1864)

The Bear Flag revolt in 1846 ended Mexican rule and threw many of the landholding titles into disarray. As little land, if any, in the survey area was actually held by title, no immediate changes resulted from the change in government.

During the period from the end of the Mexican War to about 1864, the West Side land that was in use was used primarily for grazing by livestock and for hunting. When the Americans took control of the State, the *Californios* saw their rancheros deeded over to newcomers, including ranchos close enough to be grazed by livestock in the survey area.

John C. Frémont passed through the north end of the area near Panoche Pass and included in his reports brief statements regarding the dry nature of the area along with rudimentary mapping notes. He remarked especially on the tules farther inland (Frémont, 1845).

James H. Carson, passing through the extreme southern end of the survey area around 1849-50, described the soil as “composed of red clay, interspersed with different mineral substances, and so undermined by gophers and kangaroo rats, as to be in many places impassible by man or beast, even in the dry season” (Carson, 1852, p. 54).

The California Gold Rush initially had little impact on this survey area, though a few gold miners settled near the San Joaquin River. Finding little gold there, the first European residents discovered that supplying truck crops to the miners in the Sierra foothills was much more profitable. These endeavors were confined to the eastern edge of the survey area, around the San Joaquin River. Land use farther west was sporadic and temporary (Harradine and others, 1956, pp.10 and 12).

Cinnabar was discovered in the Panoche Hills to the west of the survey area in 1852. The opening of mines in Aurora, San Carlos, and New Idria rapidly followed this discovery. From 1853 to 1856, these mines were briefly united as the New Idria Mining District. These mines were among the largest producers of mercury in the world. They operated until the last of the three, the New Idria, closed in 1971 (Frusetta, 1991, p. 1). Though outside the boundaries of the current survey area, these mines impacted the nearby valley by providing the impetus for the establishment of permanent roads and by contributing to the economy of such valley towns as Firebaugh and Coalinga.

Seeking free range under the Open Range Law, American cattlemen began driving their herds over the California Coast Ranges in the 1850s. Sheepherders followed suit as early as 1875. These drives were seasonal because the lack of perennial water sources precluded year-round occupancy. During the hot, dry summers, stock was driven west over the coastal divide to the cooler, wetter areas on the seaward-facing slopes.

The 1860 census reported three Native American rancherias in the Panoche-Idria area. These Native Americans were the only permanent residents in the West Side area apart from persons associated with the mines and a few scattered farmers. This situation, however, was soon to change (Frusetta, 1991, p. 12).

The Oil Boom (1864 to 1890)

In 1864, the discovery of oil near the present-day town of Coalinga caused the first of several shifts in land use on the West Side. The most immediate consequence was the sudden influx of oil workers, multiplying the population of the area many times over. This influx was followed closely by the building of a branch line of the Southern Pacific Railroad from Goshen (near present-day Visalia) to a terminus at a Huron station by 1869. The railroad eventually reached the oil fields on February 1, 1877, when the branch line was pushed to Alcalde, 4 miles from the oil fields themselves. Though significant in itself, the oil boom brought railroads into the survey area, which in turn, fostered two key developments that were to shape the future of West Side land use—distributed irrigation and homesteading (Holmes and others, 1921, p. 2434; Simmons, 1983, p. 6).

Beginning in the late 1870s, irrigation canals in neighboring areas had demonstrated the value of distributed irrigation. Some of these canals were extended into the northernmost areas of the West Side. The availability of dependable water allowed more of the parched land to be cultivated. Unfortunately, the cost of digging irrigation canals and paying for water limited real agricultural enterprises to large landowners, such as the Miller and Lux Company.

Though primarily interested in cattle, Henry Miller, senior partner in Miller & Lux, fostered canal building as a prerequisite to growing his own cattle feed and increasing the value of his already extensive holdings. The story of Henry Miller, though fascinating in itself, is mostly of interest to this history for two reasons—the legacy of irrigation canals he left on the West Side and his influence on California water law. By promoting his own self-interest, Miller also promoted the interests of other landowners on the West Side and frequently partnered with them to extend the irrigation distribution system beyond the borders of his own land, sometimes into the survey area (Rose, 2000, p. 45; Treadwell, 1981). In the landmark water law case *Lux vs. Haggin*, the California Supreme Court established the dual system of water law, i.e., prior appropriation and riparian rights (Rose, 2000, p. 46). This decision in turn, eventually led to the passage of the Wright Act in 1887, which allowed the creation of irrigation districts and limited the size of farms receiving subsidized water.

The second consequence of the oil boom was the arrival of homesteaders interested in the land made more accessible by the extension of the Southern Pacific Railroad into the area. The U.S. Government granted railroads alternate sections as incentive to push railways into lesser developed and thus less profitable areas. In the western part of Fresno County, the collision of homesteaders and railroad interests was to result in the historic Mussel Slough Tragedy (Brown, 1980).

The publicity that resulted from the trial and subsequent incarceration of the homesteader participants in the shooting at Mussel Slough brought national attention to the West Side of the San Joaquin Valley. The dispute over land prices was finally settled peaceably in the courts. The railroad prevailed. Even with significant compromises by the railroad, many settlers faced sometimes overwhelming prices for the land. Coupled with the potential loss of their investment in the developments on the railroad property, large numbers of homesteaders sold those developments and their interest in the property to large farming and ranching companies (Brown, 1980).

Thus, the most direct impact of the homesteaders on the West Side was their early development of land that had previously been unused. The absorption of their minor holdings by major farmers and ranchers paved the way for the final great era of land use on the West Side—large-scale farming.

The Transition Period (1890 to 1923)

During the final two decades of the nineteenth century, stimulated by the construction of railroads to the oil fields, large land companies bought most of the small homesteads in the area, combining them into large tracts where they attempted dryfarming. Dryfarming proved to be unprofitable, so some land companies went into the cattle business while others simply went out of business (Holmes and others, 1921, p. 2434; Simmons, 1983, p. 6). A few were able to hold on until distributed irrigation systems reached their holdings, at which time they began experimenting with various crops. From the turn of the century until 1923, nearly every crop imaginable was tried on West Side farms. Most proved unprofitable, either because the costs of producing and shipping them were too high or because the conditions did not favor successful yields. A reliable source of water was the main problem to be overcome (Popovich, 1956, p. 131).

A significant step in overcoming the water problem was the passage, in 1902, of the National Reclamation Act, which provided for government establishment of reservoirs and water districts to use the stored water while severely limiting the number of acres that could receive the subsidized water (Reisner and Bates, 1990, p. 16). It would take some time, however, for the Reclamation Act to benefit the West Side. The focus in California was on the east side of the valley (Simmons, 1983, p. 16).

Early attempts at withdrawing ground water via well drilling began in 1870, but the wells were expensive and unreliable. By 1900, only 10 percent of the West Side homesteads had successfully drilled wells (Simmons, 1983, p. 18), though this was enough to draw down the water table and weaken the hydrostatic pressure (Mendenhall, 1908, p. 36; Popovich, 1956, p. 128).

As the water table dropped deeper, the relatively shallow wells of the late nineteenth century were replaced by deeper wells. In addition, the high boron content in the soil contaminated the well water, requiring the use of well casing to a depth of 700 feet (Simmons, 1983, p. 18). It was not until 1906 that the first deep well was successfully drilled near Mendota on the ranch of S.L. Heisinger (Popovich, 1956, p. 130). The development of deep wells along with the increasing availability of canal water from outside the survey area was of key importance in the eventual widespread success of agriculture on the West Side.

One of the first large-scale farming developments on the West Side was that of the Boston Land Company. Around 1916, this group of eastern capitalists purchased approximately 37,400 acres of land in Fresno and Kings Counties and began drilling a series of 30 wells with an eye toward producing a variety of crops. These wells were, for the time, quite deep—ranging from 1,400 to 2,000 feet in depth (Simmons, 1983, p.18). The company planted, among other crops, vineyards and fruit orchards on about 4,500 acres. Neither of these crops proved profitable (Holmes and others, 1921). A combination of factors led to the failure, among them a high boron content in the water, high soil salinity, frost damage, and poor pollination.

One unanticipated consequence of water extraction from deep wells was land subsidence, which is described under the heading “Altered Soils.” This process invigorated the later search for surface water from the Central Valley Project.

Early Agricultural Period (1923 to 1945)

When German U-boats during World War I shut down the shipping lines from Egyptian cotton producers, cotton production centered on the West Side came into its own. W.B. Camp, Sr., a cotton expert with the USDA, was sent to California to investigate the potential for growing cotton on the West Side of the Central Valley. With a ready-made demand and government help, the Alcala variety of cotton, brought from Mexico, proved successful. By 1950, the West Side was producing 200,000 bales of cotton per year, worth about $35 million (Popovich, 1956, pp. 132-133). Cotton remains a staple crop on the West Side to this day.

In 1944, the “Soil Survey of the Coalinga Area, California” was completed. This survey was initiated in response to a search for soils suitable for the growth of guayule for rubber production during World War II (Harradine and others, 1952).

Despite the success engendered by deep ground-water extraction, the expense required to drill and maintain ever deepening wells—particularly during the depression years—and the progressive depletion of the ground-water supply threatened to seriously curtail agricultural enterprise on the West Side. These limitations were partially offset by cheap land prices, the willingness of cottonseed oil interests to lend farmers money to grow cotton in their fields, and the equal willingness of power companies to finance the installation of water pumps. In 1936, a U.S. Supreme Court decision declared the Federal program for regulating the acreage and controlling the marketing of agricultural products unconstitutional. This decision allowed the development of new West Side land (Simmons, 1983, p. 21).

On August 5, 1933, the Central Valley Project Act was signed by then California Governor Rolph. This project leveraged the combined resources of the State of California and the United States Government to bring canal water to both the Central Valley's West Side and the southern California (Los Angeles) area (Simmons, 1983, p. 21). The history of the modern period in the survey area is largely the history of the development and utilization of the water supply within that area.

Modern Agricultural Period (1945 to the present)

The close of World War II saw the West Side infrastructure—roads, railways, canals, and wells—mature to the point where rising farm produce prices stimulated the growth of large farming companies. The story of West Side agriculture since that time is largely the story of the improvements in the West Side water-delivery system. Integral to those improvements was the Westlands Water District.

The Westlands Water District, which includes more than 80 percent of the irrigated land in the survey area, was formed on September 8, 1952 (Simmons, 1983, p. 32). On June 5, 1963, it entered into a long-term water-service contract with the Federal Government to provide surface-water delivery for a period of 40 years to supplement ground-water supplies. On June 29, 1965, the Westlands Water District and the Westplains Water Storage District merged as a condition of that contract (Simmons, 1983, p. 64).

The most significant impact of the Westlands Water District on the West Side was its central role in fostering the construction of the San Luis Reservoir and the Pleasant Valley canal system, authorized on June 3, 1960 (Dickson, 1960). The ground-breaking ceremony took place on August 18, 1962; the first water deliveries began on November 10, 1967; and the dedication marking the completion of the project was celebrated on April 20, 1968 (Simmons, 1983). See figure 2.

From the late 1970s through the middle 1980s, the West Side was witness to a number of historic environmental and legal actions involving the incomplete drainage system for the San Luis water-delivery system that terminated in the Kesterson Wildlife Refuge. Environmental concerns and a focus on water conservation led to the Central Valley Project Improvement Act in 1992 and the Cal-Fed Bay-Delta Accord in 1994. Both projects focused on improving the reliability of the water supply, the ecosystem, and long-term water quality (Westlands Water District, 2003b). Some of the other water districts in the survey area include Broadview, Pacheco, Panoche, Firebaugh Canal, and Tranquillity.

Permanent Settlements

This survey area has no major cities but has several small towns, most of which owe their existence to the railroad.

Firebaugh was established during the late 1880s after the Southern Pacific Railway built a west-side branch line from Fresno (in Fresno County) to Tracy (in San Joaquin County). The town was named after Andrew D. Firebaugh, who operated a ferry across the San Joaquin River in 1854, at a place near the town site. The Butterfield & Co. Overland Mail Route used Firebaugh's ferry to cross the San Joaquin River. The Pacific and Atlantic Telegraph Company ran its telegraph line from

Figure 2.—Part of the California Aqueduct. Water from this aqueduct is used to irrigate most of the irrigated soils in the survey area. The aqueduct runs the entire length of the survey area.

San Francisco to Firebaugh in 1859, and news arriving at Firebaugh via the stage was transmitted from there (Frusetta, 1991, pp.10 and 14).

Mendota, about 8 miles south of Firebaugh, was also established when the railroad was built. An added impetus was given to this settlement when the Mendota pump lifts were constructed for the San Joaquin and Kings River Canal. Today, Mendota is most often associated with the Mendota Wildlife Area, located just to the southeast.

The town of Tranquillity is situated south of the Mendota Wildlife Area. When the early Jefferson G. James ranch holdings were broken up, Walter C. Graves purchased land at the town location. The town name was derived from the ancestral Kentucky plantation of the Graves family (Popovich, 1956, p. 128).

San Joaquin, a small town several miles farther south along the railroad, is not technically within the boundaries of the survey area, but it has been grouped historically with Tranquillity because of proximity and similarity. It was incorporated on February 9, 1921. Both Tranquillity and San Joaquin are sustained by farming enterprises.

The largest town in the survey area is Coalinga, which derived its name from its early designation as “coaling station A” or “coaling A.” The town derives its livelihood from the oil industry, from farming and ranching, and from employment at the Pleasant Valley State Prison. Formerly known as Alcalde, the town was the turnaround site for the railroad to the oil fields. On May 2, 1983, Coalinga suffered a magnitude 6.4 earthquake. This earthquake radically changed the appearance and character of the town (Toppozada, 1987) and was felt as far away as Nevada. Over 800 buildings were destroyed, and damage estimates were placed at $31 million. The USGS has adopted this quake as the principal example of segmentation of the Great Valley thrust fault system (Stein and Ekstrom, 1992).

Huron, located 6 miles southwest of Lemoore Naval Air Station, was at one time the southern terminus of the Southern Pacific Railroad. Incorporated on February 1, 1877, it was first settled by Basque sheepherders and later became the largest wool-and sheep-shipping center in the State. In 1916, more wool was shipped from Huron than from any place in the United States (Simmons, 1983, p. 130).

The small settlement of Five Points is so named because of the intersection of three roads that form five points radiating from their intersection. The University of California Westside Research and Extension Center, which opened in 1959, is 6 miles south of Five Points, at the intersection of Highway 269 and Oakland Avenue.

Many other small settlements dot the survey area, among them Calflax (Highway 269 and Oakland Avenue); Westhaven (2 miles south of Lemoore Naval Air Station on Jameson Avenue); Wheatville (Cerini and Howard Avenues); Hub (Highway 41 and Excelsior Avenue); Camden (2 miles north of Hub at Highway 41 and McKinley Avenue); Vista (on Sonoma Avenue 8 miles northwest of Five Points); Cantua Creek (Clarkson and San Mateo Avenues); Three Rocks, originally called El Porvenir (Highway 33 and Clarkson Avenue); Helm (Highway 145 and Kamm Avenue); Mercey Hot Springs (J1 in the extreme northwest corner of Fresno County); and Oro Loma (Althea Avenue near Russell Avenue along the Delta-Mendota canal).

Mining Activities

Mining activities have had a significant impact on this survey area. The southeastern third of the New Idria Formation in the vicinity of Joaquin Ridge is associated with rich chromite and chrysotile asbestos ore deposits that were heavily explored and mined during the 1950s, 1960s and 1970s. Over 400 bulldozer exploration pits, 17 open-pit mining operations, 5 milling operations, and many miles of exploration access roads are evident in this part of the New Idria Formation (Levine-Fricke, 1998). Map units 765, 767, and 769 cover more than 8,000 acres and include most of the survey area that has experienced extensive mining activity.

Transportation Infrastructure

The transportation infrastructure in this survey area includes roads, railroads, canals and waterways, and airports.

Roads.—Interstate 5 running north and south along the base of the foothills is the dominant transportation feature on the West Side. The major east-west artery is the Highway 145-33-198 combination. Running from Fresno southwest, Highway 145 combines with Highway 33 at Helm and runs to Interstate 5 about 3 miles north of Harris Ranch, where Highway 33 joins Highway 198 to Coalinga. At Coalinga, Highway 198 continues west into Monterey County while Highway 33 turns south into Kings County. Starting in Sequoia National Park on the east and terminating at San Lucas, where it meets U.S. Highway 101, Highway 198 is the major east-west route across the southern portion of the valley. Many other paved and unpaved roads reach every part of the West Side, though many foothill dirt roads become impassible during rainy periods.

Railroads.—Southern Pacific Railroad branch lines run from South Dos Palos in Merced County to the Mendota Wildlife Area, where the main branch turns east to Fresno. A secondary branch runs from Mendota through Tranquillity to Helm and terminates in Burrell, just outside the survey area. Another branch runs from Goshen (near Visalia) to the old terminus at Huron. This branch used to run to Coalinga when the train was the main transport to and from the oil fields.

Canals and waterways.—Water-based transportation other than for minor recreational purposes is virtually nonexistent in the survey area. Historically, navigable waterways were on the periphery of the survey area during the rainy season, principally as part of the San Joaquin River-Kings River-Tulare Lake basin system. Later, artificial water structures were devoted to transporting the water itself rather than as a method of transportation. Incidental transportation on these later man-made waterways does occur, though primarily for purposes related to maintenance of the waterways.

Airports.—Numerous small airports and airstrips are throughout the survey area. Most of these small airstrips owe their existence to the agricultural use of aircraft, particularly for the airborne application of pesticides to crops. In addition, most of the large corporate farms use aircraft for transportation from urban headquarters to the agricultural sites and have constructed landing fields for this purpose. The nearest airport of significant size is the Fresno Yosemite International Airport.

Agricultural Development

Farms in this survey area annually produce agricultural products worth more than $1 billion. In 2002, the top 20 crops, by acreage, grown in the Westlands Water District were Acala/Upland cotton lint, processing tomatoes, Pima cotton lint, almonds, wheat, lettuce (fall and spring), garlic, cantaloupes, alfalfa hay, pistachios, dehydrated onions, wine grapes, barley, sweet corn, sugar beets, broccoli, garbanzo beans, safflower, oats and honeydews (Westlands Water District, 2003a). The diversity, total acreage, and yield of those crops are a testament to the long growing season typical of areas with a Mediterranean climate, productive soils, and available irrigation water. The number of fallow acres has steadily increased because of the relative unreliability of the water supply, the ongoing uncertainty of the agricultural economy, an increase in drainage problems, and high soil salinity. For further explanation of the changes in the aforementioned soil properties, refer to the section “Altered Soils.” For many years, Fresno County has been ranked as the first or second county in the United States in the market value of agricultural products sold.

Physiography, Relief, and Drainage

This survey area is made up of two physiographic regions, described as major land resource areas (MLRAs) by the Natural Resources Conservation Service. A major land resource area is a broad geographic area that has a distinct combination of climate, topography, vegetation, land use, and general type of farming (USDA, 1981). The eastern part of the survey area is in the Sacramento and San Joaquin Valleys (MLRA 17) and makes up about 64 percent of the survey area. The western part of the survey area is in the Diablo Range in the Central California Coast Range (MLRA 15) and makes up about 36 percent of the survey area. The MLRA number is given for each map unit in the section “Detailed Soil Map Units.” Figure 3, a thematic map of dominant landforms, illustrates the physiography, relief, and drainage of the survey area. Figures 4 and 5 show the pattern of soils, landforms, and parent material in the area (Fowkes, 1982).

Within MLRA 17, the Kings River enters the southern part of the San Joaquin Valley and historically emptied into Tulare Lake. Much of the Kings River water is now used for irrigation. In years of high precipitation and snowfall in the Sierra Nevada, the river water is artificially diverted into Fresno Slough north of Lemoore Naval Air Station and eventually into the San Joaquin River. The lowest elevations in the survey area are along the eastern boundary of the area, near the San Joaquin River and Fresno Slough. Elevation is approximately 208 feet above sea level at the intersection of Fresno Slough and the Kings County line. There is an average drop of less than 1.5 feet per mile northwestward along Fresno Slough for a distance of about 34 miles to the junction of the slough with the San Joaquin River at an elevation of 160 feet. The gradient is slightly more than 2.5 feet per mile from the San Joaquin River to the northeast corner of the survey area, where Merced, Madera, and Fresno Counties intersect at an elevation of approximately 108 feet. The soils at the lowest elevations are on basin floors and flood plains. They formed primarily in alluvium derived from

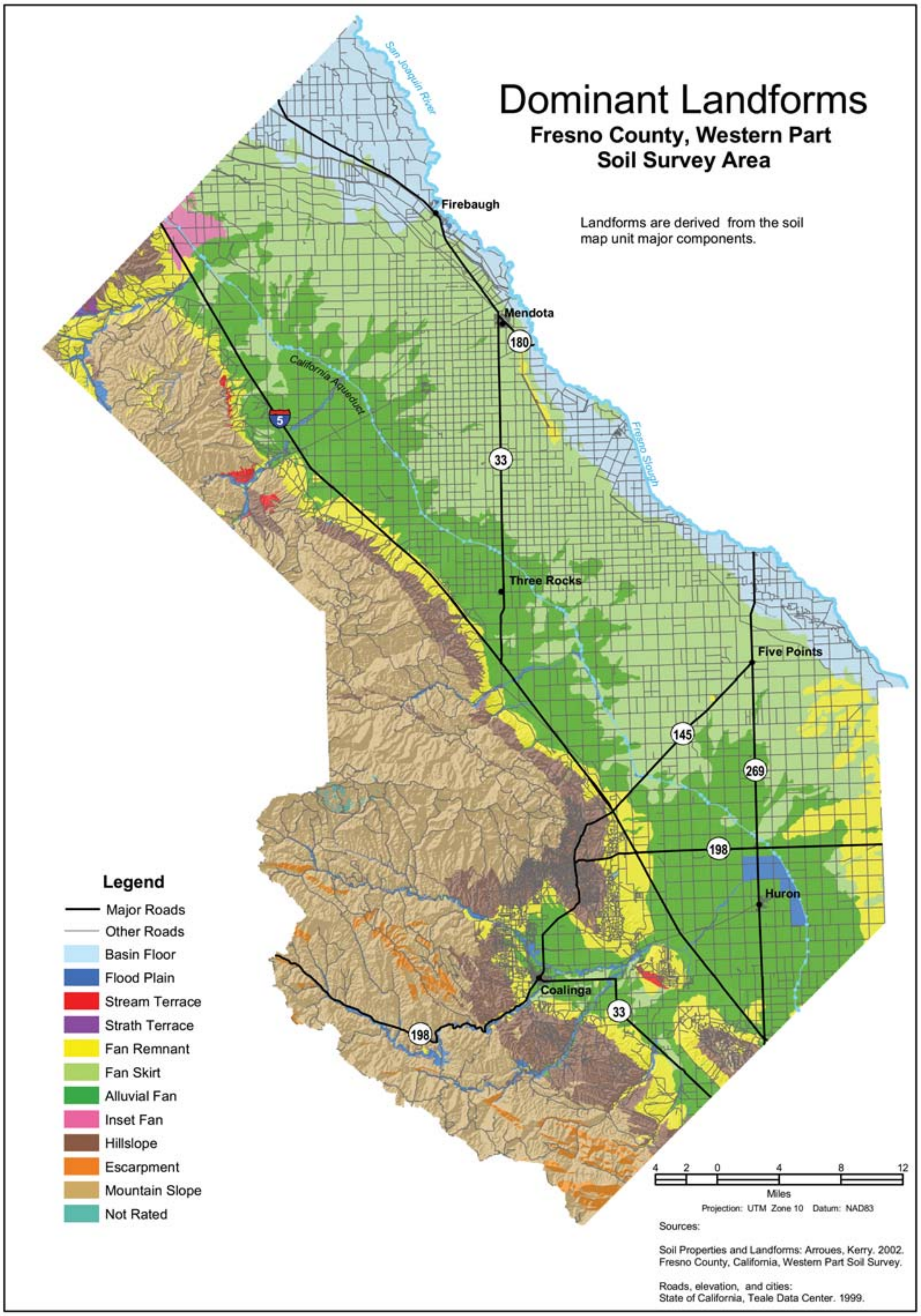


Figure 3.—The dominant landforms in the western part of Fresno County.

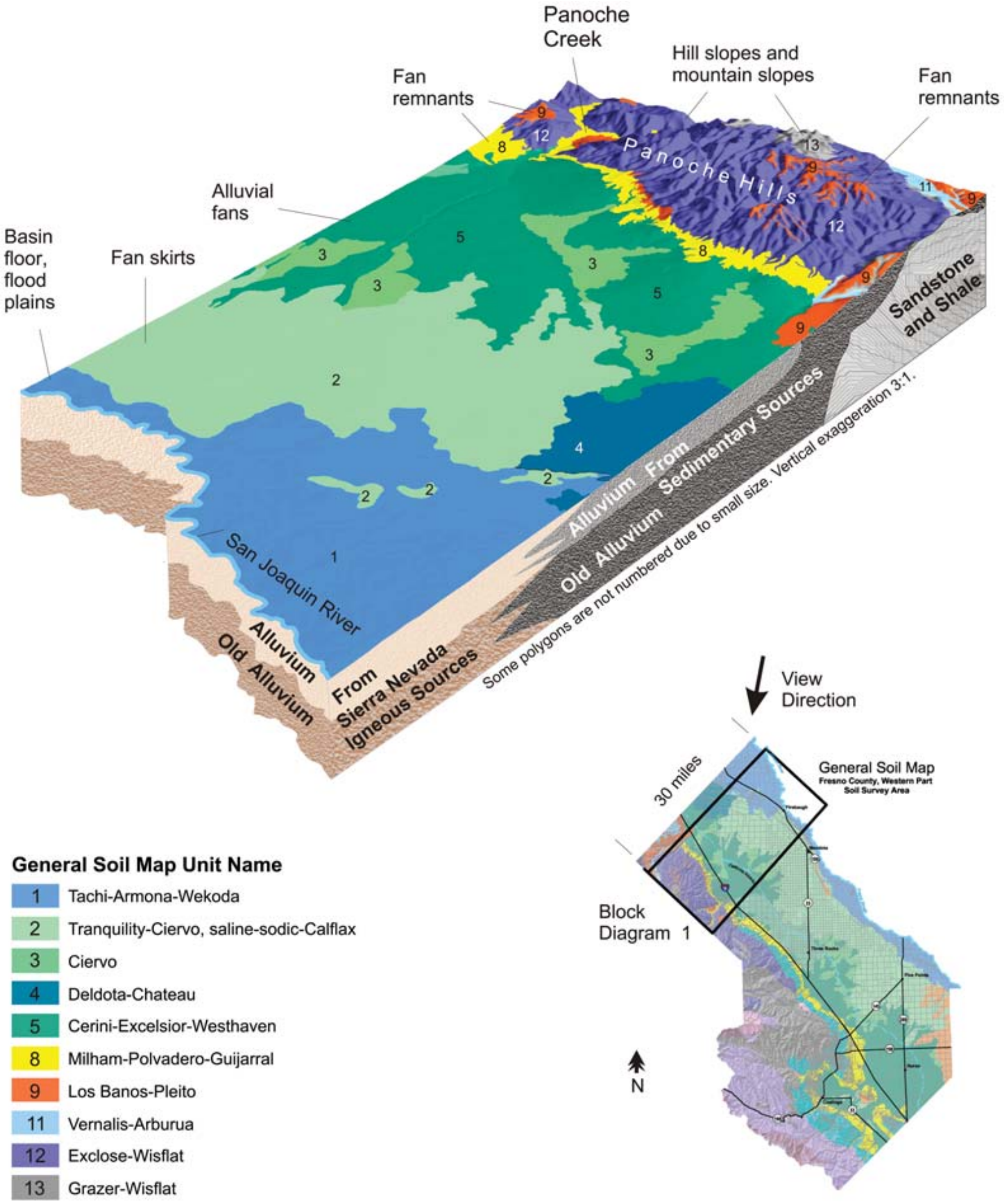


Figure 4.—Typical pattern of soils, landforms, and parent material on the western side of the San Joaquin Valley and the low hills and mountains of the California Coast Ranges.

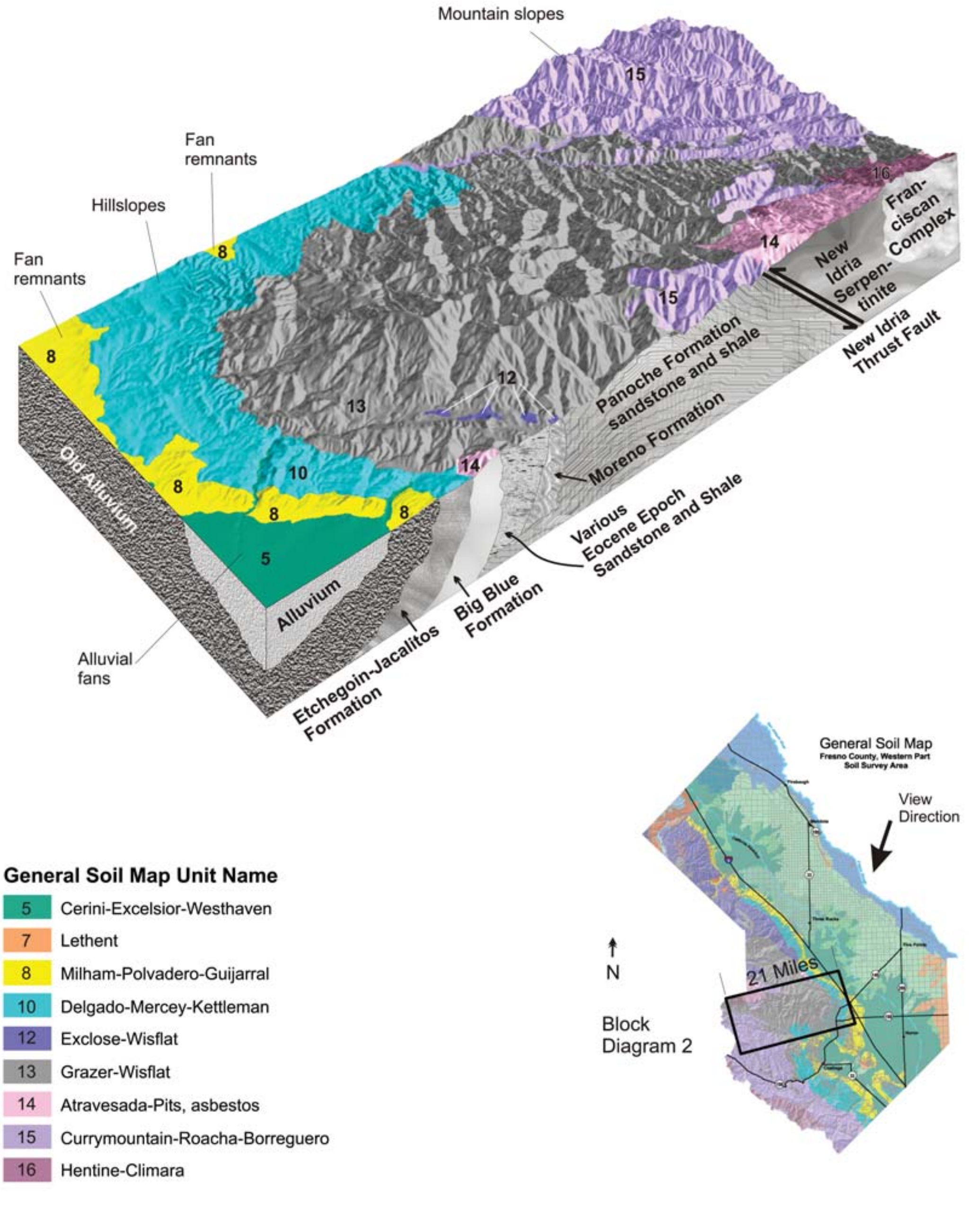


Figure 5.—Typical pattern of soils, landforms, and parent material on the hills and mountains of the California Coast Ranges near Coalinga. Geologic formations from Fowkes, 1982.

igneous rocks from the Sierra Nevada. The average width of the basin and associated flood plains in the survey area is approximately 4 miles. The basin floor is widest northwest of the community of Firebaugh. It is most narrow north of the community of Mendota, where the Panoche Creek fan skirt has pushed within 1 mile of the San Joaquin River.

The next landform to the west is a nearly level (less than 0.1 percent slope) fan skirt approximately 10 miles wide. In some areas this fan skirt is separated from the basin floor by a thin band of fan remnants. The parent material of the soils on this fan skirt is dominantly alluvium derived from sedimentary rocks from the California Coast Ranges. The fan skirt is in the area most affected by rising high water tables and increases in salinity resulting from applications of irrigation water and lack of drainage. See the sections entitled “Saline-Sodic Soils” and “Altered Soils.”

The next landform to the west, upslope from the fan skirt, consists of alluvial fans that resulted from the deposition of sediment by intermittent streams that drain the Coast Ranges. This landform is approximately 8 miles wide. The western edge of the landform is generally just to the west of Interstate 5. The alluvial fans fringing the western part of Fresno County are derived from drainage basins that are generally similar with respect to topography, climate, and tectonic environment. They range in size from 0.2 square miles in the Gres Canyon drainage basin to 296 square miles in the Panoche Creek drainage basin. They range in lithology from dominantly sandstone to mudstone or shale. Fans derived from mudstone or shale-rich basins are generally 35 to 75 percent steeper than fans of similar area derived from sandstone-rich basins and roughly twice as large as fans derived from sandstone basins of comparable size (Bull, 1964b).

Most of the alluvial fans are the result of the deposition of sediment from streams that can generally be separated into four drainage basins. From north to south, these drainage basins are Little Panoche Creek (the watershed drains into the Little Panoche Reservoir) and its tributaries, Mine Creek and Mercey Creek; Panoche Creek and its main tributary, Silver Creek; Cantua Creek and its tributaries, Arroyo Venado and Arroyo Leona; and Arroyo Pasajero (fig. 6) and its tributaries, Los Gatos, Warthan, Jacalitos, and Zapato Chino Creeks, which have a watershed area of approximately 344 square miles (Munn and others, 1981). Despite the lack of year-round flow, these creeks can produce prodigious flows, as is evidenced by the massive—and deadly—washout of Interstate 5 by the Arroyo Pasajero on March 9 and 10, 1995. Numerous smaller streams and associated drainage basins are sandwiched between the four larger drainage basins. Some of these are Moreno Gulch, Arroyo Ciervo, Arroyo Hondo, Salt Creek, Martinez Creek, and Domengine Creek. All of the smaller creeks have small alluvial fans that coalesce with one of the four larger alluvial fans a few miles after passing through the hillslopes and fan remnants.

The next landform to the west, upslope from the alluvial fans, consists of fan remnants. This landform is approximately 2 miles wide. It consists mostly of erosional fan remnants that formerly were alluvial fans and that no longer undergo significant sediment deposition because they are significantly higher than the flood plains associated with intermittent streams.

MLRA 15 begins with a narrow band of hillslopes approximately 2 miles wide. These hillslopes separate fan remnants from the mountain slopes of the Diablo Range in the California Coast Ranges. The mountain slopes extend to the top of the drainage basins mentioned previously and are approximately 12 miles wide. They rise from approximately 1,200 feet in the lower areas to a high of 4,970 feet on Condon Peak, near Joaquin Ridge. Escarpments that face southwest are commonly associated with the mountain slopes in the southwestern part of the survey area. The western boundary of the survey area with Monterey County is the watershed boundary as well. This boundary separates water that flows southwest toward the

Figure 6.—The mouth of the Arroyo Pasajero, which is choked with sediment as it opens onto an impoundment basin where sediments are deposited next to the California Aqueduct.

San Andreas Fault Rift Zone from water that flows east and drains into the intermittent streams mentioned previously.

Climate

Prepared by the National Water and Climate Center, Natural Resources Conservation Service, Portland, Oregon.

Table 1 gives data on temperature and precipitation for the survey area as recorded in the period 1961 to 1990 at Coalinga, in Fresno County, and at Priest Valley, in Monterey County near its border with Fresno County, at an elevation of 2,300 feet. Daily extremes were extracted from the full period of record for each station. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

At Coalinga, the average winter temperature is 47.9 degrees F, the average daily minimum temperature in winter is 36.4 degrees, the lowest temperature on record, which occurred on December 22, 1990, is 11 degrees, the average summer temperature is 79.3 degrees, the average daily maximum temperature in summer is 96.4 degrees, and the highest temperature, which occurred on July 4, 1991, is 114 degrees.

At Priest Valley, the average winter temperature is 43.8 degrees, the average daily minimum temperature in winter is 29.2 degrees, the lowest temperature on record is 2 degrees, recorded on the morning of December 22, 1990, the average summer temperature is 69.4 degrees, the average daily maximum temperature in summer is 91.3 degrees, and the highest recorded temperature, which occurred on July 14, 1972, is 113 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F at Coalinga and 50 degrees F at Priest Valley). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

At Coalinga, the average annual total precipitation is about 7.87 inches. Of this, 1.61 inches, or about 20 percent, usually falls in the period April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 3.74 inches at Coalinga on March 10, 1995. Thunderstorms occur on about 6 days each year, and most occur in March.

At Priest Valley, the average annual total precipitation is 20.20 inches. Most of western Fresno County receives between 6 and 10 inches of annual precipitation. The extreme western portion of the county, near the border with San Benito and Monterey Counties, however, receives between 12 and 24 inches. The maximum is estimated to be in the highest area northwest of Coalinga, on the San Benito County line, where approximately 26 inches of annual precipitation normally falls. The greatest 1-day rainfall total at Priest Valley, 5.10 inches, occurred on December 6, 1966.

The average seasonal snowfall is 0.0 inches at Coalinga and 1.9 inches at Priest Valley. The greatest snow depth at any one time was 5 inches on January 27, 1957, at Coalinga and 4 inches on December 15, 1988, at Priest Valley. On an average, less than 1 day per year has at least 1 inch of snow on the ground at both Coalinga and Priest Valley. The heaviest 1-day snowfall on record was 5 inches on January 27, 1957, at Coalinga and 10 inches on January 4, 1974, at Priest Valley. It is estimated that the highest terrain on the Fresno County border with San Benito County receives about 10 inches of snowfall annually and that in a typical year there are several days with measurable snow on the ground at these higher elevations.

The average relative humidity in midafternoon is about 41 percent. Humidity is higher at night, and the average at dawn is about 78 percent. The sun shines 96 percent of the time possible in summer and 53 percent in winter. The prevailing wind is from the northwest. Average windspeed is highest, 8.2 miles per hour, in June.

Altered Soils

Prepared by Kerry D. Arroues, United States Department of Agriculture, Natural Resources Conservation Service.

The view from roads in California's Great Central Valley is one of a series of straight lines delineating fields of crops. The lines typically run north-south and east-west, as they conform, in general, to the Township and Range System of the U.S. Survey of Public Lands. A series of squares dominate a satellite view of the valley. The squares on the east side of the valley generally are much smaller than the squares on the west side. The pattern of the crops and the size of the farms dramatically illustrate the differences between the east and west sides of the valley. Each square represents a significant and permanent change in the natural landscape.

According to the American Farmland Trust, California's Great Central Valley is the most threatened resource area in United States. This assessment is based on the market value of Central Valley agricultural production, the development pressure, and the quality of the land in the valley (American Farmland Trust, 1995). The valleys in this survey area are part of this threatened resource area.

The impact of urbanization on the soils is significant and permanent. Many soil properties also are permanently altered by such farming practices as land leveling and irrigation. Some of these impacts are obvious, such as those resulting from the application of irrigation water. Other practices are more subtle and have an indirect impact. An example is pumping water from deep wells, which contributes to subsidence. Subsidence, in turn, affects the geomorphology of the region and influences flooding.

Agricultural operations have a significant impact on the properties, classification, and management of the soils in this survey area. Most of the survey area is in farms and ranches. The impact of agricultural operations occurs not only near the surface of the soil but also deep into the soil profile, where the wetting front of irrigation water moves.

Agricultural operations that affect soil properties include land leveling for irrigation purposes, deep tillage or ripping, and cultivation. Ground-water withdrawal and the application of water for surface irrigation have caused subsidence, which, in turn, has changed the geomorphology in many areas on the west side of the valley. The surface irrigation of soils across most of the valley has caused numerous climatic changes, and moisture received from precipitation makes up less than 20 percent of the total water on the soils. Some soils are less saline-sodic or saline now than they were prior to irrigation, but other soils are becoming saline-sodic. Saline-sodic and saline soils were partially reclaimed by the addition of soil amendments and leaching of the salts. Perched water tables have resulted from poor drainage and the application of surface irrigation water. Major water management structures, such as dams and canals, have slowed or stopped alluvial fan deposition in most areas.

Land Leveling for Irrigation

Extensive land leveling has taken place throughout the survey area. This practice has had a significant impact on the soil depth and the depth to diagnostic horizons.

Most of the cultivated fields in the survey area slope to the northeast. Land leveling has cut soil material from the higher sides of these fields and filled the lower sides of the fields with the cut soil material. On the high sides, this practice exposes soil horizons that are normally evident deeper in relatively unaltered soils, and on the low sides, it buries the surface layer under fill material.

Land leveling has a profound impact on soil classification. Identification of diagnostic horizons can be difficult when the surface has been altered by the removal or addition of soil. Subsoil horizons can be significantly altered and, in some cases, destroyed by this practice. It can be very difficult to document and identify increases in the clay content of a horizon that has been removed or in one that has been covered by unrelated soil material.

Land leveling commonly destroys or significantly alters soil structure. Identification of soil horizons in the absence of strongly expressed characteristics becomes difficult because of the degree of alteration.

Deep Tillage or Ripping

Many fields are ripped to a depth of 24 inches each year. This practice affects soil horizons to a depth of at least 30 inches. Some areas are ripped to a depth of more than 60 inches.

The purpose of ripping is to modify naturally occurring restrictive layers as well as the artificial layers created by past agricultural operations. Generally, naturally occurring restrictive layers, such as horizons with a significant increase in clay content, are deeper than artificial restrictive layers. In this survey area, ripping alters dense soils with an increase in clay content in the subsoil, stratified soils, saline-sodic soils, clayey soils, and soils that have been affected by compaction, including natural compaction and the compaction that results from farming practices.

Deep ripping affects the surface layer, the subsoil, and the upper part of the substratum. It is difficult to document the resultant mixture of surface and subsoil horizons. Even where a subsoil horizon can be identified in a given area, it is difficult to determine whether the observed depth to the horizon is typical of the soil that occurred naturally in that area. The typical depth to subsoil horizons can be deceptive in areas affected by agriculture. An intact subsoil horizon may just be an unusually deep subsoil that extended below the effect of the land-leveling equipment or the ripper shank pulled behind a tractor.

Deep ripping also has had a significant impact on soil structure. Prismatic and columnar structure and slickensides are often destroyed. Changes in the grade, size, and type of soil structure are common. Soil structure is one of the required characteristics of many subsoil horizons, and ripping often obliterates this structure, making classification of soils with weakly expressed subsoil horizons problematic (Soil Survey Staff, 1998).

Cultivation

Cultivation for such practices as seedbed preparation has impacts primarily on the upper foot of the soil. These impacts include changes in soil structure grade, size, and type; destruction of organic matter; mixing of surface horizons; possible accelerated erosion; and possible development of a compacted layer known as a plowpan. Development of a compacted layer directly below the surface of the soil may necessitate the use of deep ripping to provide a deeper root zone for crops and to improve drainage.

Organic Matter

Farming practices, such as disking, ripping, and leveling, have altered the distribution of organic matter in the soils in the survey area. Disking during the summer months exposes the organic matter in the soils to high temperatures, which can reduce the amount of organic matter.

Accelerated Erosion

Accelerated erosion caused by human activities is as old as human history. The “Dust Bowl” of the 1930s comes immediately to mind, but evidence indicating accelerated erosion can be subtle. It is much easier to prove that erosion has human causes if it can be observed to be taking place over a given timespan.

In this survey area, accelerated erosion has occurred primarily through petroleum-extraction activities, such as road construction and the construction of pads for oil wells; through cultivation and the resulting lack of cover on sandy soils; and through livestock grazing on highly sodic soils. Of these three activities, the effects of petroleum-extraction activities are the most obvious because of the exposure of bedrock in the areas affected by road building and the construction of pads for oil wells.

Cultivation of map unit 448 (Excelsior loamy sand, sandy substratum, 0 to 1 percent slopes, eroded) appears to have caused significant loss of the surface horizon. The surface horizon of loamy sand begins to erode quickly after the soil is cultivated and left exposed to the wind. Most of the soils demonstrating significant accelerated wind erosion in this survey area have sandy loam or coarser textures.

Subsidence

Land subsidence has occurred in this survey area as a result of the withdrawal of ground water and applications of water.

Subsidence Resulting From Ground-Water Withdrawal

Extreme land subsidence has occurred in this survey area. Subsidence in the San Joaquin Valley is one of the great changes that human activity has imposed on the environment. The maximum subsidence totaled 29 feet by 1972. Throughout most of the survey area, subsidence has occurred so slowly and over such a broad area that its effects have gone largely unnoticed by most residents. Extraction of ground water in the San Joaquin Valley for irrigation purposes increased from 3 million acre-feet in 1942 to at least 10 million acre-feet in 1964 (Poland and others, 1975).

The San Joaquin Valley has the largest vertical subsidence (29.7 feet), the largest areal extent (5,400 square miles) of subsidence, and the largest volume (16 million acre-feet) of subsidence in the world because of ground-water withdrawal (Bertoldi, 1991). The 16 million acre-feet of subsidence is substantially the same as the amount of water derived from deformation of the interbeds in the aquifer system. The water thus derived is called “water of compaction” (Bertoldi, 1991). According to Lofgren (1977), this “volume is a onetime quantity of water mined from the reservoir.”

Construction of the California Aqueduct and withdrawal the irrigation water that it supplied reduced the amount of overdraft of the ground-water supply. Rates of land subsidence have slowed appreciably since 1972. During periods of drought in 1977 and the early 1990s, however, subsidence continued as a response to increased pumping of ground water.

One of the largest impacts resulting from land subsidence is change in the elevation and gradient of stream channels, drains, and other water-transporting facilities. This change results in entrenchment in many stream groups that fan onto the soils in the San Joaquin Valley. “Results show that the majority of channel incision observed in the lower fan has occurred since 1933, and it appears to be a direct response to land subsidence resulting primarily from ground water extraction” (Leclerc and others, 1998).

Intermittent streams, such as the Arroyo Pasajero, are deeply entrenched as much as 35 feet into the alluvial fans of Pleasant Valley, east of Coalinga. Historically, these streams, including the Arroyo Pasajero, were much less entrenched into the alluvial fans (Leclerc and others, 1998). In areas where stream entrenchment occurred as a response to the subsidence that has occurred in the past 60 years, soils that were subject to flooding 60 years ago are not flooded now, because the stream is 30 feet below the alluvial fan surface in many areas.

Subsidence Resulting From Applications of Water

This kind of subsidence is defined as shallow or near-surface subsidence caused by applications of water on loosely consolidated mudflows or water-laden sediments. Shallow subsidence results chiefly from the compaction of deposits by an overburden load as the soil structure and pores are weakened by water percolating through the deposits for the first time.

In this survey area, 43,550 acres has undergone severe shallow subsidence. Four map units are characterized by severe shallow subsidence—map unit 490 (Cerini sandy loam, subsided, 0 to 5 percent slopes), map unit 491 (Cerini clay loam, subsided, 0 to 5 percent slopes), map unit 492 (Panoche loam, subsided, 0 to 5 percent slopes), and map unit 493 (Panoche clay loam, subsided, 0 to 5 percent slopes). Shallow subsidence has made irrigation of crops difficult and has destroyed or damaged ditches, canals, roads, pipelines, electric transmission towers, and buildings (Bull, 1964a). This damage is illustrated in figure 7.

Shallow subsidence has caused simple slopes to become complex slopes that cannot be leveled. Slopes generally are 0 to 5 percent. The frequency of flooding is affected as water is trapped in depressions caused by shallow subsidence.

Figure 7.—Severe damage to the test section of an aqueduct similar to the California Aqueduct. The damage was caused by shallow subsidence in an area of Panoche loam, subsided, 0 to 5 percent slopes.

Induced Flooding

Attempts to capture water from intermittent streams in the early 1900s severely affected hydrology in this survey area, since new channels and earthen dams introduced water onto fan remnants that normally would be flooded only on rare occasions. “Much of the water from creeks is used for irrigation within Pleasant Valley” (Harradine and others, 1952). Cropland thus was close to the elevation of the flood plain, making it easier to irrigate crops with the water from intermittent streams.

The sandier material was deposited on terraces because of the higher velocity of water, which often ran uncontrolled and cut huge swaths across the fan remnant, creating, in effect, a hanging channel.

Influence of Major Water-Management Structures

Dams and canals effectively slowed or stopped alluvial fan deposition in most of this survey area. The geomorphic responses to major water management-structures, such as dams, canals, and levees, have been significant.

Flooding characteristics were forever changed by the introduction of these structures. The best illustration is Tulare Lake, just outside the survey boundary, “once the largest body of fresh water west of the Great Lakes. Formed by the entrapped drainage of four Sierra rivers, the Kings, Kaweah, White, and Tule, its highest level was recorded in 1862. That year it covered 486,400 acres to depths exceeding forty feet" (Haslam, 1994). Tulare Lake rarely floods now because of the diversion of much of the Kings River water to valley farms and north through the Fresno Slough to the San Joaquin River along the eastern boundary of the survey area. The Tulare Lake Bed, located primarily in Kings County, is now an area of productive farmland.

Sedimentation and alluvial fan-building processes also have been altered. Natural alluvial fan-building processes are generally considered to be incompatible with such human uses as agriculture and rural and urban centers. Attempts have been made to alleviate these incompatibilities by confining water behind levees and dams. These attempts are successful for a time, but flooding eventually occurs. The flooded areas are not always the same areas that were flooded historically.

Irrigation and Climate

About 3 feet of irrigation water per year is applied for crop production to the average soil in many parts of this survey area. Prior to the introduction of irrigation, only 7 to 9 inches of annual precipitation, coupled with floodwater, was available for soil development.

Irrigation has many effects on soil properties. The downward movement of carbonates, gypsum, fertilizers, salt, and various amendments through the soil profile has created cambic horizons (Soil Survey Staff, 1998). Zones of removal or concentration of these soil constituents are evidence of the alteration of soil to depths exceeding 24 inches. Cambic horizons are evidence of the effects of irrigation water. Many soils may have had a cambic horizon before irrigation in this semiarid environment. Some of the cambic horizons were altered or destroyed and then resurrected as newly formed cambic horizons.

Salinity and Drainage

The addition of soil amendments and the effects of salt leaching partially reclaimed saline-sodic and saline soils. Perched water tables resulted from poor drainage and the introduction of irrigation water. Some soils are less saline-sodic or saline now than they were before irrigation, but other areas are becoming more saline-sodic.

This survey area has about 380,000 acres of saline-sodic soils. This acreage constitutes approximately 48 percent of the irrigated land within the boundaries of the survey area, up from approximately 33 percent of the irrigated land so identified in 1985, an increase of approximately 120,000 acres in 18 years.

Irrigation with saline well water has increased soil salinity levels in some areas. In Pleasant Valley, near Coalinga, saline soils occur in areas that were formerly nonsaline (Harradine and others, 1952).

Closure of the San Luis Drain in 1986 halted or restricted the use of drain tiles in areas of the western part of Fresno County with high perched water tables, causing an increase of salts in the soil directly above the capillary fringe. The San Luis Drain was closed when high levels of selenium were discovered at Kesterson Reservoir, where the San Luis Drain ended. The Kesterson ponds acted as evaporation ponds, where selenium and salts were concentrated. Significant damage to wildlife resulted from the high concentrations of selenium in the food chain (Presser and others, 1990).

On approximately 290,000 acres in the survey area, the soils have a perched water table within 6 feet of the surface. Since 1980, many of the soils in the area have developed a perched water table within 6 feet of the surface. Many of these soils have been classified as Aridisols or Vertisols that were well drained or moderately well drained. (See the section “Classification of the Soils” for an explanation of soil classification terminology.) These soils have developed few features associated with wetness, but their perched water table affects their use and management. This soil survey identifies these soils by adding the word “wet” to the map unit name.

The water tables are perched on layers or strata with significant changes in soil texture, generally within 30 feet of the soil surface. Perched water tables were initially lowered by the following forms of artificial drainage:

1. Dams and reservoirs
2. Pumping from the water tables
3. Filling and leveling of sloughs in the area where lateral waterflow has been interrupted
4. Tile drains in fields (including tile drains that intercept seepage from a canal, river, or slough)
5. Levees that provide protection from very long periods of flooding

Most of the soils with a perched water table within 6 feet of the surface in the survey area are currently cultivated. Most have been drained by dams, reservoirs, levees, and the filling and leveling of sloughs. Some of the soils also are drained by pumping from the water table and by tile drains.

Soil Amendments and Fertilizers

Personal communication with farmers in the western part of Fresno County indicates that as much as 250 tons per acre of gypsum has been applied to saline-sodic soils in many areas since reclamation of these soils began about 75 years ago. This practice has had profound effects on the soils. These effects include the following:

1. Sodium is leached from the profile. A natric horizon can become an argillic horizon.
2. Soil structure is changed because of changes in the composition of specific cations attached to the clay particles in the soil.
3. Soil reaction (pH) is reduced not only by application of gypsum but also by amendments, such as sulfur and sulfuric acid.

Fertilizers, such as ammonium sulfate, ammonium nitrate, and ammonium phosphate, also may affect the reaction of many soils to which they have been applied.

Conclusion

Agricultural operations have had and continue to have a significant impact on the properties, classification, and management of the soils in this survey area. Soil surveys are more beneficial if soil modification is addressed. In the valleys of this survey area, the soils that previous generations recognized are seldom evident today. These soil modifications have been recognized in this report.

Present-day soil characteristics are important to users. It is important to describe and classify soils as they currently exist rather than depicting them historically. Providing current information about the soils permits an accurate portrayal of the use and management practices appropriate for the soils. Paradoxically, there is value in preserving the concept and legacy of the original soil. This effort will assist us in explaining the characteristics of the modified soil. The “roots” of the soil that we observe today have an attachment to the natural, unmodified soil. This connection between the past and the present is an important consideration when decisions regarding use and management of the soils are made. Unfortunately, there are few places in the valley where one can observe a natural soil profile (Amundson, 1998). As a result, it is difficult to determine exactly what the unmodified soil looked like.

One of the best sources of information about modified soils is historic soil surveys. Even historic soil surveys, however, commonly used modified soils when typical profiles for soil series were selected (Harradine and others, 1956). Understanding the soil as it currently exists requires knowing how the soil was modified and what soil properties have been changed. Temporal or permanent change can then be explained. With this understanding, some of the changes that may occur in the future can be projected and map units that are more adapted to those changes can be designed.

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 crops and native plants; 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 soil 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. Within a soil-landscape unit, the five factors of soil formation described in the section “Formation of the Soils” interact in a distinctive manner. This soil-landscape paradigm is developed during the course of the soil survey (Hudson, 1992). An example is the kind of study used during the course of this soil survey is an examination of the relationships among soil temperature, vegetation, aspect, and elevation in the survey area (Arroues and others, 1999).

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 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. In this soil survey, approximately 60 soil profiles were sampled for laboratory analysis. Soil samples were analyzed by the Soil Survey Laboratory, United States Department of Agriculture, Natural Resources Conservation Service, Lincoln, Nebraska. In 1985, a soil characterization study of 30 samples along Adams Avenue was conducted on a fan skirt. This study was followed by a soil survey investigation of 72 samples in the Panoche Creek watershed in 1986 and another 115 samples in the Little Panoche Creek area in 1987. Many other reference samples also were analyzed by the Soil Survey Laboratory. Most of these samples were related to soil survey work in conjunction with investigations to determine the selenium content of soils in both the hills and valley parts of the survey area. Much of this work is published (Presser and others, 1990). Hundreds of soils also were sampled for analysis in the field laboratory where particle-size analysis, electrical conductivity, and sodium adsorption ratio were determined. Soil scientists interpret the data from such 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. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can 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. Approximately 36 percent of the irrigated soils in this survey area have a high water table within 6 feet of the soil surface. Soil scientists determined the depth to a high water table by boring auger holes to a depth of approximately 6 feet and by utilization of maps showing the depth to shallow ground water in the Westlands Water District. Unless otherwise indicated, depth to a high water table is based on maps from April 1998. These maps also illustrate the salinity of the high water tables.

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

The descriptions, names, and delineations of the soils on the maps of this survey area are joined with those on the maps of the adjacent six survey areas in several ways. Joins were accomplished along the boundary with Kings County (Arroues and Anderson, 1986) and along the boundary with the western part of Merced County (Nazar, 1990). Changes in these two soil surveys were documented and are on file. The boundary with the Madera area (Stromberg, 1962) occurs near the middle of the San Joaquin River. This natural water boundary is the join between the two soil surveys. The Fresno Slough is a water body that borders much of the eastern boundary with the eastern Fresno area (Huntington, 1971). Map unit boundaries were closed off at the soil survey boundary because the Fresno Slough is a natural soil boundary marking the presence of different kinds of parent material. On the east side of the Fresno Slough, the soils formed in alluvium derived almost exclusively from igneous rock sources. On the west side of the Fresno Slough, the soils formed in alluvium derived primarily from sedimentary rock sources and from lesser amounts of igneous rock. The boundary with Monterey County (Cook, 1978) occurs as a watershed boundary. Different sets of ecological sites and slope classes are on each side of this boundary. Joins with San Benito County (Isgrig, 1969) were not accomplished where the watershed boundary was not on the county line. Over the last 40 years, there have been significant changes in use and management, in correlation procedures, and in soil taxonomy. Joining decisions along these boundaries have been documented in the National Soil Information System (NASIS) database. Line changes are documented and are on file in the NRCS Hanford Soil Survey Office. Differences among these soil surveys commonly are the result of an increase in the knowledge of soils, a modification in series concepts, modification of soils by human activities, and variations in the intensity of mapping and in the extent of the soils within each survey area.

General Soil Map Units

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

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

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

Soils on the Basin Floor and Flood Plain of the San Joaquin Valley

1. Tachi-Armona-Wekoda

Very deep, nearly level, very poorly drained and poorly drained, saline-sodic soils formed in alluvium from igneous and/or sedimentary rock sources; on flood plains and basin floors on the west side of the San Joaquin River and Fresno Slough

Setting

Landform: Flood plains and basin floors
Slope range: 0 to 1 percent

Composition

Extent of the map unit: 8 percent of the survey area
Extent of the components in the map unit:
  Tachi and similar soils—31 percent
  Armona and similar soils—16 percent
  Wekoda and similar soils—15 percent
  Minor components—38 percent

Soil Properties and Qualities

Tachi
Depth class: Very deep
Drainage class: Very poorly drained
Position on landform: Flood plains and basin floors
Parent material: Alluvium from igneous and/or sedimentary rock sources

Texture of the surface layer: Clay
Slope: 0 to 1 percent

Armona
Depth class: Very deep
Drainage class: Poorly drained
Position on landform: Flood plains and basin floors
Parent material: Alluvium from igneous and/or sedimentary rock sources
Texture of the surface layer: Loam
Slope: 0 to 1 percent

Wekoda
Depth class: Very deep
Drainage class: Poorly drained
Position on landform: Flood plains and basin floors
Parent material: Alluvium from sedimentary rock sources
Texture of the surface layer: Clay
Slope: 0 to 1 percent

Minor Components

- Gepford, Dospalos, Elnido, Altaslough, Palazzo, Bolfar, and Bisgani soils on flood plains and basin floors
- Areas in river channels
- Agnal, Chateau, Deldota, and Tranquillity soils on fan skirts

Use and Management

Major uses: Irrigated crops and homesite development; also, recreation in the Mendota Wildlife Management Area
Management concerns: High water table, saline-sodic conditions, restricted permeability, flooding, and shrink-swell potential
Management measures: A properly maintained drainage system, water management, saline-sodic soil management, selection of suitable plants, and proper design of foundations and waste management structures

Soils on Fan Skirts of the San Joaquin Valley

2. Tranquillity-Ciervo, saline-sodic-Calflax

Very deep, nearly level, somewhat poorly drained and moderately well drained, saline-sodic soils formed in alluvium from calcareous sedimentary rock sources; on fan skirts adjacent to the western edge of the basin floor

Setting

Landform: Fan skirts
Slope range: 0 to 2 percent

Composition

Extent of the map unit: 18 percent of the survey area
Extent of the components in the map unit:
Tranquillity and similar soils—39 percent
Saline-sodic Ciervo and similar soils—24 percent
Calflax and similar soils—21 percent
Minor components—16 percent

Soil Properties and Qualities

Tranquillity
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on landform: Fan skirts
Parent material: Alluvium from calcareous sedimentary rock sources
Texture of the surface layer: Clay
Slope: 0 to 1 percent

Ciervo, saline-sodic
Depth class: Very deep
Drainage class: Moderately well drained
Position on landform: Fan skirts
Parent material: Alluvium from calcareous sedimentary rock sources
Texture of the surface layer: Clay
Slope: 0 to 1 percent

Calflax
Depth class: Very deep
Drainage class: Moderately well drained
Position on landform: Fan skirts
Parent material: Alluvium from calcareous sedimentary rock sources
Texture of the surface layer: Clay loam
Slope: 0 to 2 percent

Minor Components

- Posochanet, Lillis, Agnal, and Deldota soils on fan skirts
- Armona, Gepford, Tachi, and Wekoda soils on flood plains and basin floors
- Cerini and Panoche soils on alluvial fans
- Lethent soils on fan remnants

Use and Management

Major uses: Irrigated crops and homesite development
Management concerns: High water table, saline-sodic conditions, restricted permeability, and shrink-swell potential
Management measures: A properly maintained drainage system, water management, saline-sodic soil management, selection of suitable plants, and proper design of foundations and waste management structures

3. Ciervo

Very deep, nearly level, moderately well drained soils formed in alluvium from calcareous sedimentary rock sources; on fan skirts

Setting

Landform: Fan skirts
Slope range: 0 to 2 percent

Composition

Extent of the map unit: 4 percent of the survey area
Extent of the components in the map unit:
Ciervo and similar soils—93 percent
Minor components—7 percent

Soil Properties and Qualities

Ciervo
Depth class: Very deep
Drainage class: Moderately well drained
Position on landform: Fan skirts
Parent material: Alluvium from calcareous sedimentary rock sources
Texture of the surface layer: Clay
Slope: 0 to 2 percent

Minor Components

- Tranquillity soils on fan skirts
- Cerini, Panoche, and Westhaven soils on alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management concerns: Restricted permeability and shrink-swell potential
Management measures: Water management and proper design of foundations and waste management structures

4. Deldota-Chateau

Very deep, nearly level, somewhat poorly drained and poorly drained soils formed in alluvium from sedimentary rock sources; on fan skirts

Setting

Landform: Fan skirts
Slope range: 0 to 1 percent

Composition

Extent of the map unit: 1 percent of the survey area
Extent of the components in the map unit:
Deldota and similar soils—53 percent
Chateau and similar soils—38 percent
Minor components—9 percent

Soil Properties and Qualities

Deldota
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on landform: Fan skirts
Parent material: Alluvium from sedimentary rock sources
Texture of the surface layer: Clay
Slope: 0 to 1 percent

Chateau
Depth class: Very deep
Drainage class: Poorly drained
Position on landform: Fan skirts
Parent material: Alluvium from sedimentary rock sources
Texture of the surface layer: Clay
Slope: 0 to 1 percent

Minor Components

- Tranquillity soils on fan skirts
- Cerini and Panoche soils on alluvial fans
- Paver soils on inset fans
- Wekoda and Dospalos soils on flood plains and basin floors

Use and Management

Major uses: Irrigated crops and homesite development
Management concerns: High water table, saline-sodic conditions (in the Deldota soils), restricted permeability, and shrink-swell potential
Management measures: A properly maintained drainage system, water management, saline-sodic soil management, selection of suitable plants, and proper design of foundations and waste management structures

Soils on Alluvial Fans of the San Joaquin Valley

5. Cerini-Excelsior-Westhaven

Very deep, nearly level to gently sloping, well drained soils formed in alluvium from sedimentary rock sources; on alluvial fans

Setting

Landform: Alluvial fans
Slope range: 0 to 5 percent

Composition

Extent of the map unit: 20 percent of the survey area
Extent of the components in the map unit:
Cerini and similar soils—32 percent
Excelsior and similar soils—20 percent
Westhaven similar soils—18 percent
Minor components—30 percent

Soil Properties and Qualities

Cerini
Depth class: Very deep
Drainage class: Well drained
Position on landform: Alluvial fans
Parent material: Alluvium from sedimentary rock sources
Texture of the surface layer: Clay loam
Slope: 0 to 5 percent

Excelsior
Depth class: Very deep
Drainage class: Well drained
Position on landform: Alluvial fans
Parent material: Alluvium from calcareous sedimentary rock sources
Texture of the surface layer: Sandy loam
Slope: 0 to 2 percent

Westhaven
Depth class: Very deep

Drainage class: Well drained
Position on landform: Alluvial fans
Parent material: Alluvium from calcareous sedimentary rock sources
Texture of the surface layer: Loam or clay loam
Slope: 0 to 2 percent

Minor Components

- Panoche, Kimberlina, Wasco, and Yribarren soils on alluvial fans
- Ciervo, Calflax, and Posochanet soils on fan skirts
- Paver soils on inset fans
- Polvadero soils on fan remnants
- Gravel pits on flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management concern: Restricted permeability
Management measures: Water management and proper design of waste management structures

6. Panoche, subsided-Cerini, subsided

Very deep, undulating, well drained soils formed in alluvium from sedimentary rock sources; on alluvial fans

Setting

Landform: Alluvial fans
Slope range: 0 to 5 percent

Composition

Extent of the map unit: 3 percent of the survey area
Extent of the components in the map unit:
Panoche and similar soils—50 percent
Cerini and similar soils—42 percent
Minor components—8 percent

Soil Properties and Qualities

Panoche
Depth class: Very deep
Drainage class: Well drained
Position on landform: Alluvial fans
Parent material: Alluvium from sedimentary rock sources
Texture of the surface layer: Clay loam or loam
Slope: 0 to 5 percent

Cerini
Depth class: Very deep
Drainage class: Well drained
Position on landform: Alluvial fans
Parent material: Alluvium from sedimentary rock sources
Texture of the surface layer: Sandy loam or clay loam
Slope: 0 to 5 percent

Minor Components

- Excelsior, Kimberlina, and Westhaven soils on alluvial fans
- Ciervo soils on fan skirts
- Milham soils on fan remnants

Use and Management

Major uses: Irrigated crops and homesite development
Management concerns: Restricted permeability, flooding, and shallow subsidence
Management measures: Water management and proper design of foundations and waste management structures

Soils on Fan Remnants of the San Joaquin Valley

7. Lethent

Very deep, nearly level, moderately well drained soils formed in alluvium from sedimentary and igneous rock sources; on unburied fan remnants

Setting

Landform: Unburied fan remnants
Slope range: 0 to 1 percent

Composition

Extent of the map unit: 2 percent of the survey area
Extent of the components in the map unit:
Lethent and similar soils—89 percent
Minor components—11 percent

Soil Properties and Qualities

Lethent
Depth class: Very deep
Drainage class: Moderately well drained
Position on landform: Unburied fan remnants
Parent material: Alluvium from sedimentary and igneous rock sources
Texture of the surface layer: Clay loam
Slope: 0 to 1 percent

Minor Components

- Posochanet, Calflax, Ciervo, Lillis, and Tranquillity soils and Urban land on fan skirts
- Gepford soils on flood plains and basin floors
- Cerini soils on alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management concerns: Saline-sodic conditions, restricted permeability, and shrink-swell potential
Management measures: Water management, saline-sodic soil management, selection of suitable plants, and proper design of foundations and waste management structures

8. Milham-Polvadero-Guijarral

Very deep, nearly level to rolling, well drained soils formed in alluvium from calcareous sedimentary rock sources; on fan remnants

Setting

Landform: Fan remnants
Slope range: 0 to 15 percent

Composition

Extent of the map unit: 6 percent of the survey area
Extent of the components in the map unit:
Milham and similar soils—37 percent
Polvadero and similar soils—32 percent
Guijarral and similar soils—25 percent
Minor components—6 percent

Soil Properties and Qualities

Milham
Depth class: Very deep
Drainage class: Well drained
Position on landform: Fan remnants
Parent material: Alluvium from calcareous sedimentary rock sources
Texture of the surface layer: Sandy loam
Slope: 0 to 9 percent

Polvadero
Depth class: Very deep
Drainage class: Well drained
Position on landform: Fan remnants
Parent material: Alluvium from calcareous sedimentary rock sources
Texture of the surface layer: Sandy loam
Slope: 0 to 15 percent

Guijarral
Depth class: Very deep
Drainage class: Well drained
Position on landform: Fan remnants
Parent material: Alluvium from calcareous sedimentary rock sources
Texture of the surface layer: Sandy loam
Slope: 2 to 15 percent

Minor Components

- Cyvar soils on fan remnants
- Cerini, Excelsior, Kimberlina, Wasco, Yribarren, and Westhaven soils on alluvial fans
- Anela soils, saline-sodic Fluvaquents, and Vernalis soils on flood plains

Use and Management

Major uses: Irrigated crops, livestock grazing, petroleum extraction, and homesite development

Management concerns: Erosion hazard, steepness of slope, and restricted permeability
Management measures: Erosion control, including contour farming; prescribed grazing; and proper design of foundations and waste management structures

9. Los Banos-Pleito

Very deep, nearly level to hilly, well drained soils formed in calcareous gravelly alluvium from mixed rock sources; on fan remnants

Setting

Landform: Fan remnants
Slope range: 0 to 30 percent

Composition

Extent of the map unit: 1 percent of the survey area
Extent of the components in the map unit:
Los Banos and similar soils—23 percent
Pleito and similar soils—23 percent
Minor components—54 percent

Soil Properties and Qualities

Los Banos
Depth class: Very deep
Drainage class: Well drained
Position on landform: Fan remnants
Parent material: Calcareous gravelly alluvium from mixed rock sources
Texture of the surface layer: Clay loam
Slope: 0 to 8 percent

Pleito
Depth class: Very deep
Drainage class: Well drained
Position on landform: Fan remnants
Parent material: Calcareous gravelly alluvium from mixed rock sources
Texture of the surface layer: Gravelly clay loam
Slope: 2 to 30 percent

Minor Components

- Narbaitz, Cyvar, Nodhill, Carranza, Pedcat, and Bapos soils on fan remnants
- Mugatu and Chaqua soils on stream terraces
- Conosta soils on strath terraces
- Paver soils on inset fans
- Arburua soils on hillslopes

Use and Management

Major uses: Livestock grazing; also, recreation in Panoche Hills
Management concerns: Erosion hazard and steepness of slope
Management measure: Prescribed grazing

Soils on Hills and in Valleys of the California Coast Ranges

10. Delgado-Mercey-Kettleman

Shallow and moderately deep, undulating to steep, somewhat excessively drained and well drained soils formed in material weathered from marine sandstone and shale; on hillslopes

Setting

Landform: Hillslopes
Slope range: 5 to 50 percent

Composition

Extent of the map unit: 6 percent of the survey area
Extent of the components in the map unit:
Delgado and similar soils—32 percent
Mercey and similar soils—30 percent
Kettleman and similar soils—26 percent
Minor components—12 percent

Soil Properties and Qualities

Delgado
Depth class: Shallow
Drainage class: Somewhat excessively drained
Position on landform: Hillslopes
Parent material: Material weathered from marine sandstone
Texture of the surface layer: Sandy loam
Slope: 5 to 50 percent

Mercey
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Hillslopes
Parent material: Material weathered from marine shale
Texture of the surface layer: Loam
Slope: 5 to 50 percent

Kettleman
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Hillslopes
Parent material: Material weathered from marine sandstone and shale
Texture of the surface layer: Clay loam
Slope: 5 to 50 percent

Minor Components

- Badland on escarpments
- Rock outcrop and Grazer soils on hillslopes
- Guijarral, Polvadero, and Belgarra soils on fan remnants

Use and Management

Major uses: Livestock grazing and petroleum extraction
Management concerns: Erosion hazard, steepness of slope, and restricted permeability
Management measures: Prescribed grazing, erosion control, and proper design of foundations and waste management structures

11. Vernalis-Arburua

Very deep and moderately deep, nearly level to steep, well drained soils formed in alluvium from sandstone and shale and in material weathered from marine sandstone and shale; on flood plains and hillslopes in the northwestern part of the county

Setting

Landform: Flood plains and hillslopes
Slope range: 0 to 50 percent

Composition

Extent of the map unit: 1 percent of the survey area
Extent of the components in the map unit:
Vernalis and similar soils—38 percent
Arburua and similar soils—21 percent
Minor components—41 percent

Soil Properties and Qualities

Vernalis
Depth class: Very deep
Drainage class: Well drained
Position on landform: Flood plains
Parent material: Alluvium from sandstone and shale
Texture of the surface layer: Loam
Slope: 0 to 5 percent

Arburua
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Hillslopes
Parent material: Material weathered from marine sandstone and shale
Texture of the surface layer: Loam
Slope: 2 to 50 percent

Minor Components

- Ayar and Wisflat soils on hillslopes
- Rock outcrop on hillslopes
- Anela soils on flood plains

Use and Management

Major use: Livestock grazing
Management concerns: Limited available water capacity, erosion hazard, and steepness of slope
Management measure: Prescribed grazing

Soils on Mountains and in Valleys of the California Coast Ranges

12. Exclose-Wisflat

Very deep and shallow, hilly to very steep, well drained soils formed in material weathered from marine sandstone and shale; on mountain slopes

Setting

Landform: Mountain slopes
Slope range: 15 to 65 percent

Composition

Extent of the map unit: 7 percent of the survey area
Extent of the components in the map unit:
Exclose and similar soils—20 percent
Wisflat and similar soils—16 percent
Minor components—64 percent

Soil Properties and Qualities

Exclose
Depth class: Very deep
Drainage class: Well drained
Position on landform: Mountain slopes
Parent material: Material weathered from calcareous marine shale
Texture of the surface layer: Clay loam
Slope: 30 to 65 percent

Wisflat
Depth class: Shallow
Drainage class: Well drained
Position on landform: Mountain slopes
Parent material: Material weathered from marine sandstone
Texture of the surface layer: Sandy loam
Slope: 15 to 65 percent

Minor Components

- Arburua, Grazer, and Domengine soils and Rock outcrop on mountain slopes
- Monoridge soils on escarpments on mountain slopes
- Morenogulch soils on mountain slopes; formed in material high in content of selenium
- Belgarra and Nodhill soils on fan remnants
- Badland on escarpments
- Monvero soils on dune fields on mountain slopes

Use and Management

Major uses: Livestock grazing; also, recreation in Panoche Hills and Tumey Hills
Management concerns: Limited available water capacity, erosion hazard, and steepness of slope
Management measure: Prescribed grazing

13. Grazer-Wisflat

Deep and shallow, hilly to very steep, well drained soils formed in material weathered from marine sandstone and shale; on mountain slopes

Setting

Landform: Mountain slopes
Slope range: 8 to 70 percent

Composition

Extent of the map unit: 10 percent of the survey area
Extent of the components in the map unit:
    Grazer and similar soils—17 percent
    Wisflat and similar soils—15 percent
    Minor components—68 percent

Soil Properties and Qualities

Grazer
Depth class: Deep
Drainage class: Well drained
Position on landform: Mountain slopes
Parent material: Material weathered from calcareous marine shale
Texture of the surface layer: Silty clay loam
Slope: 8 to 30 percent

Wisflat
Depth class: Shallow
Drainage class: Well drained
Position on landform: Mountain slopes
Parent material: Material weathered from marine sandstone
Texture of the surface layer: Sandy loam
Slope: 30 to 70 percent

Minor Components

- Rock outcrop and Borreguero, Lilten, Arburua, Millsholm, Domengine, and Vaquero soils on mountain slopes
- Belgarra soils on fan remnants

Use and Management

Major use: Livestock grazing
Management concerns: Limited available water capacity, erosion hazard, and steepness of slope
Management measure: Prescribed grazing

14. Atravesada-Pits, asbestos

Asbestos pits and shallow, gently sloping to very steep, well drained soils formed in material weathered from serpentinite with a very high content of chrysotile asbestos; on mountain slopes

Setting

Landform: Mountain slopes
Slope range: 2 to 70 percent

Composition

Extent of the map unit: 1 percent of the survey area
Extent of the components in the map unit:
Atravesada and similar soils—55 percent
Pits, asbestos, and similar areas with essentially no soil—25 percent
Minor components—20 percent

Soil Properties and Qualities

Atravesada
Depth class: Shallow
Drainage class: Well drained
Position on landform: Mountain slopes
Parent material: Material weathered from serpentinite with a very high content of chrysotile asbestos
Texture of the surface layer: Sandy loam
Slope: 2 to 70 percent

Pits, asbestos
Position on landform: Mountain slopes
Kind of material: Material weathered from serpentinite with a very high content of chrysotile asbestos
Slope: 2 to 65 percent

Minor Components

- Asbestos dumps and disturbed areas related to asbestos mining; on mountain slopes
- Hentine soils on mountain slopes

Use and Management

Major uses: Livestock grazing; also, recreation in Clear Creek Management Area
Management concerns: Erosion hazard and steepness of slope
Management measure: Prescribed grazing

15. Currymountain-Roacha-Borreguero

Moderately deep and shallow, steep and very steep, well drained soils formed in material weathered from shale and sandstone; on mountain slopes and escarpments

Setting

Landform: Mountain slopes and escarpments
Slope range: 30 to 75 percent

Composition

Extent of the map unit: 10 percent of the survey area
Extent of the components in the map unit:
Currymountain and similar soils—15 percent
Roacha and similar soils—15 percent
Borreguero and similar soils—15 percent
Minor components—55 percent

Soil Properties and Qualities

Currymountain
Depth class: Moderately deep

Drainage class: Well drained
Position on landform: Mountain slopes
Parent material: Material weathered from marine sandstone and shale
Texture of the surface layer: Loam
Slope: 30 to 75 percent

Roacha
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Mountain slopes
Parent material: Material weathered from fractured shale
Texture of the surface layer: Silty clay loam
Slope: 30 to 65 percent

Borreguero
Depth class: Shallow
Drainage class: Well drained
Position on landform: Mountain slopes and escarpments
Parent material: Material weathered from marine sandstone
Texture of the surface layer: Sandy loam
Slope: 30 to 65 percent

Minor Components

- Wisflat, Gaviota, Millsholm, Lilten, and Sagaser soils on mountain slopes
- Altamont and Vaquero soils on slides on mountain slopes and on hillslopes
- Rock outcrop on mountain slopes
- Anela and Vernalis soils on flood plains

Use and Management

Major uses: Livestock grazing and homesite development
Management concerns: Erosion hazard, steepness of slope, and restricted permeability
Management measures: Prescribed grazing, erosion control, and proper design of foundations and waste management structures

16. Hentine-Climara

Shallow and moderately deep, moderately steep to very steep, well drained soils formed in material weathered from serpentinite and in mass-movement colluvial deposits derived from Franciscan melange rocks; on mountain slopes

Setting

Landform: Mountain slopes
Slope range: 15 to 65 percent

Composition

Extent of the map unit: 2 percent of the survey area
Extent of the components in the map unit:
  Hentine and similar soils—44 percent
  Climara and similar soils—41 percent
  Minor components—15 percent

Figure 8.—Slumping of the unstable Climara soils in the Hentine-Climara general soil map unit, illustrated by fence lines that have moved downslope along the Parkfield Grade Road. Climara clay, 15 to 50 percent slopes (detailed soil map unit 728), is in the foreground, and Hentline-Climara association, 15 to 50 percent slopes (map unit 733), is in the background.

Soil Properties and Qualities

Hentine

Depth class: Shallow
Drainage class: Well drained
Position on landform: Mountain slopes
Parent material: Material weathered from serpentinite
Texture of the surface layer: Very gravelly sandy loam
Slope: 30 to 65 percent

Climara

Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Slides on mountain slopes
Parent material: Mass-movement colluvial deposits derived from Franciscan melange graywacke, chert, serpentinite, gabbro, and blue schist
Texture of the surface layer: Clay
Slope: 15 to 50 percent

Minor Components

- Rock outcrop on mountain slopes with such names as Eagle Rock, Church Rock, Rutan Rock, and Penasco Rock
- Franciscan soils and springs on mountain slopes
- Ponds in depressions on mountain slopes

Use and Management

Major uses: Livestock grazing and homesite development
Management concerns: Erosion hazard, steepness of slope, landslides and soil creep (fig. 8), and shrink-swell potential
Management measures: Prescribed grazing, erosion control, and proper design of foundations and waste management structures

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. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. 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, Ciervo clay, saline-sodic, wet, 0 to 1 percent slopes, is a phase of the Ciervo 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. Cyvar-Nodhill complex, 5 to 15 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. Mercey-Delgado-Kettleman association, 5 to 15 percent slopes, is an example.

This survey includes *miscellaneous areas* . Such areas have little or no soil material and support little or no vegetation. Badland, Dumps, Pits, Rock outcrop, Urban land, and Water are examples.

Table 4 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.

For further information about the detailed soil map units in this survey area, see the sections under the headings “Soil Properties” and “Use and Management of the Soils” and the series descriptions in the in the section “Classification of the Soils.” For guidelines on reclaiming saline-sodic soils, see the section “Saline-Sodic Soils” under the heading “Use and Management of the Soils.”

101—Armona loam, partially drained, 0 to 1 percent slopes

Map Unit Setting

General location: Near the western edge of the San Joaquin River and Fresno Slough in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 110 to 205 feet (35 to 63 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Armona loam, partially drained—85 percent
Minor components—15 percent

Major Component Description

Armona loam, partially drained

Geomorphic setting:
  Basin floors
  Flood plains
Parent material: Alluvium derived from igneous and/or sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions

Slope: 0 to 1 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 8.3 inches (high)

Hydrologic properties
- *Present flooding:* Rare
- *Present ponding:* None
- *Current water table:* Within a depth of 6 feet
- *Natural drainage class:* Poorly drained
- *Altered hydrology:* Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
- *Land capability (irrigated):* 3w-6
- *Land capability (nonirrigated):* 7w
- *Rangeland ecological site:* Not assigned

Typical profile
- Ap—0 to 14 inches; loam
- Bkg—14 to 22 inches; stratified loam to clay loam
- Bkng—22 to 42 inches; stratified loam to clay loam
- B´kg—42 to 60 inches; stratified loam to clay loam

Minor Components

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting:
- Basin floors
- Flood plains

Gepford clay and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting:
- Basin floors
- Flood plains

Bisgani sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting:
- Basin floors
- Flood plains

Elnido sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting:
- Basin floors
- Flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

107—Anela very gravelly sandy loam, 0 to 2 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, near Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 455 to 1,200 feet (140 to 366 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Anela very gravelly sandy loam—85 percent
Minor components—15 percent

Major Component Description

Anela very gravelly sandy loam

Geomorphic setting: Flood plains
Parent material: Alluvium derived from sedimentary and/or mixed rock
Typical vegetation: Annual grasses and forbs
Slope: 0 to 2 percent
Surface runoff class: Negligible
Depth to restrictive feature (dense material): 40 to 60 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.5 inches (very low)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 4s-4
  Land capability (nonirrigated): 4s-4
  Rangeland ecological site: R017XE101CA, Very Gravelly Loamy

Typical profile
  A—0 to 7 inches; very gravelly sandy loam
  Bt—7 to 15 inches; very gravelly coarse sandy loam
  Btk—15 to 22 inches; very gravelly coarse sandy loam
  2Btk—22 to 49 inches; very gravelly coarse sandy loam
  2Bdk—49 to 65 inches; extremely gravelly loamy coarse sand

Minor Components

Vernalis loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Flood plains

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting:
  Flood plains
  Strath terraces

Stream channels

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Flood plains

Carranza gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 3 percent
Geomorphic setting: Unburied fan remnants

Cerini sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam, sandy substratum, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Flood plains

Use and Management

Major uses: Livestock grazing and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

115—Bolfar loam, drained, 0 to 1 percent slopes

Map Unit Setting

General location: Near the western edge of the San Joaquin River, between Firebaugh and Dos Palos, in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 110 to 130 feet (35 to 40 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)

Mean annual air temperature: 63 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Bolfar loam, drained—85 percent
Minor components—15 percent

Major Component Description

Bolfar loam, drained

Geomorphic setting:
  Basin floors
  Flood plains
Parent material: Alluvium derived from igneous rock
Typical vegetation: Irrigated crops
Slope: 0 to 1 percent
Surface runoff class: Low
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.0 inches (high)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Poorly drained
  Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
  Land capability (irrigated): 2w-2
  Land capability (nonirrigated): 4w-2
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 29 inches; loam
  Bg—29 to 34 inches; stratified fine sandy loam to loam
  Agb—34 to 39 inches; stratified fine sandy loam to loam
  B´g—39 to 44 inches; stratified fine sandy loam to loam
  A´gb—44 to 87 inches; sandy clay loam

Minor Components

Dospalos clay, drained, and similar soils

Estimated percentage of the map unit: 0 to 9 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent

Geomorphic setting:
  Basin floors
  Flood plains

Bisgani sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Altaslough clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Elnido sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

120—Altaslough clay loam, 0 to 1 percent slopes

Map Unit Setting

General location: Near the western edge of the San Joaquin River and Fresno Slough in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 110 to 160 feet (35 to 50 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Altaslough clay loam—85 percent
Minor components—15 percent

Major Component Description

Altaslough clay loam

Geomorphic setting:
  Basin floors
  Flood plains
Parent material: Alluvium derived from igneous rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions

Slope: 0 to 1 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 7.4 inches (moderate)

Hydrologic properties
Present flooding: Very rare
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Somewhat poorly drained
Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
Land capability (irrigated): 3w-6
Land capability (nonirrigated): 7w
Rangeland ecological site: Not assigned

Typical profile
Ap1—0 to 13 inches; clay loam
Ap2—13 to 24 inches; clay loam
Bknzg—24 to 51 inches; clay loam
2Bknzg—51 to 72 inches; stratified sandy loam to clay loam

Minor Components

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Gepford clay and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Lillis clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

River channels

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 percent
Geomorphic setting: Channels on flood plains

Use and Management

Major uses: Irrigated crops and homesite development

Management: See the section “Use and Management of the Soils” for a description of management considerations.

130—Gepford clay, 0 to 1 percent slopes

Map Unit Setting

General location: Near the western edge of the San Joaquin River and Fresno Slough in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 120 to 205 feet (37 to 64 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Gepford clay—85 percent
Minor components—15 percent

Major Component Description

Gepford clay

Geomorphic setting:
  Basin floors
  Flood plains
Parent material: Alluvium derived from igneous rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 7.9 inches (high)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Poorly drained
  Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
  Land capability (irrigated): 3w-6
  Land capability (nonirrigated): 6w
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 13 inches; clay
  Bkg—13 to 26 inches; clay
  Bkyg—26 to 60 inches; clay

Minor Components

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 9 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Lethent clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Unburied fan remnants

River channels

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 percent
Geomorphic setting: Channels on flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

282—Tachi clay, 0 to 1 percent slopes

Map Unit Setting

General location: Near the western edge of the San Joaquin River and Fresno Slough in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 120 to 205 feet (37 to 64 meters)
Mean annual precipitation: 7 to 8 inches (178 to 204 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Tachi clay—91 percent
Minor components—9 percent

Major Component Description

Tachi clay

Geomorphic setting:
  Basin floors
  Flood plains
Parent material: Alluvium derived from igneous and/or sedimentary rock

Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions; also, wetland plants in the Mendota Wildlife Management Area
Slope: 0 to 1 percent
Surface runoff class: High
Slowest permeability class: Very slow
Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 7.1 inches (moderate)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Very poorly drained
  Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
  Land capability (irrigated): 3w-6
  Land capability (nonirrigated): 7w
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 14 inches; clay
  Bknssg—14 to 35 inches; clay
  Bkng—35 to 70 inches; clay

Minor Components

Lillis clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Gepford clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Tachi silt loam, 3- to 10-inch overwash, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

River channels

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 percent
Geomorphic setting: Channels on flood plains

Use and Management

Major uses: Wildlife habitat and recreation in the Mendota Wildlife Management Area; also, irrigated crops
Management: See the section "Use and Management of the Soils" for a description of management considerations.

284—Lillis clay, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, near Mendota and Tranquillity
MLRA: 17
Geomorphic setting: Valleys
Elevation: 160 to 180 feet (49 to 56 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Lillis clay—85 percent
Minor components—15 percent

Major Component Description

Lillis clay

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from igneous and/or sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions; also, shrubs, and grasses
Slope: 0 to 1 percent
Surface runoff class: High
Depth to restrictive feature (salic horizon): 20 to 35 inches
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 1.0 inch (very low)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Poorly drained
  Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
  Land capability (irrigated): 4w-6
  Land capability (nonirrigated): 7w
  Rangeland ecological site: Not assigned

Typical profile
  Ap1—0 to 2 inches; clay
  Ap2—2 to 7 inches; clay
  Bnssz—7 to 13 inches; clay
  Bnssyz—13 to 21 inches; clay
  Bnzg—21 to 28 inches; clay
  Bknzg1—28 to 39 inches; clay
  Bknzg2—39 to 48 inches; clay
  Bknzg3—48 to 60 inches; clay

Minor Components

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 7 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Lethent silt loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Unburied fan remnants

Use and Management

Major uses: Irrigated crops; also, wildlife habitat and recreation on the west side of Mendota Wildlife Management Area
Management: See the section “Use and Management of the Soils” for a description of management considerations.

285—Tranquillity-Tranquillity, wet, complex, saline-sodic, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 130 to 360 feet (41 to 110 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Tranquillity clay, saline-sodic—60 percent
Tranquillity clay, saline-sodic, wet—25 percent
Minor components—15 percent

Major Component Description

Tranquillity clay, saline-sodic

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 7.8 inches (high)

Hydrologic properties
- *Present flooding:* Very rare
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Somewhat poorly drained

Interpretive groups
- *Land capability (irrigated):* 3w-6
- *Land capability (nonirrigated):* 7w
- *Rangeland ecological site:* Not assigned

Typical profile
- Ap—0 to 22 inches; clay
- Bkss—22 to 53 inches; clay
- Bk—53 to 71 inches; clay

Tranquillity clay, saline-sodic, wet

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 6.0 inches (moderate)

Hydrologic properties
- *Present flooding:* Very rare
- *Present ponding:* None
- *Current water table:* Within a depth of 6 feet
- *Natural drainage class:* Somewhat poorly drained

Interpretive groups
- *Land capability (irrigated):* 3w-6
- *Land capability (nonirrigated):* 7w
- *Rangeland ecological site:* Not assigned

Typical profile
Ap1—0 to 6 inches; clay
Ap2—6 to 16 inches; clay
Bknssyz1—16 to 31 inches; clay
Bknssyz2—31 to 48 inches; clay
Bknyz—48 to 65 inches; silty clay

Minor Components

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Deldota clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

286—Tranquillity clay, saline-sodic, wet, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 160 to 255 feet (49 to 79 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)

Frost-free period: 220 to 250 days

Map Unit Composition

Tranquillity clay, saline-sodic, wet—85 percent
Minor components—15 percent

Major Component Description

Tranquillity clay, saline-sodic, wet

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 6.0 inches (moderate)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Somewhat poorly drained

Interpretive groups
  Land capability (irrigated): 3w-6
  Land capability (nonirrigated): 7w
  Rangeland ecological site: Not assigned

Typical profile
  Ap1—0 to 6 inches; clay
  Ap2—6 to 16 inches; clay
  Bknssyz1—16 to 31 inches; clay
  Bknssyz2—31 to 48 inches; clay
  Bknyz—48 to 65 inches; silty clay

Minor Components

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Gepford clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent

Geomorphic setting:
- Basin floors
- Flood plains

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
- Basin floors
- Flood plains

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
- Basin floors
- Flood plains

Lethent silt loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Unburied fan remnants

Use and Management

Major uses: Irrigated crops that are tolerant of saline-sodic conditions, wildlife habitat and recreation on the west side of the Mendota Wildlife Management Area, and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

311—Bisgani sandy loam, drained, 0 to 1 percent slopes

Map Unit Setting

General location: Near the western edge of the San Joaquin River, between Firebaugh and Dos Palos, in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 110 to 140 feet (35 to 43 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Bisgani sandy loam, drained—85 percent
Minor components—15 percent

Major Component Description

Bisgani sandy loam, drained

Geomorphic setting:
- Basin floors
- Flood plains

Parent material: Alluvium derived from igneous rock
Typical vegetation: Irrigated crops

Slope: 0 to 1 percent
Surface runoff class: Negligible
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.2 inches (low)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Poorly drained
  Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
  Land capability (irrigated): 3w-4
  Land capability (nonirrigated): 4w-4
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 10 inches; stratified sandy loam
  Cg1—10 to 13 inches; stratified loamy sand
  Cg2—13 to 60 inches; sand

Minor Components

Elnido sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Bolfar loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Palazzo sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

River channels

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 percent
Geomorphic setting: Channels on flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

320—Elnido sandy loam, drained, 0 to 1 percent slopes

Map Unit Setting

General location: Near the western edge of the San Joaquin River and Fresno Slough in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 110 to 170 feet (35 to 52 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Elnido sandy loam, drained—85 percent
Minor components—15 percent

Major Component Description

Elnido sandy loam, drained

Geomorphic setting:
- Basin floors
- Flood plains

Parent material: Alluvium derived from igneous rock
Typical vegetation: Irrigated crops
Slope: 0 to 1 percent
Surface runoff class: Negligible
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 6.6 inches (moderate)

Hydrologic properties
- *Present flooding:* Rare
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Poorly drained
- *Altered hydrology:* Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
- *Land capability (irrigated):* 2w-2
- *Land capability (nonirrigated):* 4w-2
- *Rangeland ecological site:* Not assigned

Typical profile
  Ap—0 to 14 inches; sandy loam
  Bwg—14 to 32 inches; sandy loam
  Bkg—32 to 40 inches; fine sandy loam
  Cg1—40 to 53 inches; sandy loam
  Cg2—53 to 60 inches; sand

Minor Components

Palazzo sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Bisgani sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Bolfar loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Dospalos clay loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Wekoda clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent

Geomorphic setting:
Basin floors
Flood plains

River channels

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 percent
Geomorphic setting: Channels on flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

325—Palazzo sandy loam, drained, 0 to 1 percent slopes

Map Unit Setting

General location: Near the western edge of the San Joaquin River, between Firebaugh and Dos Palos, in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 110 to 160 feet (35 to 49 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Palazzo sandy loam, drained—85 percent
Minor components—15 percent

Major Component Description

Palazzo sandy loam, drained

Geomorphic setting:
Basin floors
Flood plains
Parent material: Alluvium derived from igneous rock
Typical vegetation: Irrigated crops
Slope: 0 to 1 percent
Surface runoff class: Very low
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.7 inches (high)

Hydrologic properties
Present flooding: Rare
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Poorly drained
Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
Land capability (irrigated): 2w-2
Land capability (nonirrigated): 4w-2
Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 10 inches; sandy loam
Bg—10 to 31 inches; sandy loam
2Bg—31 to 60 inches; clay loam

Minor Components

Elnido sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Gepford clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Bisgani sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Dospalos clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

River channels

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 percent
Geomorphic setting: Channels on flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

375—Lethent silt loam, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, near Mendota
MLRA: 17
Geomorphic setting: Valleys
Elevation: 160 to 160 feet (49 to 50 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Lethent silt loam—85 percent
Minor components—15 percent

Major Component Description

Lethent silt loam

Geomorphic setting: Unburied fan remnants
Parent material: Alluvium derived from sedimentary and igneous rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions; also, shrubs, and grasses
Slope: 0 to 1 percent
Surface runoff class: High
Depth to restrictive feature: 4 to 10 inches to a natric horizon; 15 to 25 inches to a salic horizon
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 1.1 inches (very low)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Poorly drained

Interpretive groups
  Land capability (irrigated): 3w-6
  Land capability (nonirrigated): 7w
  Rangeland ecological site: Not assigned

Typical profile
  A—0 to 7 inches; silt loam
  Btnzg—7 to 20 inches; silty clay

Btknzg—20 to 39 inches; silty clay
Bknzg—39 to 60 inches; silty clay loam

Minor Components

Lillis clay and similar soils

Estimated percentage of the map unit: 0 to 7 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops that are tolerant of saline-sodic conditions; also, wildlife habitat and recreation in the Mendota Wildlife Management Area
Management: See the section “Use and Management of the Soils” for a description of management considerations.

376—Agnal silty clay, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, between Firebaugh and Dos Palos
MLRA: 17
Geomorphic setting: Valleys
Elevation: 140 to 150 feet (43 to 46 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Agnal silty clay—90 percent
Minor components—10 percent

Major Component Description

Agnal silty clay

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from igneous and/or sedimentary rock
Typical vegetation: Shrubs, grasses, and irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Depth to restrictive feature (salic horizon): 6 to 34 inches (fig. 9)
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches

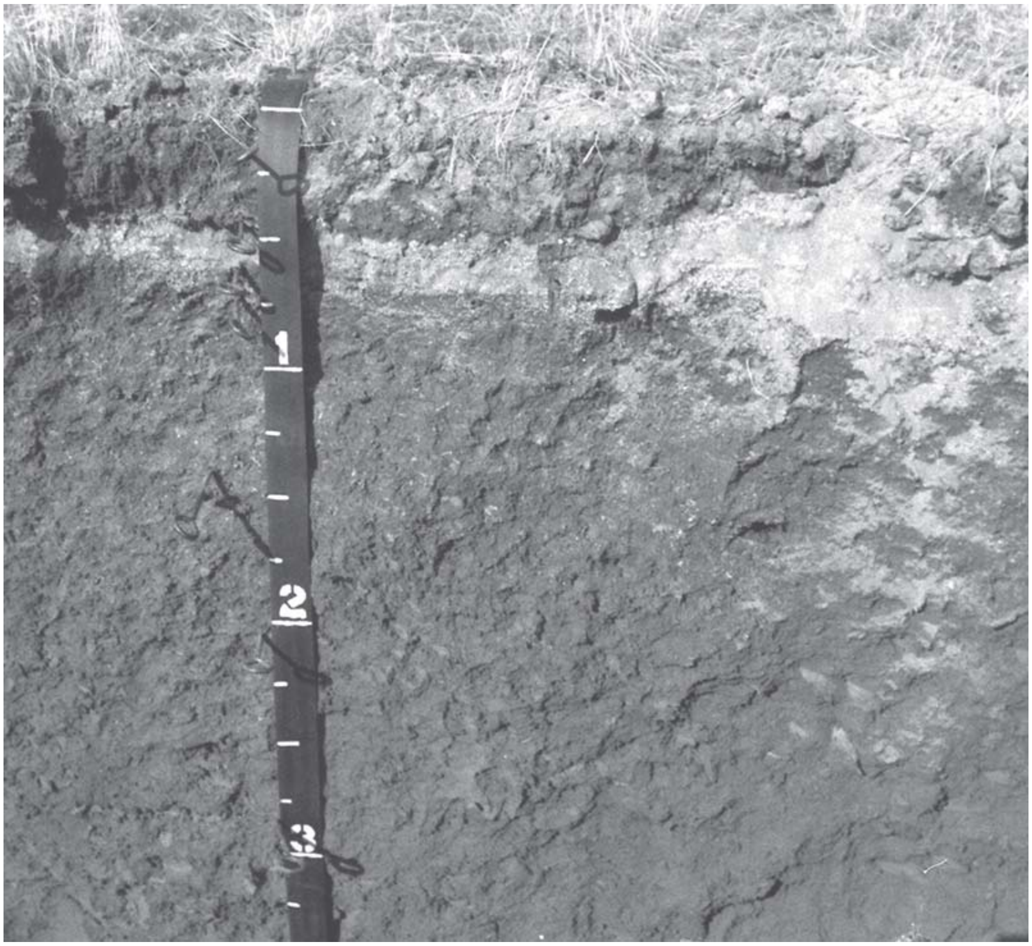


Figure 9.—Typical profile of Agnal silty clay, which has a white band of precipitated salts.

Available water capacity: About 0.4 inch (very low)

Hydrologic properties
- *Present flooding:* Very rare
- *Present ponding:* None
- *Current water table:* Within a depth of 6 feet
- *Natural drainage class:* Very poorly drained
- *Altered hydrology:* Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
- *Land capability (irrigated):* 4w-6
- *Land capability (nonirrigated):* 7w
- *Rangeland ecological site:* Not assigned

Typical profile
- Anz—0 to 6 inches; silty clay
- Bnyz1—6 to 9 inches; clay
- Bnyz2—9 to 70 inches; silty clay

Minor Components

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Wekoda clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Use and Management

Major uses: Wildlife habitat and irrigated crops that are tolerant of saline-sodic conditions
Management: See the section "Use and Management of the Soils" for a description of management considerations.

404—Milham-Guijarral association, 5 to 15 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 515 to 1,450 feet (158 to 442 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 300 days

Map Unit Composition

Milham sandy loam—55 percent
Guijarral sandy loam—30 percent
Minor components—15 percent

Major Component Description

Milham sandy loam

Geomorphic setting: Erosional fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Annual grasses, forbs, and shrubs; also, irrigated crops
Slope: 5 to 9 percent
Surface runoff class: High
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.4 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None

Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 3e-1
Land capability (nonirrigated): 7e
Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
A—0 to 6 inches; sandy loam
Bt—6 to 16 inches; sandy clay loam
Btk—16 to 31 inches; sandy clay loam
Bk—31 to 60 inches; sandy loam

Guijarral sandy loam

Geomorphic setting: Erosional fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Annual grasses, forbs, and shrubs; also, irrigated crops
Slope: 5 to 15 percent
Surface runoff class: Low
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.8 inches (moderate)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 3e-1
Land capability (nonirrigated): 7e
Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
Ap1—0 to 3 inches; sandy loam
Ap2—3 to 6 inches; sandy loam
Bw—6 to 12 inches; sandy loam
Bk1—12 to 24 inches; gravelly sandy loam
Bk2—24 to 36 inches; gravelly sandy loam
Bk3—36 to 60 inches; gravelly loamy sand

Minor Components

Guijarral sandy loam, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Cyvar loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Guijarral sandy loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 25 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major uses: Livestock grazing and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

405—Polvadero-Guijarral complex, 5 to 15 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 475 to 1,000 feet (146 to 305 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 300 days

Map Unit Composition

Polvadero sandy loam—55 percent
Guijarral sandy loam—30 percent
Minor components—15 percent

Major Component Description

Polvadero sandy loam

Geomorphic setting: Erosional fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Annual grasses, forbs, and shrubs; also, irrigated crops
Slope: 5 to 15 percent
Surface runoff class: High
Depth to restrictive feature (natric horizon): 10 to 20 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 3e-1
  Land capability (nonirrigated): 7e

Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
A1—0 to 7 inches; sandy loam
A2—7 to 12 inches; sandy loam
Btkn1—12 to 30 inches; sandy clay loam
Btkn2—30 to 52 inches; sandy clay loam
C—52 to 60 inches; sandy loam

Guijarral sandy loam

Geomorphic setting: Erosional fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Annual grasses, forbs, and shrubs; also, irrigated crops
Slope: 5 to 15 percent
Surface runoff class: Low
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.8 inches (moderate)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 3e-1
Land capability (nonirrigated): 7e
Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
Ap1—0 to 3 inches; sandy loam
Ap2—3 to 6 inches; sandy loam
Bw—6 to 12 inches; sandy loam
Bk1—12 to 24 inches; gravelly sandy loam
Bk2—24 to 36 inches; gravelly sandy loam
Bk3—36 to 60 inches; gravelly loamy sand

Minor Components

Polvadero sandy loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 8 percent
Slope: 15 to 25 percent
Geomorphic setting: Erosional fan remnants

Cyvar loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Guijarral sandy loam, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Unburied fan remnants

Yribarren clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Livestock grazing, oil fields, irrigated crops, and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

406—Guijarral sandy loam, 2 to 5 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 475 to 835 feet (146 to 256 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 290 days

Map Unit Composition

Guijarral sandy loam—85 percent
Minor components—15 percent

Major Component Description

Guijarral sandy loam

Geomorphic setting: Unburied fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Annual grasses, forbs, and shrubs; also, irrigated crops
Slope: 2 to 5 percent
Surface runoff class: Very low
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.8 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 3e-1
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
  Ap1—0 to 3 inches; sandy loam
  Ap2—3 to 6 inches; sandy loam
  Bw—6 to 12 inches; sandy loam
  Bk1—12 to 24 inches; gravelly sandy loam
  Bk2—24 to 36 inches; gravelly sandy loam

Bk3—36 to 60 inches; gravelly loamy sand

Minor Components

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Cerini sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Milham sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Use and Management

Major uses: Irrigated crops, homesite development, oil fields, and livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

412—Yribarren clay loam, 0 to 2 percent slopes

Map Unit Setting

General location: Pleasant Valley, near Coalinga in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 540 to 800 feet (166 to 244 meters)
Mean annual precipitation: 6 to 7 inches (152 to 178 millimeters)
Mean annual air temperature: 63 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 250 days

Map Unit Composition

Yribarren clay loam—85 percent
Minor components—15 percent

Major Component Description

Yribarren clay loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock

Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 9.2 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2s-5
  Land capability (nonirrigated): 7s
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 9 inches; clay loam
  A—9 to 16 inches; silty clay loam
  Btk—16 to 31 inches; silty clay
  2Bky—31 to 51 inches; silt loam
  3Bk—51 to 60 inches; clay loam

Minor Components

Panoche loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Milham sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Carranza gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent

Geomorphic setting: Unburied fan remnants

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

414—Dospalos clay loam, drained, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, near Dos Palos
MLRA: 17
Geomorphic setting: Valleys
Elevation: 110 to 120 feet (35 to 37 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Dospalos clay loam, drained—85 percent
Minor components—15 percent

Major Component Description

Dospalos clay loam, drained

Geomorphic setting:
  Basin floors
  Flood plains
Parent material: Alluvium derived from igneous rock
Typical vegetation: Irrigated crops
Slope: 0 to 1 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.5 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Poorly drained
  Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
  Land capability (irrigated): 2w-2
  Land capability (nonirrigated): 4w-2
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 17 inches; clay loam
  A—17 to 25 inches; clay
  Bkssg—25 to 43 inches; clay

Bkg—43 to 73 inches; clay loam

Minor Components

Palazzo sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Altaslough clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Elnido sandy loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Bolfar loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

415—Dospalos clay, drained, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, near Dos Palos
MLRA: 17
Geomorphic setting: Valleys
Elevation: 110 to 130 feet (35 to 40 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Dospalos clay, drained—85 percent
Minor components—15 percent

Major Component Description

Dospalos clay, drained

Geomorphic setting:
  Basin floors
  Flood plains
Parent material: Alluvium derived from igneous rock
Typical vegetation: Irrigated crops
Slope: 0 to 1 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.2 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Poorly drained
  Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
  Land capability (irrigated): 2w-2
  Land capability (nonirrigated): 4w-2
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 17 inches; clay
  A—17 to 25 inches; clay
  Bkssg—25 to 43 inches; clay
  Bkg—43 to 73 inches; clay loam

Minor Components

Wekoda clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Chateau clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Altaslough clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Bolfar loam, drained, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Elnido sandy loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Gepford clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

425—Kimberlina sandy loam, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 265 to 895 feet (82 to 274 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)

Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 300 days

Map Unit Composition

Kimberlina sandy loam—85 percent
Minor components—15 percent

Major Component Description

Kimberlina sandy loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 0 to 2 percent
Surface runoff class: Negligible
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.1 inches (moderate)

Hydrologic properties
- *Present flooding:* Very rare
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* 1
- *Land capability (nonirrigated):* 7c
- *Rangeland ecological site:* R017XG043CA, Loamy 6-8" p.z.

Typical profile
- Ap—0 to 14 inches; sandy loam
- C—14 to 72 inches; sandy loam

Minor Components

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Wasco sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam, sandy substratum, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

426—Kimberlina sandy loam, 2 to 5 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 495 to 760 feet (152 to 232 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 300 days

Map Unit Composition

Kimberlina sandy loam—85 percent
Minor components—15 percent

Major Component Description

Kimberlina sandy loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 2 to 5 percent
Surface runoff class: Very low
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.1 inches (moderate)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-1
  Land capability (nonirrigated): 7e

Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
Ap—0 to 14 inches; sandy loam
C—14 to 72 inches; sandy loam

Minor Components

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Wasco sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam, nearly level, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam, undulating, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 9 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

434—Lethent clay loam, wet, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, near Lemoore Naval Air Station
MLRA: 17
Geomorphic setting: Valleys
Elevation: 205 to 255 feet (64 to 78 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Lethent clay loam, wet—85 percent
Minor components—15 percent

Major Component Description

Lethent clay loam, wet

Geomorphic setting: Unburied fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: Medium
Depth to restrictive feature (natric horizon): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 4.0 inches (low)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Moderately well drained

Interpretive groups
  Land capability (irrigated): 3s-6
  Land capability (nonirrigated): 7s
  Rangeland ecological site: Not assigned

Typical profile
  Ap1—0 to 7 inches; clay loam
  Ap2—7 to 16 inches; clay loam
  Ap3—16 to 25 inches; clay loam
  Btkn1—25 to 33 inches; clay loam
  Btkn2—33 to 62 inches; clay loam
  C—62 to 72 inches; clay loam

Minor Components

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Lethent clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Unburied fan remnants

Posochanet clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Gepford clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Use and Management

Major uses: Irrigated crops that are tolerant of saline-sodic conditions; also, homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

435—Lethent clay loam, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, near Lemoore Naval Air Station
MLRA: 17
Geomorphic setting: Valleys
Elevation: 235 to 1,000 feet (73 to 305 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Lethent clay loam—90 percent
Minor components—10 percent

Major Component Description

Lethent clay loam

Geomorphic setting: Unburied fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: Medium
Depth to restrictive feature (natric horizon): 20 to 39 inches
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 4.3 inches (low)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Moderately well drained

Interpretive groups
  Land capability (irrigated): 3s-6
  Land capability (nonirrigated): 7s
  Rangeland ecological site: Not assigned

Typical profile
  Ap1—0 to 7 inches; clay loam
  Ap2—7 to 16 inches; clay loam
  Ap3—16 to 25 inches; clay loam
  Btkn1—25 to 33 inches; clay loam
  Btkn2—33 to 62 inches; clay loam
  C—62 to 72 inches; clay loam

Minor Components

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Gepford clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Posochanet clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops that are tolerant of saline-sodic conditions; also, homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

436—Panoche loam, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 265 to 925 feet (81 to 282 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 280 days

Map Unit Composition

Panoche loam—85 percent

Minor components—15 percent

Major Component Description

Panoche loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Negligible
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.2 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 1
  Land capability (nonirrigated): 7c
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 7 inches; loam
  Bw—7 to 16 inches; loam
  Bk1—16 to 27 inches; loam
  Bk2—27 to 43 inches; loam
  Bk3—43 to 57 inches; loam
  Bk4—57 to 72 inches; sandy loam

Minor Components

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

437—Panoche sandy loam, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 295 to 845 feet (91 to 259 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 280 days

Map Unit Composition

Panoche sandy loam—85 percent
Minor components—15 percent

Major Component Description

Panoche sandy loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Negligible
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.9 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 1
  Land capability (nonirrigated): 7c
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 7 inches; sandy loam
  Bw—7 to 16 inches; loam
  Bk1—16 to 27 inches; loam
  Bk2—27 to 43 inches; loam
  Bk3—43 to 57 inches; loam
  Bk4—57 to 72 inches; sandy loam

Minor Components

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

438—Panoche loam, 2 to 5 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 425 to 895 feet (131 to 274 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 280 days

Map Unit Composition

Panoche loam—85 percent
Minor components—15 percent

Major Component Description

Panoche loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 2 to 5 percent
Surface runoff class: Low
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.2 inches (high)

Hydrologic properties
Present flooding: Very rare
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 2e-1
Land capability (nonirrigated): 7e
Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 7 inches; loam
Bw—7 to 16 inches; loam
Bk1—16 to 27 inches; loam
Bk2—27 to 43 inches; loam
Bk3—43 to 57 inches; loam
Bk4—57 to 72 inches; sandy loam

Minor Components

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Panoche loam, nearly level, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 1 to 2 percent
Geomorphic setting: Alluvial fans

Panoche loam, undulating, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 7 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops, homesite development, and livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

442—Panoche clay loam, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 180 to 780 feet (56 to 239 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 280 days

Map Unit Composition

Panoche clay loam—85 percent
Minor components—15 percent

Major Component Description

Panoche clay loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Negligible
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.3 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 1
  Land capability (nonirrigated): 7c
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 7 inches; clay loam
  Bw—7 to 16 inches; loam
  Bk1—16 to 27 inches; loam
  Bk2—27 to 43 inches; loam
  Bk3—43 to 57 inches; loam
  Bk4—57 to 72 inches; sandy loam

Minor Components

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent

Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Posochanet clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops (fig. 10) and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

Figure 10.—Spring lettuce harvest in an area of Panoche clay loam and Cerini clay loam.

445—Excelsior sandy loam, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 210 to 1,000 feet (65 to 305 meters)

Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 280 days

Map Unit Composition

Excelsior sandy loam—85 percent
Minor components—15 percent

Major Component Description

Excelsior sandy loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Negligible
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.1 inches (moderate)

Hydrologic properties
- *Present flooding:* Very rare
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* 1
- *Land capability (nonirrigated):* 7c
- *Rangeland ecological site:* Not assigned

Typical profile
- Ap—0 to 7 inches; sandy loam
- A—7 to 23 inches; sandy loam
- C—23 to 72 inches; stratified sandy loam to silt loam

Minor Components

Cerini sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam, undulating, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent

Geomorphic setting: Alluvial fans

Excelsior sandy loam, subsided, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam, sandy substratum, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

447—Excelsior sandy loam, sandy substratum, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 180 to 895 feet (55 to 274 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 280 days

Map Unit Composition

Excelsior sandy loam, sandy substratum—85 percent
Minor components—15 percent

Major Component Description

Excelsior sandy loam, sandy substratum

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Negligible
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic

Available water capacity: About 6.8 inches (moderate)

Hydrologic properties
- *Present flooding:* Rare
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* 2s-4
- *Land capability (nonirrigated):* 7s
- *Rangeland ecological site:* Not assigned

Typical profile
- Ap—0 to 7 inches; sandy loam
- A—7 to 23 inches; sandy loam
- C1—23 to 53 inches; stratified loamy sand to silt loam
- C2—53 to 72 inches; loamy sand

Minor Components

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Wasco sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

448—Excelsior loamy sand, sandy substratum, 0 to 1 percent slopes, eroded

Map Unit Setting

General location: Pleasant Valley, near Coalinga in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 465 to 665 feet (143 to 203 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Excelsior loamy sand, sandy substratum, eroded—88 percent
Minor components—12 percent

Major Component Description

Excelsior loamy sand, sandy substratum, eroded

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 1 percent
Surface runoff class: Negligible
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.6 inches (moderate)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2s-1
  Land capability (nonirrigated): 7e
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 8 inches; loamy sand
  C1—8 to 38 inches; stratified sandy loam to silt loam
  C2—38 to 60 inches; loamy sand

Minor Components

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Guijarral sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Unburied fan remnants

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Unburied fan remnants

Wasco sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Excelsior loamy sand and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 1 to 3 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

451—Milham sandy loam, 0 to 2 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 295 to 1,000 feet (91 to 305 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 300 days

Map Unit Composition

Milham sandy loam—85 percent
Minor components—15 percent

Major Component Description

Milham sandy loam

Geomorphic setting: Unburied fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.4 inches (moderate)

Hydrologic properties
Present flooding: Very rare
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 1
Land capability (nonirrigated): 7c
Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
A—0 to 6 inches; sandy loam
Bt—6 to 16 inches; sandy clay loam
Btk—16 to 31 inches; sandy clay loam
Bk—31 to 60 inches; sandy loam

Minor Components

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Milham sandy loam, undulating, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Wasco sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops, homesite development, oil fields, and livestock grazing

Management: See the section “Use and Management of the Soils” for a description of management considerations.

452—Milham sandy loam, 2 to 5 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 435 to 1,095 feet (134 to 335 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 300 days

Map Unit Composition

Milham sandy loam—89 percent
Minor components—11 percent

Major Component Description

Milham sandy loam

Geomorphic setting: Unburied fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 2 to 5 percent
Surface runoff class: Medium
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.4 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-1
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
  A—0 to 6 inches; sandy loam
  Bt—6 to 16 inches; sandy clay loam
  Btk—16 to 31 inches; sandy clay loam
  Bk—31 to 60 inches; sandy loam

Minor Components

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Milham sandy loam, undulating, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 9 percent
Geomorphic setting: Erosional fan remnants

Wasco sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops, homesite development, oil fields, and livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

453—Milham sandy loam, 5 to 9 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 600 to 1,095 feet (183 to 335 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 300 days

Map Unit Composition

Milham sandy loam—85 percent
Minor components—15 percent

Major Component Description

Milham sandy loam

Geomorphic setting: Erosional fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 5 to 9 percent
Surface runoff class: High
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.4 inches (moderate)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 3e-1
Land capability (nonirrigated): 7e
Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
A—0 to 6 inches; sandy loam
Bt—6 to 16 inches; sandy clay loam
Btk—16 to 31 inches; sandy clay loam
Bk—31 to 60 inches; sandy loam

Minor Components

Milham sandy loam, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 9 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 9 percent
Geomorphic setting: Alluvial fans

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 9 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major uses: Irrigated crops, livestock grazing, and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

454—Polvadero sandy loam, 0 to 2 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 410 to 635 feet (126 to 195 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 280 days

Map Unit Composition

Polvadero sandy loam—85 percent
Minor components—15 percent

Major Component Description

Polvadero sandy loam

Geomorphic setting: Unburied fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 0 to 2 percent
Surface runoff class: Low
Depth to restrictive feature (natric horizon): 10 to 20 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2s-1
  Land capability (nonirrigated): 7s
  Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
  Ap—0 to 7 inches; sandy loam
  A—7 to 12 inches; sandy loam
  Btkn1—12 to 30 inches; sandy clay loam (fig. 11)
  Btkn2—30 to 52 inches; sandy clay loam
  C—52 to 60 inches; sandy loam

Minor Components

Milham sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Cerini sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent

Figure 11.—Polvadero sandy loam exposed in the bank of the Arroyo Pasajero, west of El Dorado Avenue. This soil has a white calcic horizon.

Geomorphic setting: Alluvial fans

Polvadero sandy loam, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Use and Management

Major uses: Irrigated crops, livestock grazing, homesite development, and oil fields
Management: See the section "Use and Management of the Soils" for a description of management considerations.

455—Polvadero sandy loam, 2 to 5 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17

Geomorphic setting: Valleys
Elevation: 455 to 915 feet (140 to 280 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 280 days

Map Unit Composition

Polvadero sandy loam—85 percent
Minor components—15 percent

Major Component Description

Polvadero sandy loam

Geomorphic setting: Unburied fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 2 to 5 percent
Surface runoff class: Medium
Depth to restrictive feature (natric horizon): 10 to 20 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-1
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
  Ap—0 to 7 inches; sandy loam
  A—7 to 12 inches; sandy loam
  Btkn1—12 to 30 inches; sandy clay loam
  Btkn2—30 to 52 inches; sandy clay loam
  C—52 to 60 inches; sandy loam

Minor Components

Guijarral sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Polvadero sandy loam, undulating, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 9 percent

Geomorphic setting: Erosional fan remnants

Polvadero sandy loam, nearly level, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Cyvar loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 7 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major uses: Livestock grazing, irrigated crops, homesite development, and oil fields
Management: See the section “Use and Management of the Soils” for a description of management considerations.

459—Ciervo clay, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 205 to 730 feet (64 to 224 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 280 days

Map Unit Composition

Ciervo clay—80 percent
Minor components—20 percent

Major Component Description

Ciervo clay

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.7 inches (high)

Hydrologic properties
- *Present flooding:* Very rare
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Moderately well drained

Interpretive groups
- *Land capability (irrigated):* 2s-3
- *Land capability (nonirrigated):* 7s
- *Rangeland ecological site:* Not assigned

Typical profile

Ap—0 to 17 inches; clay
Bw—17 to 27 inches; clay
Bknyz—27 to 41 inches; silty clay
Bknz—41 to 60 inches; clay loam

Minor Components

Ciervo clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Panoche clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

461—Ciervo clay, saline-sodic, wet, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys

Elevation: 170 to 330 feet (52 to 101 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Ciervo clay, saline-sodic, wet—80 percent
Minor components—20 percent

Major Component Description

Ciervo clay, saline-sodic, wet

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 6.4 inches (moderate)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Moderately well drained

Interpretive groups
  Land capability (irrigated): 3s-6
  Land capability (nonirrigated): 7s
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 17 inches; clay
  Bw—17 to 27 inches; clay
  Bknyz—27 to 41 inches; silty clay
  Bknz—41 to 60 inches; clay loam

Minor Components

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Ciervo clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops that are tolerant of saline-sodic conditions; also, homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

462—Ciervo, wet-Ciervo complex, saline-sodic, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 170 to 580 feet (53 to 177 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Ciervo clay, saline-sodic, wet—50 percent
Ciervo clay, saline-sodic—30 percent
Minor components—20 percent

Major Component Description

Ciervo clay, saline-sodic, wet

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 6.4 inches (moderate)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Moderately well drained

Interpretive groups
  Land capability (irrigated): 3s-6
  Land capability (nonirrigated): 7s
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 17 inches; clay

Bw—17 to 27 inches; clay
Bknyz—27 to 41 inches; silty clay
Bknz—41 to 60 inches; clay loam

Ciervo clay, saline-sodic

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 7.3 inches (moderate)

Hydrologic properties
Present flooding: Very rare
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Moderately well drained

Interpretive groups
Land capability (irrigated): 2s-6
Land capability (nonirrigated): 7s
Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 17 inches; clay
Bw—17 to 27 inches; clay
Bknyz—27 to 41 inches; silty clay
Bknz—41 to 60 inches; clay loam

Minor Components

Ciervo clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Panoche clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent

Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops that are tolerant of saline-sodic conditions; also, homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

466—Paver clay loam, 0 to 2 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, near Interstate Highway 5, north of Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 190 to 475 feet (58 to 146 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 63 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Paver clay loam—85 percent
Minor components—15 percent

Major Component Description

Paver clay loam

Geomorphic setting: Inset fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 10.4 inches (very high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 1
  Land capability (nonirrigated): 4c
  Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 6 inches; clay loam
A—6 to 19 inches; clay loam
Bw—19 to 26 inches; clay loam
Bk1—26 to 48 inches; clay loam
Bk2—48 to 60 inches; loam

Minor Components

Deldota clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Panoche clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Paver clay loam, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 2 to 5 percent
Geomorphic setting: Inset fans

Pleito gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

468—Deldota clay, partially drained, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, near Dos Palos
MLRA: 17
Geomorphic setting: Valleys
Elevation: 150 to 255 feet (46 to 79 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 260 days

Map Unit Composition

Deldota clay, partially drained—85 percent
Minor components—15 percent

Major Component Description

Deldota clay, partially drained

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 1 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.0 inches (high)

Hydrologic properties
- *Present flooding:* Very rare
- *Present ponding:* None
- *Current water table:* Within a depth of 6 feet
- *Natural drainage class:* Somewhat poorly drained

Interpretive groups
- *Land capability (irrigated):* 2w-5
- *Land capability (nonirrigated):* 4w-5
- *Rangeland ecological site:* Not assigned

Typical profile
- Ap—0 to 17 inches; clay
- Bw—17 to 24 inches; clay
- Bk—24 to 54 inches; clay
- C—54 to 65 inches; clay loam

Minor Components

Chateau clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Panoche clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Paver clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Inset fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

470—Chateau clay, partially drained, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, near Dos Palos
MLRA: 17
Geomorphic setting: Valleys
Elevation: 120 to 180 feet (38 to 56 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Chateau clay, partially drained—85 percent
Minor components—15 percent

Major Component Description

Chateau clay, partially drained

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 7.2 inches (moderate)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Poorly drained
  Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
  Land capability (irrigated): 3w-6
  Land capability (nonirrigated): 6w
  Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 6 inches; clay
Btg—6 to 20 inches; clay
Bt—20 to 43 inches; silty clay loam
C—43 to 60 inches; silty clay

Minor Components

Deldota clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 8 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Wekoda clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Dospalos clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
Basin floors
Flood plains

Use and Management

Major uses: Irrigated crops that are tolerant of saline-sodic conditions; also, homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

472—Wekoda clay, partially drained, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, near Dos Palos
MLRA: 17
Geomorphic setting: Valleys
Elevation: 110 to 180 feet (35 to 56 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Wekoda clay, partially drained—85 percent
Minor components—15 percent

Major Component Description

Wekoda clay, partially drained

Geomorphic setting:
  Basin floors
  Flood plains
Parent material: Alluvium derived from sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Slowest permeability class: Very slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.3 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Poorly drained
  Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
  Land capability (irrigated): 3w-5
  Land capability (nonirrigated): 4w-5
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 7 inches; clay
  A—7 to 12 inches; clay
  Bss—12 to 22 inches; clay
  Bkyg—22 to 35 inches; clay
  Bky—35 to 47 inches; clay
  Bk—47 to 60 inches; clay

Minor Components

Chateau clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Dospalos clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Tachi clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Agnal silty clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Armona loam, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Flood plains

Deldota clay, partially drained, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

474—Westhaven loam, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 265 to 685 feet (81 to 210 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 290 days

Map Unit Composition

Westhaven loam—85 percent
Minor components—15 percent

Major Component Description

Westhaven loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow

Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.7 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 1
  Land capability (nonirrigated): 7c
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 7 inches; loam
  Bw—7 to 17 inches; loam
  Bk1—17 to 42 inches; stratified loam to silty clay loam
  Bk2—42 to 65 inches; stratified loamy sand to silty clay loam
  C—65 to 72 inches; stratified loam to silty clay loam

Minor Components

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Wasco sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Panoche loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

475—Posochanet clay loam, saline-sodic, wet, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 160 to 265 feet (49 to 82 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Posochanet clay loam, saline-sodic, wet—88 percent
Minor components—12 percent

Major Component Description

Posochanet clay loam, saline-sodic, wet

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 7.3 inches (moderate)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Moderately well drained

Interpretive groups
  Land capability (irrigated): 3s-6
  Land capability (nonirrigated): 7s
  Rangeland ecological site: Not assigned

Typical profile
  Ap1—0 to 7 inches; clay loam
  Ap2—7 to 15 inches; clay loam
  Bw—15 to 24 inches; stratified loam to silty clay loam
  Bknz—24 to 60 inches; stratified loam to silty clay loam

Minor Components

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Lethent clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent

Geomorphic setting: Unburied fan remnants

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops that are tolerant of saline-sodic conditions; also, homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

476—Posochanet clay loam, saline-sodic, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 255 to 685 feet (78 to 209 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Posochanet clay loam, saline-sodic—88 percent
Minor components—12 percent

Major Component Description

Posochanet clay loam, saline-sodic

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 2 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 8.4 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Moderately well drained

Interpretive groups
 Land capability (irrigated): 2s-6
 Land capability (nonirrigated): 7s
 Rangeland ecological site: Not assigned

Typical profile
 Ap1—0 to 7 inches; clay loam
 Ap2—7 to 15 inches; clay loam
 Bw—15 to 24 inches; stratified loam to silty clay loam
 Bknz—24 to 60 inches; stratified loam to silty clay loam

Minor Components

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Lethent clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Tranquillity clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Posochanet clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

477—Westhaven clay loam, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys

Elevation: 245 to 635 feet (75 to 195 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 290 days

Map Unit Composition

Westhaven clay loam—85 percent
Minor components—15 percent

Major Component Description

Westhaven clay loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 10.3 inches (Very high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 1
  Land capability (nonirrigated): 7c
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 12 inches; clay loam
  Bw—12 to 21 inches; silty clay loam
  Bk—21 to 61 inches; stratified loam to silty clay loam
  C—61 to 72 inches; stratified loamy sand to silty clay loam

Minor Components

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Lethent clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Posochanet clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops (fig. 12) and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

Figure 12.—Harvest of processing tomatoes on Westhaven clay loam. Photo by Audrey Trevaskis, NRCS Earth Team Volunteer.

478—Cerini sandy loam, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 200 to 800 feet (62 to 245 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 290 days

Map Unit Composition

Cerini sandy loam—85 percent

Minor components—15 percent

Major Component Description

Cerini sandy loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.3 inches (high)

Hydrologic properties
   Present flooding: Very rare
   Present ponding: None
   Current water table: None within a depth of 6 feet
   Natural drainage class: Well drained

Interpretive groups
   Land capability (irrigated): 1
   Land capability (nonirrigated): 7c
   Rangeland ecological site: Not assigned

Typical profile
   Ap—0 to 5 inches; sandy loam
   Bw—5 to 25 inches; clay loam
   Bk1—25 to 35 inches; stratified sandy loam to clay loam
   Bk2—35 to 62 inches; stratified sandy loam to clay loam

Minor Components

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Panoche sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent

Geomorphic setting: Alluvial fans

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Panoche loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

479—Cerini clay loam, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 160 to 800 feet (50 to 244 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 230 to 290 days

Map Unit Composition

Cerini clay loam—85 percent
Minor components—15 percent

Major Component Description

Cerini clay loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.5 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 1
  Land capability (nonirrigated): 7c
  Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 5 inches; clay loam
Bw—5 to 25 inches; clay loam
Bk1—25 to 35 inches; stratified sandy loam to clay loam
Bk2—35 to 62 inches; stratified sandy loam to clay loam

Minor Components

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Panoche clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Cerini sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

480—Calflax clay loam, saline-sodic, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 245 to 705 feet (76 to 215 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 250 days

Map Unit Composition

Calflax clay loam, saline-sodic—85 percent
Minor components—15 percent

Major Component Description

Calflax clay loam, saline-sodic

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 7.7 inches (high)

Hydrologic properties
Present flooding: Very rare
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Moderately well drained

Interpretive groups
Land capability (irrigated): 2s-6
Land capability (nonirrigated): 7s
Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 8 inches; clay loam
Bw—8 to 26 inches; clay loam
Bny—26 to 33 inches; loam
Bnyz1—33 to 47 inches; silt loam
Bnyz2—47 to 65 inches; loam

Minor Components

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Posochanet clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

481—Cerini clay loam, 2 to 5 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 420 to 800 feet (129 to 244 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 290 days

Map Unit Composition

Cerini clay loam—85 percent
Minor components—15 percent

Major Component Description

Cerini clay loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 2 to 5 percent
Surface runoff class: Medium
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.5 inches (high)

Hydrologic properties
  Present flooding: Very rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-1
  Land capability (nonirrigated): 7e
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 5 inches; clay loam
  Bw—5 to 25 inches; clay loam
  Bk1—25 to 35 inches; stratified sandy loam to clay loam
  Bk2—35 to 62 inches; stratified sandy loam to clay loam

Minor Components

Cerini sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent

Geomorphic setting: Alluvial fans

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Panoche loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

482—Calflax clay loam, saline-sodic, wet, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 150 to 310 feet (47 to 96 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Calflax clay loam, saline-sodic, wet—85 percent
Minor components—15 percent

Major Component Description

Calflax clay loam, saline-sodic, wet

Geomorphic setting: Fan skirts
Parent material: Alluvium derived from calcareous sedimentary rock

Typical vegetation: Irrigated crops that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 7.2 inches (moderate)

Hydrologic properties
Present flooding: Rare
Present ponding: None
Current water table: Within a depth of 6 feet
Natural drainage class: Moderately well drained

Interpretive groups
Land capability (irrigated): 3s-6
Land capability (nonirrigated): 7s
Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 8 inches; clay loam
Bw—8 to 26 inches; clay loam
Bny—26 to 33 inches; loam
Bnyz1—33 to 47 inches; silt loam
Bnyz2—47 to 65 inches; loam

Minor Components

Ciervo clay, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Alluvial fans

Lethent clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Unburied fan remnants

Posochanet clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Use and Management

Major uses: Irrigated crops that are tolerant of saline-sodic conditions; also, homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

488—Wasco sandy loam, 0 to 2 percent slopes

Map Unit Setting

General location: Pleasant Valley, near Coalinga in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 295 to 560 feet (90 to 171 meters)
Mean annual precipitation: 6 to 7 inches (152 to 178 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 300 days

Map Unit Composition

Wasco sandy loam—85 percent
Minor components—15 percent

Major Component Description

Wasco sandy loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 0 to 2 percent
Surface runoff class: Negligible
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.0 inches (moderate)

Hydrologic properties
- *Present flooding:* Very rare
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* 2s-4
- *Land capability (nonirrigated):* 7e
- *Rangeland ecological site:* R017XG043CA, Loamy 6-8" p.z.

Typical profile
- Ap—0 to 8 inches; sandy loam
- A—8 to 21 inches; sandy loam
- C1—21 to 50 inches; sandy loam
- C2—50 to 72 inches; sandy loam

Minor Components

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Panoche sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Wasco sandy loam, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops (fig. 13) and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

Figure 13.—Almond orchard on Wasco sandy loam.

489—Wasco sandy loam, 2 to 5 percent slopes

Map Unit Setting

General location: Pleasant Valley, near Coalinga in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 415 to 875 feet (128 to 268 meters)

Mean annual precipitation: 6 to 7 inches (152 to 178 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 300 days

Map Unit Composition

Wasco sandy loam—85 percent
Minor components—15 percent

Major Component Description

Wasco sandy loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from sedimentary rock
Typical vegetation: Irrigated crops or annual grasses, forbs, and shrubs
Slope: 2 to 5 percent
Surface runoff class: Very low
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.0 inches (moderate)

Hydrologic properties
- *Present flooding:* Very rare
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* 2e-1
- *Land capability (nonirrigated):* 7e
- *Rangeland ecological site:* R017XG043CA, Loamy 6-8" p.z.

Typical profile
- Ap—0 to 8 inches; sandy loam
- A—8 to 21 inches; sandy loam
- C1—21 to 50 inches; sandy loam
- C2—50 to 72 inches; sandy loam

Minor Components

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Panoche loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent

Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Wasco sandy loam, nearly level, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops, livestock grazing, and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

490—Cerini sandy loam, subsided, 0 to 5 percent slopes

Map Unit Setting

General location: North of Three Rocks, between Interstate Highway 5 and the California Aqueduct in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 330 to 620 feet (101 to 189 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 290 days

Map Unit Composition

Cerini sandy loam, subsided—85 percent
Minor components—15 percent

Major Component Description

Cerini sandy loam, subsided

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 5 percent
Surface runoff class: Medium
Surface features: Complex slopes resulting from shallow subsidence
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.3 inches (high)

Hydrologic properties
- *Present flooding:* Rare
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* 2e-1
- *Land capability (nonirrigated):* 7e
- *Rangeland ecological site:* Not assigned

Typical profile
Ap—0 to 5 inches; sandy loam
Bw—5 to 25 inches; clay loam
Bk1—25 to 35 inches; stratified sandy loam to clay loam
Bk2—35 to 62 inches; stratified sandy loam to clay loam

Minor Components

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Cerini sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Cerini clay loam, subsided, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 5 percent
Geomorphic setting: Alluvial fans

Panoche loam, subsided, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 5 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

491—Cerini clay loam, subsided, 0 to 5 percent slopes

Map Unit Setting

General location: North of Three Rocks, between Interstate Highway 5 and the California Aqueduct in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 225 to 665 feet (70 to 204 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 290 days

Map Unit Composition

Cerini clay loam, subsided—85 percent
Minor components—15 percent

Major Component Description

Cerini clay loam, subsided

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 5 percent
Surface runoff class: Medium
Surface features: Complex slopes resulting from shallow subsidence
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.5 inches (high)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-1
  Land capability (nonirrigated): 7e
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 5 inches; clay loam
  Bw—5 to 25 inches; clay loam
  Bk1—25 to 35 inches; stratified sandy loam to clay loam
  Bk2—35 to 62 inches; stratified sandy loam to clay loam

Minor Components

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Milham sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Panoche clay loam, subsided, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 5 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section "Use and Management of the Soils" for a description of management considerations.

492—Panoche loam, subsided, 0 to 5 percent slopes

Map Unit Setting

General location: North of Three Rocks, between Interstate Highway 5 and the California Aqueduct in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 330 to 590 feet (101 to 180 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 260 to 280 days

Map Unit Composition

Panoche loam, subsided—85 percent
Minor components—15 percent

Major Component Description

Panoche loam, subsided

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 5 percent
Surface runoff class: Low
Surface features: Complex slopes resulting from shallow subsidence
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.2 inches (high)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-1
  Land capability (nonirrigated): 7e

Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 7 inches; loam
Bw—7 to 16 inches; loam
Bk1—16 to 27 inches; loam
Bk2—27 to 43 inches; loam
Bk3—43 to 57 inches; loam
Bk4—57 to 72 inches; sandy loam

Minor Components

Cerini clay loam, subsided, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 5 percent
Geomorphic setting: Alluvial fans

Panoche clay loam, subsided, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 5 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Kimberlina sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

493—Panoche clay loam, subsided, 0 to 5 percent slopes

Map Unit Setting

General location: North of Three Rocks, between Interstate Highway 5 and the California Aqueduct in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 255 to 520 feet (79 to 159 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 260 to 280 days

Map Unit Composition

Panoche clay loam, subsided—85 percent
Minor components—15 percent

Major Component Description

Panoche clay loam, subsided

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Irrigated crops
Slope: 0 to 5 percent
Surface runoff class: Low
Surface features: Complex slopes resulting from shallow subsidence
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.3 inches (high)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-1
  Land capability (nonirrigated): 7e
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 7 inches; clay loam
  Bw—7 to 16 inches; loam
  Bk1—16 to 27 inches; loam
  Bk2—27 to 43 inches; loam
  Bk3—43 to 57 inches; loam
  Bk4—57 to 72 inches; sandy loam

Minor Components

Panoche loam, subsided, and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 0 to 5 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Cerini clay loam, subsided, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 5 percent
Geomorphic setting: Alluvial fans

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

587—Mugatu fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 570 to 835 feet (175 to 256 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Mugatu fine sandy loam—85 percent
Minor components—15 percent

Major Component Description

Mugatu fine sandy loam

Geomorphic setting: Stream terraces
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 0 to 5 percent
Surface runoff class: Medium
Depth to restrictive feature (strongly contrasting textural stratification): 40 to 50 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.9 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-1
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
  A1—0 to 2 inches; fine sandy loam
  A2—2 to 10 inches; fine sandy loam
  A3—10 to 24 inches; fine sandy loam
  Bty—24 to 41 inches; clay loam
  2By—41 to 60 inches; stratified very gravelly coarse sand to gravelly sandy loam

Minor Components

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 40 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent

Slope: 8 to 18 percent
Geomorphic setting: Mountain slopes

Guijarral sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Milham sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 5 percent
Geomorphic setting: Unburied fan remnants

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 5 percent
Geomorphic setting: Unburied fan remnants

Morenogulch parachannery silty clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 60 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

588—Mugatu fine sandy loam, 5 to 30 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 580 to 1,275 feet (177 to 390 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Mugatu fine sandy loam—85 percent
Minor components—15 percent

Major Component Description

Mugatu fine sandy loam

Geomorphic setting: Stream terraces
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 5 to 30 percent
Surface runoff class: High
Depth to restrictive feature (strongly contrasting textural stratification): 40 to 50 inches

Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.9 inches (moderate)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 4e-1
Land capability (nonirrigated): 6e
Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
A1—0 to 2 inches; fine sandy loam
A2—2 to 10 inches; fine sandy loam
A3—10 to 24 inches; fine sandy loam
Bty—24 to 41 inches; clay loam
2By—41 to 60 inches; stratified very gravelly coarse sand to gravelly sandy loam

Minor Components

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 8 to 30 percent
Geomorphic setting: Unburied fan remnants

Guijarral sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Unburied fan remnants

Milham sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 9 percent
Geomorphic setting: Unburied fan remnants

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Unburied fan remnants

Morenogulch parachannery silty clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 60 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

590—Cerini-Anela-Fluvaquents, saline-sodic, association, 0 to 2 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 360 to 1,000 feet (110 to 305 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Cerini sandy loam—30 percent
Anela very gravelly sandy loam—30 percent
Fluvaquents, saline-sodic—20 percent
Minor components—20 percent

Major Component Description

Cerini sandy loam

Geomorphic setting: Alluvial fans
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.3 inches (high)

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 1
  Land capability (nonirrigated): 7c
  Rangeland ecological site: R017XG043CA, Loamy 6-8" p.z.

Typical profile
  Ap—0 to 5 inches; sandy loam
  Bw—5 to 25 inches; clay loam
  Bk1—25 to 35 inches; stratified sandy loam to clay loam
  Bk2—35 to 62 inches; stratified sandy loam to clay loam

Anela very gravelly sandy loam

Geomorphic setting: Flood plains
Parent material: Alluvium derived from sedimentary and/or mixed rock
Typical vegetation: Annual grasses, forbs, shrubs, and trees
Slope: 0 to 2 percent
Surface runoff class: Negligible
Depth to restrictive feature (dense material): 40 to 60 inches

Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.5 inches (very low)

Hydrologic properties
    Present flooding: Occasional
    Present ponding: None
    Current water table: Within a depth of 6 feet
    Natural drainage class: Well drained

Interpretive groups
    Land capability (irrigated): 4w-2
    Land capability (nonirrigated): 4w-2
    Rangeland ecological site: R017XE101CA, Very Gravelly Loamy

Typical profile
    A—0 to 7 inches; very gravelly sandy loam (fig. 14)
    Bt—7 to 15 inches; very gravelly coarse sandy loam
    Btk—15 to 22 inches; very gravelly coarse sandy loam
    2Btk—22 to 49 inches; very gravelly coarse sandy loam
    2Bdk—49 to 65 inches; extremely gravelly loamy coarse sand

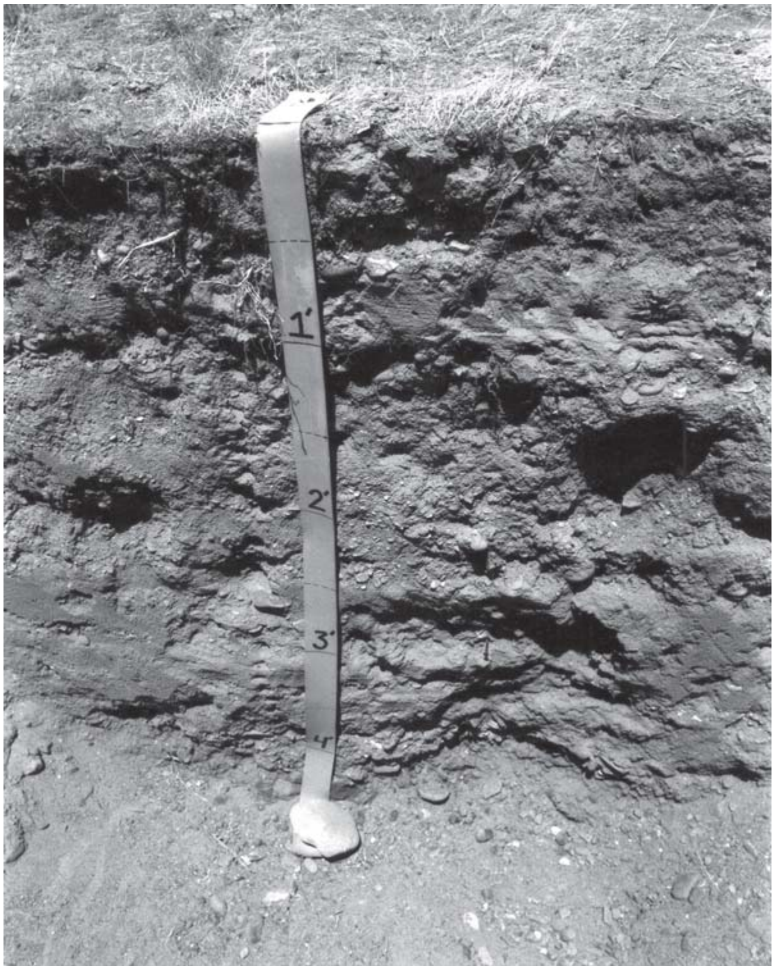


Figure 14.—Profile of Anela very gravelly sandy loam, which is stratified.

Fluvaquents, saline-sodic

Geomorphic setting: Flood plains
Parent material: Alluvium derived from sedimentary rock
Typical vegetation: Wetland plants that are tolerant of saline-sodic conditions
Slope: 0 to 1 percent
Surface runoff class: High
Percentage of surface covered by subangular cobbles: 0 to 10 percent
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 0.0 inches (very low)

Hydrologic properties
  Present flooding: Frequent
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Poorly drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7w
  Rangeland ecological site: R017XG050CA, Alkaline Streambank

Typical profile
  Anz—0 to 5 inches; stratified gravelly sand to loam
  Bnzg1—5 to 10 inches; stratified gravelly sand to loam
  Bnzg2—10 to 18 inches; stratified gravelly sand to loam
  Bnzg3—18 to 60 inches; stratified very gravelly sand to loam

Minor Components

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Milham sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Vernalis loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Flood plains

Westhaven loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

620—Delgado sandy loam, 5 to 15 percent slopes, eroded

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Coalinga in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 895 to 1,115 feet (274 to 341 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days
Surface features: Road building, petroleum construction activities, and cattle and sheep grazing have disturbed the vegetation and surface soil in many areas of this map unit. These activities have exposed highly erodible soil materials and increased the rate of erosion. Recently eroded soil materials have accumulated in drainageways. Erosion may be more noticeable on south-facing slopes than on north-facing slopes.

Map Unit Composition

Delgado sandy loam, eroded—85 percent
Minor components—15 percent

Major Component Description

Delgado sandy loam, eroded

Geomorphic setting: Hillslopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.6 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Somewhat excessively drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XG009CA, Shallow Loamy 5-8” p.z.

Typical profile
A1—0 to 2 inches; sandy loam
A2—2 to 5 inches; sandy loam
C—5 to 15 inches; sandy loam
R—15 to 20 inches; bedrock

Minor Components

Delgado sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 15 to 20 percent
Geomorphic setting: Hillslopes

Delgado gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Hillslopes

Kettleman clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Hillslopes

Mercey loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Summits on hillslopes

Use and Management

Major uses: Oil fields and livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

621—Delgado sandy loam, 15 to 30 percent slopes, eroded

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Coalinga in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 800 to 1,245 feet (244 to 381 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Delgado sandy loam, eroded—85 percent
Minor components—15 percent

Major Component Description

Delgado sandy loam, eroded

Geomorphic setting: Hillslopes (fig. 15)

Figure 15.—An area of Delgado sandy loam, 15 to 30 percent slopes, eroded, where water erosion has exposed bedrock.

Parent material: Material weathered from marine sandstone
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.0 inch (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Somewhat excessively drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XG009CA, Shallow Loamy 5-8” p.z.

Typical profile
A1—0 to 2 inches; sandy loam
A2—2 to 6 inches; sandy loam
C—6 to 10 inches; sandy loam
R—10 to 14 inches; bedrock

Minor Components

Delgado sandy loam, strongly sloping, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 10 to 15 percent
Geomorphic setting: Hillslopes

Delgado gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Kettleman clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Mercey loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Summits on hillslopes

Use and Management

Major uses: Oil fields and livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

640—Kettleman-Delgado-Mercey association, 5 to 15 percent slopes, eroded

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Coalinga in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 515 to 1,315 feet (158 to 402 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days
Surface features: Road building, petroleum construction activities, and cattle and sheep grazing have disturbed the vegetation and surface soil in many areas of this map unit. These activities have exposed highly erodible soil materials and increased the rate of erosion. Recently eroded soil materials have accumulated in drainageways. Erosion may be more noticeable on south-facing slopes than on north-facing slopes.

Map Unit Composition

Kettleman clay loam, eroded—35 percent

Delgado sandy loam, eroded—30 percent
Mercey loam, eroded—20 percent
Minor components—15 percent

Major Component Description

Kettleman clay loam, eroded

Geomorphic setting:
- Backslopes on hillslopes
- Footslopes on hillslopes
- Toeslopes on hillslopes

Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: Medium
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.9 inches (low)

Hydrologic properties
- *Present flooding:* None
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* Not assigned
- *Land capability (nonirrigated):* 7e
- *Rangeland ecological site:* R015XG008CA, Loamy 5-8" p.z.

Typical profile
- A—0 to 8 inches; clay loam
- Bw—8 to 20 inches; clay loam
- Bk—20 to 27 inches; clay loam
- Cr—27 to 60 inches; soft or weathered bedrock

Delgado sandy loam, eroded

Geomorphic setting:
- Shoulders on hillslopes
- Summits on hillslopes

Parent material: Material weathered from marine sandstone
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.6 inches (very low)

Hydrologic properties
- *Present flooding:* None
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Somewhat excessively drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XG009CA, Shallow Loamy 5-8” p.z.

Typical profile
A1—0 to 2 inches; sandy loam
A2—2 to 5 inches; sandy loam
C—5 to 15 inches; sandy loam
R—15 to 20 inches; bedrock

Mercey loam, eroded

Geomorphic setting:
Backslopes on hillslopes
Footslopes on hillslopes
Toeslopes on hillslopes
Parent material: Material weathered from marine shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.3 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
A—0 to 3 inches; loam
Bw—3 to 6 inches; loam
Btk—6 to 14 inches; loam
Bk—14 to 21 inches; silt loam
Cr—21 to 30 inches; soft or weathered bedrock

Minor Components

Guijarral sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 25 percent
Geomorphic setting: Summits on hillslopes

Delgado gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Hillslopes

Delgado gravelly sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Hillslopes

Kettleman clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 25 percent
Geomorphic setting: Hillslopes

Use and Management

Major uses: Oil fields and livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

641—Mercey-Delgado-Kettleman association, 5 to 15 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Coalinga in the California Coast Ranges (fig. 16)
MLRA: 15
Geomorphic setting: Hills
Elevation: 610 to 2,115 feet (186 to 646 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Mercey loam—35 percent
Delgado sandy loam—30 percent
Kettleman clay loam—20 percent
Minor components—15 percent

Major Component Description

Mercey loam

Geomorphic setting:
  Backslopes on hillslopes
  Footslopes on hillslopes
  Toeslopes on hillslopes
Parent material: Material weathered from marine shale
Typical vegetation: Annual grasses, forbs, and shrubs

Figure 16.—An area of Mercey-Delgado-Kettleman association, 5 to 15 percent slopes, in the foreground. Coalinga and the Joaquin Ridge are in the background.

Slope: 5 to 15 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.8 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
  A—0 to 6 inches; loam
  Bw—6 to 9 inches; loam
  Btk—9 to 14 inches; loam
  Bk—14 to 24 inches; silt loam
  Cr—24 to 30 inches; soft or weathered bedrock

Delgado sandy loam

Geomorphic setting:
  Summits on hillslopes
  Shoulders on hillslopes

Parent material: Material weathered from marine sandstone
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.0 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Somewhat excessively drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG009CA, Shallow Loamy 5-8” p.z.

Typical profile
  A1—0 to 4 inches; sandy loam
  A2—4 to 8 inches; sandy loam
  C—8 to 18 inches; sandy loam
  R—18 to 22 inches; bedrock

Kettleman clay loam

Geomorphic setting:
  Backslopes on hillslopes
  Footslopes on hillslopes
  Toeslopes on hillslopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: Medium
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.7 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
  A—0 to 8 inches; clay loam
  Bw—8 to 25 inches; clay loam
  Bk—25 to 32 inches; clay loam

Cr—32 to 60 inches; soft or weathered bedrock

Minor Components

Delgado sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Hillslopes

Delgado gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 25 percent
Geomorphic setting: Summits on hillslopes

Guijarral sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Kettleman clay loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 25 percent
Geomorphic setting: Hillslopes

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

642—Mercey-Delgado-Kettleman association, 15 to 30 percent slopes, eroded

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Coalinga in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 635 to 1,600 feet (195 to 488 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days
Surface features: Road building, petroleum construction activities, and cattle and sheep grazing have disturbed the vegetation and surface soil in many areas of this

map unit. These activities have exposed highly erodible soil materials and increased the rate of erosion. Recently eroded soil materials have accumulated in drainageways. Erosion may be more noticeable on south-facing slopes than on north-facing slopes.

Map Unit Composition

Mercey loam, eroded—35 percent
Delgado sandy loam, eroded—30 percent
Kettleman clay loam, eroded—20 percent
Minor components—15 percent

Major Component Description

Mercey loam, eroded

Geomorphic setting:
  Backslopes on hillslopes
  Footslopes on hillslopes
  Toeslopes on hillslopes
Parent material: Material weathered from marine shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.3 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
  A—0 to 3 inches; loam
  Bw—3 to 6 inches; loam
  Btk—6 to 14 inches; loam
  Bk—14 to 21 inches; silt loam
  Cr—21 to 30 inches; soft or weathered bedrock

Delgado sandy loam, eroded

Geomorphic setting:
  Summits on hillslopes
  Shoulders on hillslopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock

Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.0 inch (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Somewhat excessively drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG009CA, Shallow Loamy 5-8” p.z.

Typical profile
  A1—0 to 2 inches; sandy loam
  A2—2 to 6 inches; sandy loam
  C—6 to 10 inches; sandy loam
  R—10 to 14 inches; bedrock

Kettleman clay loam, eroded

Geomorphic setting:
  Backslopes on hillslopes
  Footslopes on hillslopes
  Toeslopes on hillslopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.9 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
  A—0 to 8 inches; clay loam
  Bw—8 to 20 inches; clay loam
  Bk—20 to 27 inches; clay loam
  Cr—27 to 60 inches; soft or weathered bedrock

Minor Components

Delgado loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent

Geomorphic setting: Hillslopes

Delgado gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Kettleman loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 40 percent
Geomorphic setting: Hillslopes

Mercey loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 10 to 15 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 40 percent
Geomorphic setting: Summits on hillslopes

Use and Management

Major uses: Oil fields and livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

643—Mercey-Delgado-Kettleman association, 15 to 30 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Coalinga in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 675 to 2,000 feet (207 to 610 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Mercey loam—35 percent
Delgado sandy loam—30 percent
Kettleman clay loam—20 percent
Minor components—15 percent

Major Component Description

Mercey loam

Geomorphic setting:
- Backslopes on hillslopes
- Footslopes on hillslopes
- Toeslopes on hillslopes

Parent material: Material weathered from marine shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.8 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
  A—0 to 6 inches; loam
  Bw—6 to 9 inches; loam
  Btk—9 to 14 inches; loam
  Bk—14 to 24 inches; silt loam
  Cr—24 to 30 inches; soft or weathered bedrock

Delgado sandy loam

Geomorphic setting:
  Summits on hillslopes
  Shoulders on hillslopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.4 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Somewhat excessively drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG009CA, Shallow Loamy 5-8” p.z.

Typical profile
  A1—0 to 2 inches; sandy loam
  A2—2 to 6 inches; sandy loam
  C—6 to 13 inches; sandy loam

R—13 to 17 inches; bedrock

Kettleman clay loam

Geomorphic setting:
Toeslopes on hillslopes
Footslopes on hillslopes
Backslopes on hillslopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.7 inches (moderate)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
A—0 to 8 inches; clay loam
Bw—8 to 25 inches; clay loam
Bk—25 to 32 inches; clay loam
Cr—32 to 60 inches; soft or weathered bedrock

Minor Components

Delgado sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Delgado gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 40 percent
Geomorphic setting: Summits on hillslopes

Kettleman clay loam, steep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 40 percent
Geomorphic setting: Hillslopes

Mercey loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 10 to 15 percent
Geomorphic setting: Hillslopes

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

644—Mercey-Kettleman-Delgado complex, 30 to 50 percent slopes, eroded

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Coalinga in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 820 to 1,650 feet (250 to 503 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days
Surface features: Road building, petroleum construction activities, and cattle and sheep grazing have disturbed the vegetation and surface soil in many areas of this map unit. These activities have exposed highly erodible soil materials and increased the rate of erosion. Recently eroded soil materials have accumulated in drainageways. Erosion may be more noticeable on south-facing slopes than on north-facing slopes.

Map Unit Composition

Mercey loam, eroded—35 percent
Kettleman clay loam, eroded—30 percent
Delgado sandy loam, eroded—20 percent
Minor components—15 percent

Major Component Description

Mercey loam, eroded

Geomorphic setting: Hillslopes
Parent material: Material weathered from marine shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.3 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None

Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
A—0 to 3 inches; loam
Bw—3 to 6 inches; loam
Btk—6 to 14 inches; loam
Bk—14 to 21 inches; silt loam
Cr—21 to 30 inches; soft or weathered bedrock

Kettleman clay loam, eroded

Geomorphic setting: Hillslopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.9 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
A—0 to 8 inches; clay loam
Bw—8 to 20 inches; clay loam
Bk—20 to 27 inches; clay loam
Cr—27 to 60 inches; soft or weathered bedrock

Delgado sandy loam, eroded

Geomorphic setting: Hillslopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.0 inch (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Somewhat excessively drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XG009CA, Shallow Loamy 5-8” p.z.

Typical profile
A1—0 to 2 inches; sandy loam
A2—2 to 6 inches; sandy loam
C—6 to 10 inches; sandy loam
R—10 to 14 inches; bedrock

Minor Components

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 20 to 30 percent
Geomorphic setting: Erosional fan remnants

Delgado gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Delgado sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Kettleman clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 60 percent
Geomorphic setting: Hillslopes

Mercey loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 20 to 30 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 20 to 60 percent
Geomorphic setting: Summits on hillslopes

Use and Management

Major uses: Oil fields and livestock grazing

Management: See the section “Use and Management of the Soils” for a description of management considerations.

645—Delgado-Mercey-Kettleman association, 30 to 50 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Coalinga in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 600 to 1,895 feet (183 to 579 meters)
Mean annual precipitation: 6 to 8 inches (152 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Delgado sandy loam—35 percent
Mercey loam—30 percent
Kettleman clay loam—20 percent
Minor components—15 percent

Major Component Description

Delgado sandy loam

Geomorphic setting:
  Shoulders on hillslopes
  Summits on hillslopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.4 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Somewhat excessively drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG009CA, Shallow Loamy 5-8” p.z.

Typical profile
  A1—0 to 2 inches; sandy loam
  A2—2 to 6 inches; sandy loam
  C—6 to 13 inches; sandy loam
  R—13 to 17 inches; bedrock

Mercey loam

Geomorphic setting:
  Backslopes on hillslopes
  Toeslopes on hillslopes
  Footslopes on hillslopes
Parent material: Material weathered from marine shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.8 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
  A—0 to 6 inches; loam
  Bw—6 to 9 inches; loam
  Btk—9 to 14 inches; loam
  Bk—14 to 24 inches; silt loam
  Cr—24 to 30 inches; soft or weathered bedrock

Kettleman clay loam

Geomorphic setting:
  Footslopes on hillslopes
  Toeslopes on hillslopes
  Backslopes on hillslopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.7 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned

Land capability (nonirrigated): 7e
Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
A—0 to 8 inches; clay loam
Bw—8 to 25 inches; clay loam
Bk—25 to 32 inches; clay loam
Cr—32 to 60 inches; soft or weathered bedrock

Minor Components

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent
Geomorphic setting: Erosional fan remnants

Delgado sandy loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 20 to 30 percent
Geomorphic setting: Hillslopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Kettleman clay loam, deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Mercey loam, deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Mercey loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 20 to 30 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 20 to 60 percent
Geomorphic setting: Summits on hillslopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

670—Badland-Kettleman-Mercey association, 15 to 50 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills and badlands
Elevation: 600 to 1,240 feet (183 to 378 meters)
Mean annual precipitation: 7 to 8 inches (177 to 203 millimeters)
Mean annual air temperature: 63 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Badland—35 percent
Kettleman clay loam—25 percent
Mercey loam—25 percent
Minor components—15 percent

Major Component Description

Badland

Geomorphic setting:
  Shoulders on escarpments
  Backslopes on escarpments
  Summits on escarpments
Kind of material: Mass-movement deposits derived from sandstone and shale
Typical vegetation: Less than 10 percent cover of grasses and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Slowest permeability class: Not determined
Salinity: Not determined
Sodicity: Not determined
Available water capacity: Not determined

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Not determined

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Kettleman clay loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 15 to 50 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic

Available water capacity: About 5.7 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
  A—0 to 8 inches; clay loam
  Bw—8 to 25 inches; clay loam
  Bk—25 to 32 inches; clay loam
  Cr—32 to 60 inches; soft or weathered bedrock

Mercey loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from marine shale
Typical vegetation: Annual grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.8 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XG008CA, Loamy 5-8" p.z.

Typical profile
  A—0 to 6 inches; loam
  Bw—6 to 9 inches; loam
  Btk—9 to 14 inches; loam
  Bk—14 to 24 inches; silt loam
  Cr—24 to 30 inches; soft or weathered bedrock

Minor Components

Delgado sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Hillslopes

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent

Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Guijarral sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Kettleman clay loam, rolling, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Summits of side slopes on hillslopes

Polvadero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Summits on hillslopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 15 percent
Geomorphic setting: Hillslopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

680—Arburua-Morenogulch association, 15 to 80 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near the Panoche Hills in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 550 to 2,400 feet (168 to 732 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 230 to 270 days

Map Unit Composition

Arburua loam—45 percent

Morenogulch parachannery silty clay—40 percent
Minor components—15 percent

Major Component Description

Arburua loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 15 to 50 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
  A—0 to 10 inches; loam
  Bk—10 to 27 inches; loam
  Cr—27 to 32 inches; soft or weathered bedrock
  R—32 to 40 inches; bedrock

Morenogulch parachannery silty clay

Geomorphic setting: Mountain slopes
Parent material: Mass-movement deposits derived from marine mudstone and/or diatomaceous acid shale, high in content of selenium
Typical vegetation: Sparse cover of buckwheat (fig.17) with some annual grasses
Slope: 50 to 80 percent
Surface runoff class: Very high
Percentage of surface covered by angular channers: 10 to 30 percent
Depth to restrictive feature (paralithic bedrock): 6 to 15 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Somewhat excessively drained

Interpretive groups
  Land capability (irrigated): Not assigned

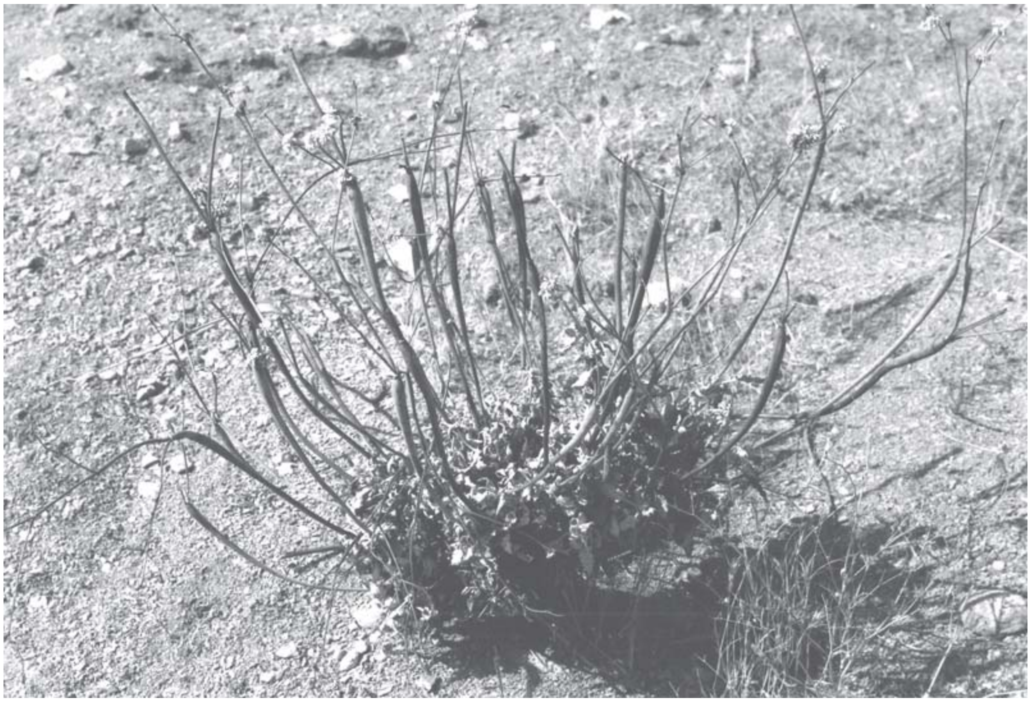


Figure 17.—Protruding buckwheat on Morenogulch parachannery silty clay. Buckwheat is one of the few plants that can grow on this soil, which is very strongly acid and has a very low available water capacity.

Land capability (nonirrigated): 8
Rangeland ecological site: R015XF041CA, Shallow Acidic 9-13" p.z.

Typical profile
A1—0 to 3 inches; parachannery silty clay
A2—3 to 6 inches; very parachannery silty clay
Cy—6 to 10 inches; extremely parachannery silty clay
Cr—10 to 33 inches; soft or weathered bedrock

Minor Components

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 50 percent
Geomorphic setting: Erosional fan remnants

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Badland

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 80 percent
Geomorphic setting: Escarpments

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Morenogulch parachannery silty clay, hilly, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 50 percent
Geomorphic setting: Summits of side slopes on mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 80 percent
Geomorphic setting: Summits on mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

704—Franciscan gravelly sandy loam, 30 to 50 percent slopes

Map Unit Setting

General location: Diablo Range, near the Dark Hole in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 2,995 to 4,280 feet (914 to 1,305 meters)
Mean annual precipitation: 13 to 17 inches (330 to 432 millimeters)
Mean annual air temperature: 57 to 60 degrees F (14 to 16 degrees C)
Frost-free period: 170 to 200 days

Map Unit Composition

Franciscan gravelly sandy loam—85 percent
Minor components—15 percent

Major Component Description

Franciscan gravelly sandy loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Trees, grasses, and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 20 to 40 inches

Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.8 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: Not assigned

Typical profile
  A—0 to 5 inches; gravelly sandy loam
  ABt—5 to 9 inches; gravelly loam
  Bt1—9 to 15 inches; gravelly loam
  Bt2—15 to 26 inches; cobbly loam
  R—26 to 31 inches; bedrock

Minor Components

Franciscan gravelly sandy loam, shallow, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Franciscan gravelly sandy loam, very steep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Gaviota sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

705—Roacha silty clay loam, 30 to 50 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,915 to 3,765 feet (585 to 1,149 meters)
Mean annual precipitation: 13 to 15 inches (330 to 381 millimeters)
Mean annual air temperature: 53 to 57 degrees F (12 to 14 degrees C)
Frost-free period: 200 to 220 days

Map Unit Composition

Roacha silty clay loam—85 percent
Minor components—15 percent

Major Component Description

Roacha silty clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from marine shale
Typical vegetation: Trees, shrubs, grasses, and forbs
Slope: 30 to 50 percent, west to northeast aspects
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.9 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: Not assigned

Typical profile
  A—0 to 5 inches; silty clay loam

Bt1—5 to 10 inches; silty clay
Bt2—10 to 25 inches; clay
Bt3—25 to 36 inches; gravelly clay
Cr—36 to 40 inches; soft or weathered bedrock

Minor Components

Currymountain loam and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 30 to 50 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Climara clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Footslopes on mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Anela very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 30 percent
Geomorphic setting: Flood plains

Rock outcrop

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 50 percent
Geomorphic setting:
  Summits on mountain slopes
  Shoulders on mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Vernado sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 40 to 50 percent
Geomorphic setting:
  Escarpments
  Mountain slopes

Vernalis loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 9 percent
Geomorphic setting: Flood plains

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

706—Sagaser loam, 50 to 75 percent slopes

Map Unit Setting

General location: Diablo Range, near the Dark Hole in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,370 to 3,860 feet (418 to 1,177 meters)
Mean annual precipitation: 10 to 15 inches (254 to 381 millimeters)
Mean annual air temperature: 54 to 58 degrees F (12 to 14 degrees C)
Frost-free period: 190 to 240 days

Map Unit Composition

Sagaser loam—85 percent
Minor components—15 percent

Major Component Description

Sagaser loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Trees, shrubs, and grasses
Slope: 50 to 75 percent, west to northeast aspects
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.3 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: Not assigned

Typical profile
  A—0 to 7 inches; loam
  Bt1—7 to 17 inches; clay loam
  Bt2—17 to 29 inches; clay loam
  Bt3—29 to 50 inches; clay loam
  Cr—50 to 60 inches; soft or weathered bedrock

Minor Components

Currymountain loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 50 to 75 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Roacha silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent

Slope: 50 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 65 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 75 percent
Geomorphic setting:
  Mountain slopes
  Slides

Anela very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 15 percent
Geomorphic setting: Flood plains

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Vernalis loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 9 percent
Geomorphic setting: Flood plains

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

709—Sagaser-Gaviota-Borreguero association, 50 to 75 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,400 to 3,300 feet (427 to 1,006 meters)
Mean annual precipitation: 10 to 15 inches (254 to 381 millimeters)
Mean annual air temperature: 54 to 62 degrees F (12 to 17 degrees C)
Frost-free period: 200 to 240 days

Map Unit Composition

Sagaser loam—50 percent
Gaviota sandy loam—20 percent
Borreguero sandy loam—15 percent
Minor components—15 percent

Major Component Description

Sagaser loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Trees, shrubs, and grasses
Slope: 50 to 75 percent, west to northeast aspects
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.3 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: Not assigned

Typical profile
  A—0 to 7 inches; loam
  Bt1—7 to 17 inches; clay loam
  Bt2—17 to 29 inches; clay loam
  Bt3—29 to 50 inches; clay loam
  Cr—50 to 60 inches; soft or weathered bedrock

Gaviota sandy loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 50 to 75 percent, northeast to west aspects
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.2 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
  A—0 to 3 inches; sandy loam

C—3 to 10 inches; sandy loam
R—10 to 15 inches; bedrock

Borreguero sandy loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 50 to 65 percent, northeast to west aspects
Surface runoff class: Very high
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: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
A—0 to 2 inches; sandy loam
Bw1—2 to 5 inches; sandy clay loam
Bw2—5 to 11 inches; sandy clay loam
Cr—11 to 17 inches; soft or weathered bedrock

Minor Components

Borreguero very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 50 to 65 percent
Geomorphic setting: Mountain slopes

Gaviota sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 50 to 75 percent
Geomorphic setting:
Toeslopes on mountain slopes
Footslopes on mountain slopes

Currymountain loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 50 to 75 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 75 percent

Geomorphic setting:
Mountain slopes
Slides

Rock outcrop

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 75 percent
Geomorphic setting:
Shoulders on mountain slopes
Summits on mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

710—Monoridge-Exclose-Badland association, 30 to 65 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Monocline Ridge in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains and badlands
Elevation: 715 to 3,120 feet (219 to 951 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 59 to 62 degrees F (15 to 17 degrees C)
Frost-free period: 210 to 260 days

Map Unit Composition

Monoridge fine sand—45 percent
Exclose clay loam—20 percent
Badland—15 percent
Minor components—20 percent

Major Component Description

Monoridge fine sand

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 40 to 65 percent, southwest to northeast aspects
Surface runoff class: Low
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Rapid above the bedrock
Salinity: Not saline

Sodicity: Not sodic
Available water capacity: About 1.6 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Somewhat excessively drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XF017CA, Sandy Upland 9-13" p.z.

Typical profile
  A—0 to 7 inches; fine sand
  Cy—7 to 25 inches; sand
  Cr—25 to 29 inches; soft or weathered bedrock

Exclose clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 30 to 65 percent, northeast to southwest aspects
Surface runoff class: Very high
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.6 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
  A1—0 to 5 inches; clay loam
  A2—5 to 12 inches; sandy clay loam
  AB—12 to 19 inches; sandy clay loam
  Bw—19 to 29 inches; sandy clay loam
  Bk—29 to 84 inches; sandy clay loam

Badland

Geomorphic setting: Escarpments
Kind of material: Mass-movement deposits derived from sandstone and shale
Typical vegetation: Less than 10 percent cover of grasses and shrubs
Slope: 30 to 65 percent, northeast to southwest aspects
Surface runoff class: Very high
Slowest permeability class: Not determined
Salinity: Not determined
Sodicity: Not determined

Available water capacity: Not determined

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Not determined

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Minor Components

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 20 to 30 percent
Geomorphic setting: Erosional fan remnants

Monoridge fine sand, shallow, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 40 to 65 percent
Geomorphic setting:
  Escarpments
  Summits on mountain slopes

Monvero sand and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 20 to 30 percent
Geomorphic setting: Dune fields on summits on mountain slopes

Exclose clay loam, shallow, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Exclose clay loam, noncalcareous, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Monoridge loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 40 to 65 percent
Geomorphic setting:
  Escarpments
  Summits on mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting:
  Escarpments
  Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

711—Currymountain-Wisflat-Borreguero association, 30 to 75 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 895 to 3,520 feet (274 to 1,073 meters)
Mean annual precipitation: 9 to 14 inches (229 to 356 millimeters)
Mean annual air temperature: 55 to 62 degrees F (13 to 17 degrees C)
Frost-free period: 200 to 240 days

Map Unit Composition

Currymountain loam—45 percent
Wisflat sandy loam—20 percent
Borreguero sandy loam—20 percent
Minor components—15 percent

Major Component Description

Currymountain loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Grasses, forbs, shrubs, and trees
Slope: 30 to 50 percent, west to northeast aspects
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.8 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: Not assigned

Typical profile
A—0 to 3 inches; loam
Bt—3 to 13 inches; clay loam
C—13 to 24 inches; clay loam
Cr—24 to 30 inches; soft or weathered bedrock

Wisflat sandy loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 40 to 75 percent, southwest to east aspects
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Borreguero sandy loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent, west to northeast aspects
Surface runoff class: Very high
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: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e

Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
A—0 to 2 inches; sandy loam
Bw1—2 to 5 inches; sandy clay loam
Bw2—5 to 11 inches; sandy clay loam
Cr—11 to 17 inches; soft or weathered bedrock

Minor Components

Borreguero very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 50 percent
Geomorphic setting:
Mountain slopes
Slides

Wisflat sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 40 to 75 percent
Geomorphic setting:
Toeslopes on mountain slopes
Footslopes on mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 1 percent
Slope: 40 to 75 percent
Geomorphic setting:
Shoulders on mountain slopes
Summits on mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

712—Altamont-Roacha-Borreguero association, 15 to 50 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,200 to 4,480 feet (366 to 1,366 meters)

Mean annual precipitation: 10 to 20 inches (254 to 508 millimeters)
Mean annual air temperature: 53 to 62 degrees F (12 to 17 degrees C)
Frost-free period: 180 to 240 days

Map Unit Composition

Altamont clay—40 percent
Roacha silty clay loam—25 percent
Borreguero sandy loam—20 percent
Minor components—15 percent

Major Component Description

Altamont clay

Geomorphic setting:
  Mountain slopes
  Slides
Parent material: Mass-movement deposits derived from marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 15 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.8 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE001CA, Clayey Hills 10-14” p.z.

Typical profile
  A—0 to 9 inches; clay
  Bss—9 to 22 inches; clay
  Bkss—22 to 31 inches; clay
  Bk—31 to 54 inches; clay loam
  Cr—54 to 60 inches; soft or weathered bedrock

Roacha silty clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from marine shale
Typical vegetation: Grasses, forbs, shrubs, and trees
Slope: 30 to 50 percent, west to northeast aspects
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.9 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: Not assigned

Typical profile
A—0 to 5 inches; silty clay loam
Bt1—5 to 10 inches; silty clay
Bt2—10 to 25 inches; clay
Bt3—25 to 36 inches; gravelly clay
Cr—36 to 40 inches; soft or weathered bedrock

Borreguero sandy loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 50 percent, northeast to west aspects
Surface runoff class: Very high
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: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
A—0 to 2 inches; sandy loam
Bw1—2 to 5 inches; sandy clay loam
Bw2—5 to 11 inches; sandy clay loam
Cr—11 to 17 inches; soft or weathered bedrock

Minor Components

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent

Geomorphic setting: Mountain slopes

Gaviota sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting:
  Mountain slopes
  Slides

Climara clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting:
  Footslopes on mountain slopes
  Slides

Currymountain loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

713—Currymountain-Rock outcrop-Quinto association, 50 to 75 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 2,040 to 4,540 feet (622 to 1,384 meters)
Mean annual precipitation: 10 to 20 inches (254 to 508 millimeters)
Mean annual air temperature: 53 to 58 degrees F (12 to 14 degrees C)
Frost-free period: 180 to 220 days

Map Unit Composition

Currymountain loam—45 percent
Rock outcrop—20 percent
Quinto gravelly sandy loam—20 percent
Minor components—15 percent

Major Component Description

Currymountain loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Grasses, forbs, shrubs, and trees
Slope: 50 to 75 percent, west to northeast aspects
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.0 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: Not assigned

Typical profile
  A—0 to 2 inches; loam
  Bt1—2 to 5 inches; loam
  Bt2—5 to 13 inches; very cobbly loam
  Bt3—13 to 21 inches; very cobbly loam
  Cr—21 to 60 inches; soft or weathered bedrock

Rock outcrop

Geomorphic setting:
  Shoulders on mountain slopes
  Summits on mountain slopes
Kind of rock: Sandstone and/or conglomerate
Slope: 50 to 75 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Quinto gravelly sandy loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Gravelly deposits derived from calcareous conglomerate and/or marine deposits derived from calcareous sandstone
Typical vegetation: Grasses, forbs, and shrubs

Slope: 50 to 75 percent, northeast to west aspects
Surface runoff class: Very high
Depth to restrictive feature: 10 to 18 inches to paralithic bedrock; 12 to 20 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.0 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Somewhat excessively drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
A—0 to 6 inches; gravelly sandy loam
Bt—6 to 11 inches; gravelly sandy clay loam
Btk—11 to 17 inches; gravelly sandy clay loam
Cr—17 to 19 inches; soft or weathered bedrock
R—19 to 20 inches; bedrock

Minor Components

Millsholm clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Roacha silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 50 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 50 to 65 percent
Geomorphic setting: Mountain slopes

Gaviota sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing

Management: See the section “Use and Management of the Soils” for a description of management considerations.

714—Gaviota-Borreguero-Rock outcrop complex, 40 to 75 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,075 to 4,340 feet (329 to 1,323 meters)
Mean annual precipitation: 10 to 16 inches (254 to 406 millimeters)
Mean annual air temperature: 57 to 62 degrees F (14 to 17 degrees C)
Frost-free period: 180 to 240 days

Map Unit Composition

Gaviota sandy loam—45 percent
Borreguero sandy loam—25 percent
Rock outcrop—15 percent
Minor components—15 percent

Major Component Description

Gaviota sandy loam

Geomorphic setting: Escarpments
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 50 to 75 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 10 to 20 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.2 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
  A—0 to 3 inches; sandy loam
  C—3 to 10 inches; sandy loam
  R—10 to 15 inches; bedrock

Borreguero sandy loam

Geomorphic setting: Escarpments
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs

Slope: 40 to 65 percent
Surface runoff class: Very high
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: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
  A—0 to 2 inches; sandy loam
  Bw1—2 to 5 inches; sandy clay loam
  Bw2—5 to 11 inches; sandy clay loam
  Cr—11 to 17 inches; soft or weathered bedrock

Rock outcrop

Geomorphic setting: Escarpments
Kind of rock: Sandstone
Slope: 50 to 75 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Minor Components

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 40 to 65 percent
Geomorphic setting: Mountain slopes

Domengine loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 40 to 65 percent
Geomorphic setting: Mountain slopes

Sagaser loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 40 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Gaviota sandy loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Gewter clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 20 to 30 percent
Geomorphic setting: Hillslopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 40 to 75 percent
Geomorphic setting: Escarpments

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

715—Belgarra-Wisflat association, 8 to 50 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Monocline Ridge in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,000 to 2,555 feet (305 to 780 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 60 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 230 to 270 days

Map Unit Composition

Belgarra clay—55 percent
Wisflat sandy loam—30 percent
Minor components—15 percent

Major Component Description

Belgarra clay

Geomorphic setting: Erosional fan remnants
Parent material: Mass-movement deposits derived from marine shale
Typical vegetation: Grasses and forbs
Slope: 8 to 30 percent
Surface runoff class: Very high
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Not sodic
Available water capacity: About 8.9 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 4e-5

Rangeland ecological site: R015XF001CA, Clayey Hills 10-14” p.z.

Typical profile
A1—0 to 4 inches; clay
A2—4 to 10 inches; clay
By1—10 to 21 inches; clay
By2—21 to 32 inches; clay
By3—32 to 45 inches; clay
By4—45 to 72 inches; clay

Wisflat sandy loam

Geomorphic setting:
Backslopes on escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Minor Components

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 8 to 50 percent
Geomorphic setting: Escarpments

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 8 to 50 percent
Geomorphic setting: Mountain slopes

Monoridge fine sand and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent

Geomorphic setting:
Escarpments
Summits on mountain slopes

Monvero sand and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Dune fields on summits on mountain slopes

Morenogulch parachannery silty clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 60 percent
Geomorphic setting: Summits on mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 20 to 50 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 8 to 50 percent
Geomorphic setting:
Mountain slopes
Slides

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 50 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

717—Belgarra-Arburua-Morenogulch association, 15 to 65 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 750 to 2,460 feet (229 to 750 meters)
Mean annual precipitation: 9 to 12 inches (229 to 305 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 230 to 270 days

Map Unit Composition

Belgarra clay—35 percent
Arburua loam—30 percent
Morenogulch parachannery silty clay—15 percent
Minor components—20 percent

Major Component Description

Belgarra clay

Geomorphic setting: Erosional fan remnants
Parent material: Mass-movement deposits derived from marine shale
Typical vegetation: Grasses and forbs
Slope: 15 to 30 percent
Surface runoff class: Very high
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Not sodic
Available water capacity: About 8.9 inches (high)

Hydrologic properties
- *Present flooding:* None
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* Not assigned
- *Land capability (nonirrigated):* 4e-5
- *Rangeland ecological site:* R015XF001CA, Clayey Hills 10-14” p.z.

Typical profile
- A1—0 to 4 inches; clay
- A2—4 to 10 inches; clay
- By1—10 to 21 inches; clay
- By2—21 to 32 inches; clay
- By3—32 to 45 inches; clay
- By4—45 to 72 inches; clay

Arburua loam

Geomorphic setting:
- Escarpments
- Mountain slopes

Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
- *Present flooding:* None
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* Not assigned
- *Land capability (nonirrigated):* 6e
- *Rangeland ecological site:* R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Bk—10 to 27 inches; loam
Cr—27 to 32 inches; soft or weathered bedrock
R—32 to 40 inches; bedrock

Morenogulch parachannery silty clay

Geomorphic setting: Mountain slopes
Parent material: Mass-movement deposits derived from marine mudstone and/or diatomaceous acid shale, high in content of selenium
Typical vegetation: Sparse cover of buckwheat with some annual grasses
Slope: 30 to 65 percent
Surface runoff class: Very high
Percentage of surface covered by angular channers: 10 to 30 percent
Depth to restrictive feature (paralithic bedrock): 6 to 15 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Somewhat excessively drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: R015XF041CA, Shallow Acidic 9-13" p.z.

Typical profile
A1—0 to 3 inches; parachannery silty clay
A2—3 to 6 inches; very parachannery silty clay
Cy—6 to 10 inches; extremely parachannery silty clay
Cr—10 to 33 inches; soft or weathered bedrock

Minor Components

Belgarra clay, hilly, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Exclose clay and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 4 percent

Slope: 5 to 15 percent
Geomorphic setting:
  Mountain slopes
  Slides

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

718—Nodhill-Wisflat-Rock outcrop complex, 15 to 50 percent slopes

Map Unit Setting

General location: Diablo Range, near the Panoche Hills in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,315 to 2,575 feet (402 to 786 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 60 to 62 degrees F (16 to 17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Nodhill loam—35 percent
Wisflat sandy loam—35 percent
Rock outcrop—15 percent
Minor components—15 percent

Major Component Description

Nodhill loam

Geomorphic setting: Erosional fan remnants
Parent material: Deposits derived from calcareous sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.0 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XF031CA, Loamy Upland 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Btk—10 to 17 inches; loam
Bk—17 to 28 inches; gravelly loam
2Cr—28 to 60 inches; weathered bedrock

Wisflat sandy loam

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Rock outcrop

Geomorphic setting: Mountain slopes
Kind of rock: Sandstone
Slope: 15 to 50 percent
Surface runoff class: Very high

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Nodhill loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 30 percent
Geomorphic setting: Mountain slopes

Cyvar loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 5 to 20 percent
Geomorphic setting: Summits on erosional fan remnants

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

719—Nodhill-Arburua-Wisflat association, 15 to 65 percent slopes

Map Unit Setting

General location: Diablo Range, near the Panoche Hills in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,180 to 2,575 feet (360 to 786 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 60 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 230 to 260 days

Map Unit Composition

Nodhill loam—40 percent
Arburua loam—25 percent
Wisflat sandy loam—15 percent
Minor components—20 percent

Major Component Description

Nodhill loam

Geomorphic setting: Erosional fan remnants
Parent material: Deposits derived from calcareous sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: High

Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.0 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XF031CA, Loamy Upland 9-13" p.z.

Typical profile
  A—0 to 10 inches; loam
  Btk—10 to 17 inches; loam
  Bk—17 to 28 inches; gravelly loam
  2Cr—28 to 60 inches; weathered bedrock

Arburua loam

Geomorphic setting:
  Escarpments
  Mountain slopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
  A—0 to 10 inches; loam
  Bk—10 to 27 inches; loam
  Cr—27 to 32 inches; soft or weathered bedrock
  R—32 to 40 inches; bedrock

Wisflat sandy loam

Geomorphic setting:
  Escarpments
  Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
  A—0 to 6 inches; sandy loam
  C—6 to 14 inches; sandy loam
  Cr—14 to 16 inches; soft or weathered bedrock
  R—16 to 20 inches; bedrock

Minor Components

Nodhill loam, steep, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 50 percent
Geomorphic setting: Erosional fan remnants

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 15 to 30 percent
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 50 percent
Geomorphic setting:
  Summits on escarpments
  Summits on hillslopes

Cyvar loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Summits on erosional fan remnants

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

720—Exclose-Wisflat-Morenogulch association, 30 to 65 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 960 to 3,125 feet (293 to 954 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 59 to 63 degrees F (15 to 17 degrees C)
Frost-free period: 200 to 270 days

Map Unit Composition

Exclose clay loam—40 percent
Wisflat sandy loam—30 percent
Morenogulch parachannery silty clay—15 percent
Minor components—15 percent

Major Component Description

Exclose clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 30 to 50 percent
Surface runoff class: Very high
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.6 inches (high)

Hydrologic properties
    Present flooding: None
    Present ponding: None
    Current water table: None within a depth of 6 feet
    Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A1—0 to 5 inches; clay loam
A2—5 to 12 inches; sandy clay loam
AB—12 to 19 inches; sandy clay loam
Bw—19 to 29 inches; sandy clay loam
Bk—29 to 84 inches; sandy clay loam

Wisflat sandy loam

Geomorphic setting:
Backslopes on escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 50 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Morenogulch parachannery silty clay

Geomorphic setting: Mountain slopes
Parent material: Mass-movement deposits derived from marine mudstone and/or diatomaceous acid shale, high in content of selenium
Typical vegetation: Sparse cover of buckwheat with some annual grasses
Slope: 50 to 65 percent
Surface runoff class: Very high
Percentage of surface covered by angular channers: 10 to 30 percent
Depth to restrictive feature (paralithic bedrock): 6 to 15 inches
Slowest permeability class: Slow above the bedrock

Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Somewhat excessively drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: R015XF041CA, Shallow Acidic 9-13" p.z.

Typical profile
A1—0 to 3 inches; parachannery silty clay
A2—3 to 6 inches; very parachannery silty clay
Cy—6 to 10 inches; extremely parachannery silty clay
Cr—10 to 33 inches; soft or weathered bedrock

Minor Components

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 20 to 30 percent
Geomorphic setting: Erosional fan remnants

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

722—Exclose-Wisflat-Rock outcrop association, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range, near the Panoche Hills in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 715 to 2,060 feet (219 to 628 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 59 to 63 degrees F (15 to 17 degrees C)
Frost-free period: 220 to 270 days

Map Unit Composition

Exclose clay loam—40 percent
Wisflat sandy loam—30 percent
Rock outcrop—15 percent
Minor components—15 percent

Major Component Description

Exclose clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 30 to 50 percent
Surface runoff class: Very high
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.6 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
  A1—0 to 5 inches; clay loam
  A2—5 to 12 inches; sandy clay loam
  AB—12 to 19 inches; sandy clay loam
  Bw—19 to 29 inches; sandy clay loam
  Bk—29 to 84 inches; sandy clay loam

Wisflat sandy loam

Geomorphic setting:
  Escarpments
  Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs

Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
  A—0 to 6 inches; sandy loam
  C—6 to 14 inches; sandy loam
  Cr—14 to 16 inches; soft or weathered bedrock
  R—16 to 20 inches; bedrock

Rock outcrop

Geomorphic setting:
  Escarpments
  Mountain slopes
Kind of rock: Sandstone and/or shale; in some instances, high in content of selenium
Slope: 30 to 50 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Minor Components

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 50 percent
Geomorphic setting: Escarpments

Cyvar loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 10 to 15 percent
Geomorphic setting: Summits on erosional fan remnants

Domengine loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Nodhill loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 20 to 30 percent
Geomorphic setting: Erosional fan remnants

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting:
  Mountain slopes
  Slides

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

723—Exclose-Wisflat-Grazer association, 15 to 65 percent slopes

Map Unit Setting

General location: Diablo Range, near the Panoche Hills in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 600 to 2,480 feet (183 to 756 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 59 to 63 degrees F (15 to 17 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Exclose clay loam—40 percent
Wisflat sandy loam—25 percent
Grazer silty clay loam—20 percent
Minor components—15 percent

Major Component Description

Exclose clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 30 to 65 percent
Surface runoff class: Very high
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.6 inches (high)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A1—0 to 5 inches; clay loam
A2—5 to 12 inches; sandy clay loam
AB—12 to 19 inches; sandy clay loam
Bw—19 to 29 inches; sandy clay loam
Bk—29 to 84 inches; sandy clay loam

Wisflat sandy loam

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Grazer silty clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 15 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches

Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.6 inches (high)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
A—0 to 4 inches; silty clay loam
BA—4 to 11 inches; silty clay
Btk—11 to 34 inches; silty clay
BC—34 to 47 inches; silty clay
Cr—47 to 80 inches; soft or weathered bedrock

Minor Components

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 50 percent
Geomorphic setting: Escarpments

Nodhill loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Erosional fan remnants

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Erosional fan remnants

Domengine loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 60 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

725—Gewter clay, 15 to 30 percent slopes

Map Unit Setting

General location: Diablo Range, near Cantua Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 1,040 to 2,280 feet (317 to 695 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Mean annual air temperature: 60 to 62 degrees F (16 to 17 degrees C)
Frost-free period: 220 to 240 days

Map Unit Composition

Gewter clay—85 percent
Minor components—15 percent

Major Component Description

Gewter clay

Geomorphic setting: Hillslopes
Parent material: Mass-movement deposits derived from marine mudstone and/or diatomaceous acid shale, high in content of selenium
Typical vegetation: Alvord oak (*Quercus x alvordiana*) with grasses, forbs, and shrubs (fig. 18)
Slope: 15 to 30 percent
Surface runoff class: Very high
Percentage of surface covered by angular channers: 2 to 14 percent
Depth to restrictive feature (paralithic bedrock): 20 to 30 inches

Figure 18.—Distinctive vegetation of Alvord oak on Gewter clay, which is high in content of selenium.

Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.4 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE076CA, Acidic Upland 10-16" p.z.

Typical profile
  ABt—0 to 4 inches; clay
  Bt—4 to 13 inches; parachannery clay
  BCt—13 to 23 inches; very parachannery clay
  Cr—23 to 30 inches; soft or weathered bedrock

Minor Components

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 30 percent
Geomorphic setting: Mountain slopes

Gewter clay, shallow, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Gewter clay, deep, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

727—Reliz-Gewter-Rock outcrop association, 25 to 75 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,355 to 3,950 feet (414 to 1,204 meters)
Mean annual precipitation: 12 to 16 inches (305 to 406 millimeters)
Mean annual air temperature: 56 to 58 degrees F (13 to 14 degrees C)
Frost-free period: 190 to 230 days

Map Unit Composition

Reliz channery loam—40 percent
Gewter loam—30 percent
Rock outcrop—15 percent
Minor components—15 percent

Major Component Description

Reliz channery loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from acid marine shale
Typical vegetation: Trees, grasses, and forbs
Slope: 25 to 65 percent
Surface runoff class: Very high
Percentage of surface covered by angular channers: 2 to 10 percent
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: About 1.3 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Somewhat excessively drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE076CA, Acidic Upland 10-16" p.z.

Typical profile
  A—0 to 3 inches; channery loam
  Bt1—3 to 7 inches; very channery clay loam
  Bt2—7 to 15 inches; extremely channery clay loam
  Cr—15 to 20 inches; soft or weathered bedrock

Gewter loam

Geomorphic setting:
  Shoulders on mountain slopes
  Backslopes on mountain slopes
Parent material: Material weathered from acid marine shale

Typical vegetation: Trees, grasses, and forbs
Slope: 25 to 65 percent
Surface runoff class: Very high
Percentage of surface covered by angular channers: 2 to 10 percent
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.0 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE076CA, Acidic Upland 10-16" p.z.

Typical profile
  Oi—0 to 1 inch; slightly decomposed plant material
  A—1 to 6 inches; loam
  Bt1—6 to 13 inches; channery clay loam
  Bt2—13 to 25 inches; channery clay
  Cr—25 to 30 inches; soft or weathered bedrock

Rock outcrop

Geomorphic setting: Summits on mountain slopes
Kind of rock: Acid shale
Slope: 65 to 75 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Minor Components

Climara clay and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 25 to 50 percent
Geomorphic setting:
  Footslopes on mountain slopes
  Slides

Hentine very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Gaviota sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 25 to 65 percent
Geomorphic setting: Mountain slopes

Altamont clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 25 to 50 percent
Geomorphic setting: Mountain slopes

Roacha silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 25 to 75 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 25 to 65 percent
Geomorphic setting:
  Mountain slopes
  Slides

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

728—Climara clay, 15 to 50 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,315 to 3,860 feet (402 to 1,177 meters)
Mean annual precipitation: 10 to 15 inches (254 to 381 millimeters)
Mean annual air temperature: 58 to 63 degrees F (14 to 17 degrees C)
Frost-free period: 200 to 240 days

Map Unit Composition

Climara clay—85 percent
Minor components—15 percent

Major Component Description

Climara clay

Geomorphic setting:
  Mountain slopes
  Slides
Parent material: Mass-movement deposits derived from Franciscan melange graywacke, chert, serpentinite, gabbro, and blue schist (fig. 19)
Typical vegetation: Grasses and forbs
Slope: 15 to 50 percent
Surface runoff class: Very high

Figure 19.—Uneven terrain in an area of the mass-movement deposits in which Climara soils formed.

Depth to restrictive feature (lithic bedrock): 30 to 40 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.5 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE001CA, Clayey Hills 10-14" p.z.

Typical profile
  A—0 to 26 inches; clay
  Bss—26 to 36 inches; clay
  Bkss—36 to 39 inches; clay
  R—39 to 40 inches; bedrock

Minor Components

Rock outcrop

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Hentine very gravely sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Ponds

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Ponds in depressions

Climara clay, shallow, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting:
  Footslopes on mountain slopes
  Slides

Climara clay, sloping, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 15 percent
Geomorphic setting: Footslopes on mountain slopes

Climara clay, deep, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting:
  Footslopes on mountain slopes
  Slides

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

733—Hentine-Climara association, 15 to 50 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,200 to 3,890 feet (366 to 1,186 meters)
Mean annual precipitation: 10 to 15 inches (254 to 381 millimeters)
Mean annual air temperature: 58 to 63 degrees F (14 to 17 degrees C)
Frost-free period: 200 to 240 days

Map Unit Composition

Hentine very gravelly sandy loam—50 percent
Climara clay—35 percent
Minor components—15 percent

Major Component Description

Hentine very gravelly sandy loam

Geomorphic setting:
Backslopes on mountain slopes
Summits on mountain slopes
Shoulders on mountain slopes
Parent material: Deposits derived from serpentinite
Typical vegetation: Trees, grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Percentage of surface covered by medium angular gravel: 50 to 75 percent
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: About 1.7 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE077CA, Shallow Loamy Hills 10-15" p.z. (gravelly)

Typical profile
A—0 to 2 inches; very gravelly sandy loam
Bt1—2 to 15 inches; very gravelly clay loam
Bt2—15 to 18 inches; very gravelly clay loam
R—18 to 20 inches; bedrock

Climara clay

Geomorphic setting:
Footslopes on mountain slopes
Toeslopes on mountain slopes
Slides
Parent material: Mass-movement deposits derived from Franciscan melange graywacke, chert, serpentinite, gabbro, and blue schist
Typical vegetation: Grasses and forbs
Slope: 15 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 30 to 40 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.5 inches (moderate)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet

Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XE001CA, Clayey Hills 10-14" p.z.

Typical profile
A—0 to 26 inches; clay
Bss—26 to 36 inches; clay
Bkss—36 to 39 inches; clay
R—39 to 40 inches; bedrock

Minor Components

Rock outcrop

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Climara clay, shallow, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting:
Footslopes on mountain slopes
Slides

Climara clay, steep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 75 percent
Geomorphic setting:
Footslopes on mountain slopes
Slides

Climara clay, sloping, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 15 percent
Geomorphic setting:
Footslopes on mountain slopes
Toeslopes on mountain slopes

Ponds

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Ponds in depressions

Climara clay, deep, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting:
Footslopes on mountain slopes
Slides

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent

Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

735—Getrail-Vernado-Rock outcrop association, 15 to 65 percent slopes

Map Unit Setting

General location: Diablo Range, near Cantua Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,640 to 4,845 feet (500 to 1,478 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: 180 to 220 days

Map Unit Composition

Getrail clay—35 percent
Vernado sandy loam—20 percent
Rock outcrop—20 percent
Minor components—25 percent

Major Component Description

Getrail clay

Geomorphic setting:
  Side slopes of footslopes on mountain slopes
  Side slopes of backslopes on mountain slopes
Parent material: Material weathered from clayey marine shale
Typical vegetation: Grasses, forbs, shrubs, and scattered trees
Slope: 15 to 40 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 6.4 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: Not assigned

Typical profile
  A—0 to 4 inches; clay
  Bss1—4 to 15 inches; clay

Bss2—15 to 24 inches; clay
Bss3—24 to 36 inches; clay
C—36 to 43 inches; clay
Cr—43 to 48 inches; soft or weathered bedrock

Vernado sandy loam

Geomorphic setting:
Side slopes of backslopes on escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Trees, grasses, forbs, and shrubs
Slope: 40 to 65 percent
Surface runoff class: Medium
Depth to restrictive feature (lithic bedrock): 25 to 35 inches
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.0 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: Not assigned

Typical profile
A1—0 to 6 inches; sandy loam
A2—6 to 13 inches; sandy loam
A3—13 to 22 inches; sandy loam
C/R—22 to 29 inches; sandy loam
R—29 to 32 inches; bedrock

Rock outcrop

Geomorphic setting: Side slopes of backslopes on escarpments
Kind of rock: Sandstone
Slope: 40 to 65 percent
Surface runoff class: Very high

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Vernado sandy loam, shallow, and similar soils

Estimated percentage of the map unit: 0 to 9 percent
Slope: 40 to 65 percent
Geomorphic setting:
Escarpments
Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Domengine loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Getrail clay, deep, without cracks, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 40 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 8 to 50 percent
Geomorphic setting: Mountain slopes

Vernado loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 40 to 65 percent
Geomorphic setting:
  Escarpments
  Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

737—Grazer-Badland-Wisflat association, 15 to 75 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Silver Creek in the California Coast Ranges (fig. 20)
MLRA: 15
Geomorphic setting: Hills and badlands
Elevation: 635 to 1,545 feet (195 to 472 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 60 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Grazer silty clay loam—35 percent

Figure 20.—An abrupt transition from map unit 590, on flood plains, to the Badland component in map unit 737 east of Silver Creek.

Badland—30 percent
Wisflat sandy loam—20 percent
Minor components—15 percent

Major Component Description

Grazer silty clay loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 15 to 45 percent, west to northeast aspects
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.6 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
A—0 to 4 inches; silty clay loam
BA—4 to 11 inches; silty clay
Btk—11 to 34 inches; silty clay
BC—34 to 47 inches; silty clay
Cr—47 to 80 inches; soft or weathered bedrock

Badland

Geomorphic setting:
Shoulders on escarpments
Backslopes on escarpments
Summits on escarpments
Kind of material: Mass-movement deposits derived from shale and/or mudstone; in some instances, high in content of selenium
Typical vegetation: Less than 10 percent cover of grasses and shrubs
Slope: 45 to 75 percent, east to southwest aspects
Surface runoff class: Very high
Slowest permeability class: Not determined
Salinity: Not determined
Sodicity: Not determined
Available water capacity: Not determined

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Not determined

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Wisflat sandy loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 15 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Minor Components

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 15 to 30 percent
Geomorphic setting: Fan remnants

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Morenogulch parachannery silty clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 50 to 75 percent
Geomorphic setting: Summits on mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 50 percent
Geomorphic setting: Hillslopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 75 percent
Geomorphic setting: Hillslopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

738—Grazer-Belgarra-Arburua association, 8 to 50 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,000 to 3,500 feet (305 to 1,067 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 58 to 63 degrees F (14 to 17 degrees C)
Frost-free period: 200 to 250 days

Map Unit Composition

Grazer silty clay loam—35 percent
Belgarra clay—30 percent

Arburua loam—20 percent
Minor components—15 percent

Major Component Description

Grazer silty clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 8 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.6 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 4e-5
  Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
  A—0 to 4 inches; silty clay loam
  BA—4 to 11 inches; silty clay
  Btk—11 to 34 inches; silty clay
  BC—34 to 47 inches; silty clay
  Cr—47 to 80 inches; soft or weathered bedrock

Belgarra clay

Geomorphic setting: Erosional fan remnants
Parent material: Mass-movement deposits derived from marine shale
Typical vegetation: Grasses and forbs
Slope: 8 to 30 percent
Surface runoff class: Very high
Slowest permeability class: Slow
Salinity: Saline within a depth of 40 inches
Sodicity: Not sodic
Available water capacity: About 8.9 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 4e-5
  Rangeland ecological site: R015XF001CA, Clayey Hills 10-14” p.z.

Typical profile
A1—0 to 4 inches; clay
A2—4 to 10 inches; clay
By1—10 to 21 inches; clay
By2—21 to 32 inches; clay
By3—32 to 45 inches; clay
By4—45 to 72 inches; clay

Arburua loam

Geomorphic setting:
Backslopes on escarpments
Mountain slopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Bk—10 to 27 inches; loam
Cr—27 to 32 inches; soft or weathered bedrock
R—32 to 40 inches; bedrock

Minor Components

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 8 to 30 percent
Geomorphic setting:
Mountain slopes
Slides

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 8 to 30 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Belgarra clay, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 50 percent
Geomorphic setting: Erosional fan remnants

Gewter clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 30 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 50 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 50 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

739—Domengine-Wisflat-Rock outcrop association, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range, near the Panoche Hills in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 760 to 2,390 feet (232 to 729 meters)
Mean annual precipitation: 9 to 12 inches (229 to 305 millimeters)
Mean annual air temperature: 59 to 63 degrees F (15 to 17 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Domengine loam—40 percent
Wisflat sandy loam—30 percent
Rock outcrop—15 percent
Minor components—15 percent

Major Component Description

Domengine loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine sandstone
Typical vegetation: Grasses and forbs
Slope: 30 to 50 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.2 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE026CA, Loamy Slopes 9-12" p.z.

Typical profile
  A1—0 to 6 inches; loam
  A2—6 to 17 inches; clay loam
  Bw—17 to 28 inches; clay loam
  Bk—28 to 39 inches; clay loam
  Cr—39 to 45 inches; soft or weathered bedrock

Wisflat sandy loam

Geomorphic setting:
  Escarpments
  Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Rock outcrop

Geomorphic setting: Escarpments
Kind of rock: Sandstone and/or acid shale; in some instances, high in content of selenium
Slope: 30 to 65 percent
Surface runoff class: Very high

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Badland

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Escarpments

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Erosional fan remnants

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 45 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 45 percent
Geomorphic setting: Mountain slopes

Nodhill loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Erosional fan remnants

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

740—Domengine-Lilten-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,400 to 3,955 feet (427 to 1,207 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Mean annual air temperature: 57 to 63 degrees F (14 to 17 degrees C)
Frost-free period: 200 to 230 days

Map Unit Composition

Domengine loam—45 percent
Lilten silty clay loam—25 percent
Rock outcrop—15 percent
Minor components—15 percent

Major Component Description

Domengine loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from calcareous marine sandstone
Typical vegetation: Grasses, forbs, and shrubs; a remnant population of big sagebrush is approximately 12 miles northwest of Coalinga, in the north half of section 1, T. 19 S., R. 14 E.
Slope: 30 to 65 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.2 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE079CA, Loamy Hills 10-13" p.z.

Typical profile
  A1—0 to 6 inches; loam
  A2—6 to 17 inches; clay loam
  Bw—17 to 28 inches; clay loam
  Bk—28 to 39 inches; clay loam
  Cr—39 to 45 inches; soft or weathered bedrock

Lilten silty clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from calcareous marine shale

Typical vegetation: Grasses, forbs, shrubs, and scattered trees
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.3 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: Not assigned

Typical profile
  A1—0 to 2 inches; silty clay loam
  A2—2 to 8 inches; silty clay loam
  A3—8 to 18 inches; silty clay loam
  C1—18 to 28 inches; silty clay loam
  C2—28 to 41 inches; silty clay loam
  Cr—41 to 60 inches; soft or weathered bedrock

Rock outcrop

Geomorphic setting: Mountain slopes
Kind of rock: Shale and/or sandstone
Slope: 30 to 65 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Minor Components

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Domengine loam, shallow, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Getrail clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 40 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam, very deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Domengine sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

741—Anela-Vernalis association, 0 to 5 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, in the Diablo Range in the California Coast Ranges
MLRA: 17
Geomorphic setting: Valleys
Elevation: 435 to 2,795 feet (134 to 853 meters)
Mean annual precipitation: 8 to 12 inches (203 to 305 millimeters)
Mean annual air temperature: 60 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 220 to 270 days

Map Unit Composition

Anela very gravelly sandy loam—50 percent
Vernalis loam—35 percent
Minor components—15 percent

Major Component Description

Anela very gravelly sandy loam

Geomorphic setting: Flood plains (fig. 21)
Parent material: Alluvium derived from sedimentary and/or mixed rock
Typical vegetation: Grasses, forbs, and trees

Slope: 0 to 2 percent
Surface runoff class: Negligible
Depth to restrictive feature (dense material): 40 to 60 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.5 inches (very low)

Hydrologic properties
  Present flooding: Occasional
  Present ponding: None
  Current water table: Within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 4w-2
  Land capability (nonirrigated): 4w-2
  Rangeland ecological site: R017XE101CA, Very Gravelly Loamy

Typical profile
  A—0 to 7 inches; very gravelly sandy loam
  Bt—7 to 15 inches; very gravelly coarse sandy loam
  Btk—15 to 22 inches; very gravelly coarse sandy loam
  2Btk—22 to 49 inches; very gravelly coarse sandy loam
  2Bdk—49 to 65 inches; extremely gravelly loamy coarse sand

Vernalis loam

Geomorphic setting: Flood plains
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Grasses, forbs, shrubs, and trees
Slope: 0 to 5 percent
Surface runoff class: Low
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic

Figure 21.—An area of Anela-Vernalis association, 0 to 5 percent slopes, on flood plains near Warthan Creek.

Available water capacity: About 9.5 inches (high)

Hydrologic properties
Present flooding: Rare
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 2e-1
Land capability (nonirrigated): 4e-1
Rangeland ecological site: R017XE061CA, Loamy Fan Remnant 8-10" p.z.

Typical profile
A—0 to 7 inches; loam
Bt—7 to 28 inches; clay loam
Btk—28 to 50 inches; clay loam
C—50 to 60 inches; sandy clay loam

Minor Components

Stream channels

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 1 percent
Geomorphic setting: Flood plains

Vernalis loam, saline, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 5 percent
Geomorphic setting: Flood plains

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 5 percent
Geomorphic setting:
Flood plains
Strath terraces

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 15 percent
Geomorphic setting: Erosional fan remnants

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 40 percent
Geomorphic setting: Mountain slopes

Grazer silty clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 15 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 5 percent
Geomorphic setting: Flood plains

Use and Management

Major uses: Wildlife habitat, livestock grazing, and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

742—Millsholm-Wisflat-Lilten association, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,440 to 4,320 feet (439 to 1,317 meters)
Mean annual precipitation: 10 to 20 inches (254 to 508 millimeters)
Mean annual air temperature: 57 to 62 degrees F (14 to 17 degrees C)
Frost-free period: 180 to 230 days

Map Unit Composition

Millsholm clay loam—40 percent
Wisflat sandy loam—25 percent
Lilten silty clay loam—20 percent
Minor components—15 percent

Major Component Description

Millsholm clay loam

Geomorphic setting:
  Escarpments
  Mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.1 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE107CA, Shallow Loamy Hills 13-18" p.z.

Typical profile
  A—0 to 7 inches; clay loam
  Bt—7 to 13 inches; gravelly clay loam

Cr—13 to 16 inches; soft or weathered bedrock
R—16 to 19 inches; bedrock

Wisflat sandy loam

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Lilten silty clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses, forbs, shrubs, and scattered trees
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.3 inches (moderate)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: Not assigned

Typical profile
A1—0 to 2 inches; silty clay loam
A2—2 to 8 inches; silty clay loam
A3—8 to 18 inches; silty clay loam
C1—18 to 28 inches; silty clay loam
C2—28 to 41 inches; silty clay loam
Cr—41 to 60 inches; soft or weathered bedrock

Minor Components

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Altamont clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Gaviota sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Roacha silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Escarpments

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting:
Mountain slopes
Slides

Hentine very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing

Management: See the section “Use and Management of the Soils” for a description of management considerations.

743—Millsholm-Borreguero complex, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 2,200 to 3,755 feet (671 to 1,146 meters)
Mean annual precipitation: 13 to 16 inches (330 to 406 millimeters)
Mean annual air temperature: 58 to 60 degrees F (14 to 16 degrees C)
Frost-free period: 200 to 220 days

Map Unit Composition

Millsholm clay loam—50 percent
Borreguero sandy loam—35 percent
Minor components—15 percent

Major Component Description

Millsholm clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.1 inches (very low)

Hydrologic properties
- *Present flooding:* None
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* Not assigned
- *Land capability (nonirrigated):* 7e
- *Rangeland ecological site:* R015XE107CA, Shallow Loamy Hills 13-18" p.z.

Typical profile
- A—0 to 7 inches; clay loam
- Bt—7 to 13 inches; gravelly clay loam
- Cr—13 to 16 inches; soft or weathered bedrock
- R—16 to 19 inches; bedrock

Borreguero sandy loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from marine sandstone

Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
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: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
  A—0 to 2 inches; sandy loam
  Bw1—2 to 5 inches; sandy clay loam
  Bw2—5 to 11 inches; sandy clay loam
  Cr—11 to 17 inches; soft or weathered bedrock

Minor Components

Gaviota sandy loam and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Hentine very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Roacha silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent

Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

744—Lilten-Millsholm association, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,160 to 3,565 feet (354 to 1,088 meters)
Mean annual precipitation: 10 to 15 inches (254 to 381 millimeters)
Mean annual air temperature: 58 to 63 degrees F (14 to 17 degrees C)
Frost-free period: 200 to 230 days

Map Unit Composition

Lilten silty clay loam—50 percent
Millsholm clay loam—35 percent
Minor components—15 percent

Major Component Description

Lilten silty clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses, forbs, shrubs, and scattered trees
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.3 inches (moderate)

Hydrologic properties
- *Present flooding:* None
- *Present ponding:* None
- *Current water table:* None within a depth of 6 feet
- *Natural drainage class:* Well drained

Interpretive groups
- *Land capability (irrigated):* Not assigned
- *Land capability (nonirrigated):* 6e
- *Rangeland ecological site:* Not assigned

Typical profile
- A1—0 to 2 inches; silty clay loam
- A2—2 to 8 inches; silty clay loam
- A3—8 to 18 inches; silty clay loam
- C1—18 to 28 inches; silty clay loam
- C2—28 to 41 inches; silty clay loam

Cr—41 to 60 inches; soft or weathered bedrock

Millsholm clay loam

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.1 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE107CA, Shallow Loamy Hills 13-18" p.z.

Typical profile
A—0 to 7 inches; clay loam
Bt—7 to 13 inches; gravelly clay loam
Cr—13 to 16 inches; soft or weathered bedrock
R—16 to 19 inches; bedrock

Minor Components

Altamont clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Domengine loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent

Geomorphic setting:
Mountain slopes
Slides

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Hentine sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Millsholm clay loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Millsholm clay loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

745—Grazer-Wisflat-Arburua association, 8 to 50 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 800 to 3,280 feet (244 to 1,000 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 59 to 63 degrees F (15 to 17 degrees C)
Frost-free period: 200 to 250 days

Map Unit Composition

Grazer silty clay loam—45 percent
Wisflat sandy loam—25 percent
Arburua loam—15 percent
Minor components—15 percent

Major Component Description

Grazer silty clay loam

Geomorphic setting: Backslopes on mountain slopes (fig. 22)
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 8 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.6 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 4e-5
  Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
  A—0 to 4 inches; silty clay loam
  BA—4 to 11 inches; silty clay
  Btk—11 to 34 inches; silty clay
  BC—34 to 47 inches; silty clay
  Cr—47 to 80 inches; soft or weathered bedrock

Figure 22.—A landslide in an area of Grazer-Wisflat-Arburua association, 8 to 50 percent slopes. The Grazer soil tends to slide or slump.

Wisflat sandy loam

Geomorphic setting:
  Backslopes on escarpments
  Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
  A—0 to 6 inches; sandy loam
  C—6 to 14 inches; sandy loam
  Cr—14 to 16 inches; soft or weathered bedrock
  R—16 to 20 inches; bedrock

Arburua loam

Geomorphic setting:
  Backslopes on escarpments
  Mountain slopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 8 to 50 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e

Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Bk—10 to 27 inches; loam
Cr—27 to 32 inches; soft or weathered bedrock
R—32 to 40 inches; bedrock

Minor Components

Badland

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Escarpments

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 8 to 30 percent
Geomorphic setting: Erosional fan remnants

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 8 to 30 percent
Geomorphic setting: Mountain slopes

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 8 to 30 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam, steep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 40 percent
Geomorphic setting:
Mountain slopes
Slides

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Grazer silty clay, very deep, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 30 percent
Geomorphic setting: Mountain slopes

Grazer silty clay, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 30 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 50 percent

Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

746—Rock outcrop-Wisflat-Arburua complex, 50 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 495 to 3,520 feet (152 to 1,073 meters)
Mean annual precipitation: 9 to 14 inches (229 to 356 millimeters)
Mean annual air temperature: 59 to 63 degrees F (15 to 17 degrees C)
Frost-free period: 200 to 250 days

Map Unit Composition

Rock outcrop—40 percent
Wisflat sandy loam—25 percent
Arburua loam—20 percent
Minor components—15 percent

Major Component Description

Rock outcrop

Geomorphic setting: Escarpments
Kind of rock: Shale and/or sandstone
Slope: 50 to 65 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Wisflat sandy loam

Geomorphic setting:
  Escarpments
  Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 50 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Arburua loam

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 50 to 65 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Bk—10 to 27 inches; loam
Cr—27 to 32 inches; soft or weathered bedrock
R—32 to 40 inches; bedrock

Minor Components

Cyvar loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 20 to 30 percent
Geomorphic setting: Erosional fan remnants

Domengine loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 65 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 65 percent
Geomorphic setting: Mountain slopes

Nodhill loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 20 to 30 percent
Geomorphic setting: Erosional fan remnants

Wisflat sandy loam, steep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 65 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 65 percent
Geomorphic setting: Escarpments

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

747—Lilten-Grazer-Arburua association, 15 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,275 to 3,670 feet (390 to 1,119 meters)
Mean annual precipitation: 10 to 15 inches (254 to 381 millimeters)
Mean annual air temperature: 58 to 63 degrees F (14 to 17 degrees C)
Frost-free period: 200 to 230 days

Map Unit Composition

Lilten silty clay—35 percent
Grazer silty clay loam—30 percent
Arburua loam—20 percent
Minor components—15 percent

Major Component Description

Lilten silty clay

Geomorphic setting: Mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses, forbs, shrubs, and scattered trees
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.3 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: Not assigned

Typical profile
  A1—0 to 2 inches; silty clay loam
  A2—2 to 8 inches; silty clay loam
  A3—8 to 18 inches; silty clay loam
  C1—18 to 28 inches; silty clay loam
  C2—28 to 41 inches; silty clay loam
  Cr—41 to 60 inches; soft or weathered bedrock

Grazer silty clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 15 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.6 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet

Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 4e-5
Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
A—0 to 4 inches; silty clay loam
BA—4 to 11 inches; silty clay
Btk—11 to 34 inches; silty clay
BC—34 to 47 inches; silty clay
Cr—47 to 80 inches; soft or weathered bedrock

Arburua loam

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Bk—10 to 27 inches; loam
Cr—27 to 32 inches; soft or weathered bedrock
R—32 to 40 inches; bedrock

Minor Components

Roacha silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Hentine very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting:
  Mountain slopes
  Slides

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

748—Vaquero-Grazer association, 15 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,160 to 3,995 feet (354 to 1,219 meters)
Mean annual precipitation: 10 to 18 inches (254 to 457 millimeters)
Mean annual air temperature: 58 to 63 degrees F (14 to 17 degrees C)
Frost-free period: 190 to 230 days

Map Unit Composition

Vaquero clay—70 percent
Grazer silty clay loam—20 percent
Minor components—10 percent

Major Component Description

Vaquero clay

Geomorphic setting:
  Side slopes on mountain slopes
  Slides
Parent material: Mass-movement deposits derived from calcareous shale and/or sandstone
Typical vegetation: Grasses and forbs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.2 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE001CA, Clayey Hills 10-14” p.z.

Typical profile
  A—0 to 3 inches; clay
  Bss—3 to 17 inches; clay
  Bssk—17 to 25 inches; clay
  Bk—25 to 36 inches; clay
  Cr—36 to 40 inches; soft or weathered bedrock

Grazer silty clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 15 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.6 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 4e-5
  Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
A—0 to 4 inches; silty clay loam
BA—4 to 11 inches; silty clay
Btk—11 to 34 inches; silty clay
BC—34 to 47 inches; silty clay
Cr—47 to 80 inches; soft or weathered bedrock

Minor Components

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Gaviota sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Grazer silty clay, rolling, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 8 to 15 percent
Geomorphic setting: Mountain slopes

Grazer silty clay, steep, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Roacha silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 65 percent
Geomorphic setting:
Mountain slopes
Slides

Vaquero clay, shallow, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting:
Mountain slopes
Slides

Vaquero clay, deep, and similar soils

Estimated percentage of the map unit: 0 to 1 percent

Slope: 30 to 65 percent
Geomorphic setting:
  Mountain slopes
  Slides

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

749—Grazer-Wisflat-Exclose association, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range, near the Panoche Hills in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,315 to 2,545 feet (402 to 777 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Mean annual air temperature: 59 to 62 degrees F (15 to 17 degrees C)
Frost-free period: 220 to 250 days

Map Unit Composition

Grazer silty clay loam—40 percent
Wisflat sandy loam—30 percent
Exclose clay loam—15 percent
Minor components—15 percent

Major Component Description

Grazer silty clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.6 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
  A—0 to 4 inches; silty clay loam

BA—4 to 11 inches; silty clay
Btk—11 to 34 inches; silty clay
BC—34 to 47 inches; silty clay
Cr—47 to 80 inches; soft or weathered bedrock

Wisflat sandy loam

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Exclose clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 30 to 50 percent
Surface runoff class: Very high
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.6 inches (high)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e

Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A1—0 to 5 inches; clay loam
A2—5 to 12 inches; sandy clay loam
AB—12 to 19 inches; sandy clay loam
Bw—19 to 29 inches; sandy clay loam
Bk—29 to 84 inches; sandy clay loam

Minor Components

Grazer silty clay loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Nodhill loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 20 to 30 percent
Geomorphic setting: Erosional fan remnants

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent
Geomorphic setting:
Escarpments
Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

750—Monvero-Monoridge association, 15 to 50 percent slopes

Map Unit Setting

General location: Eastern edge of the Diable Range, near Monocline Ridge in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains, dune fields
Elevation: 1,000 to 3,385 feet (305 to 1,033 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 59 to 62 degrees F (15 to 17 degrees C)

Frost-free period: 210 to 260 days

Map Unit Composition

Monvero sand—50 percent
Monoridge fine sand—35 percent
Minor components—15 percent

Major Component Description

Monvero sand

Geomorphic setting: Summits of side slopes on mountain slopes
Parent material: Eolian deposits derived from calcareous sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: Medium
Surface features: Sand dunes in areas of this soil are somewhat stabilized by ephedra shrubs (fig. 23).
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.7 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Somewhat excessively drained

Figure 23.—Dunes formed under ephedra shrubs and perennial grasses in an area of Monvero sand.

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XF039CA, Sandy Upland 9-13” p.z. Deep

Typical profile
A—0 to 15 inches; sand
C—15 to 31 inches; loamy sand
2C—31 to 60 inches; loamy coarse sand

Monoridge fine sand

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and scattered shrubs
Slope: 30 to 50 percent, east to southwest aspects
Surface runoff class: Low
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.6 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Somewhat excessively drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF017CA, Sandy Upland 9-13” p.z.

Typical profile
A—0 to 7 inches; fine sand
Cy—7 to 25 inches; sand
Cr—25 to 29 inches; soft or weathered bedrock

Minor Components

Badland

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 50 percent
Geomorphic setting: Escarpments

Monvero loam, shallow, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 15 to 30 percent, west to northeast aspects
Geomorphic setting: Summits on mountain slopes

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting:
  Escarpments
  Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

752—Cyvar-Nodhill complex, 5 to 15 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near the Panoche Hills in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 635 to 2,315 feet (195 to 707 meters)
Mean annual precipitation: 9 to 12 inches (229 to 305 millimeters)
Mean annual air temperature: 60 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Cyvar loam—45 percent
Nodhill loam—35 percent
Minor components—20 percent

Major Component Description

Cyvar loam

Geomorphic setting: Erosional fan remnants
Parent material: Deposits derived from calcareous sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: Very high
Percentage of surface covered by coarse subangular gravel: 1 to 14 percent
Depth to restrictive feature (duripan): 10 to 20 inches
Slowest permeability class: Moderately slow above the duripan and very slow in the duripan
Salinity: Saline within a depth of 40 inches
Sodicity: Not sodic
Available water capacity: About 2.6 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet

Natural drainage class: Moderately well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF034CA, Limy Upland (shallow) 9-12" p.z.

Typical profile
A—0 to 2 inches; loam
Bt—2 to 7 inches; loam
Btk—7 to 15 inches; clay loam
2Bkqm—15 to 34 inches; indurated duripan
2Bkqym—34 to 60 inches; indurated duripan

Nodhill loam

Geomorphic setting: Erosional fan remnants
Parent material: Deposits derived from calcareous sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.0 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XF031CA, Loamy Upland 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Btk—10 to 17 inches; loam
Bk—17 to 28 inches; gravelly loam
2Cr—28 to 60 inches; weathered bedrock

Minor Components

Cyvar loam, nearly level, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 5 percent
Geomorphic setting: Erosional fan remnants

Cyvar loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Escarpments

Estimated percentage of the map unit: 0 to 5 percent

Slope: 60 to 100 percent
Geomorphic setting: Escarpments

Pits

Estimated percentage of the map unit: 0 to 3 percent
Slope: 5 to 15 percent
Geomorphic setting: Surface mine pits

Nodhill loam, deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

753—Cyvar-Nodhill-Pits, gypsiferous, complex, 5 to 15 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near the Panoche Hills in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,315 to 2,115 feet (402 to 646 meters)
Mean annual precipitation: 9 to 12 inches (229 to 305 millimeters)
Mean annual air temperature: 60 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Cyvar loam—30 percent
Nodhill loam—25 percent
Pits, gypsiferous—25 percent
Minor components—20 percent

Major Component Description

Cyvar loam

Geomorphic setting: Erosional fan remnants
Parent material: Deposits derived from calcareous sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: Very high
Percentage of surface covered by coarse subangular gravel: 1 to 14 percent
Depth to restrictive feature (duripan): 10 to 20 inches
Slowest permeability class: Moderately slow above the duripan and very slow in the duripan
Salinity: Saline within a depth of 40 inches
Sodicity: Not sodic
Available water capacity: About 2.6 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Moderately well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF034CA, Limy Upland (shallow) 9-12" p.z.

Typical profile
A—0 to 2 inches; loam
Bt—2 to 7 inches; loam
Btk—7 to 15 inches; clay loam
2Bkqm—15 to 34 inches; indurated duripan
2Bkqym—34 to 60 inches; indurated duripan

Nodhill loam

Geomorphic setting: Erosional fan remnants
Parent material: Deposits derived from calcareous sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 5 to 15 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.0 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XF031CA, Loamy Upland 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Btk—10 to 17 inches; loam
Bk—17 to 28 inches; gravelly loam
2Cr—28 to 60 inches; weathered bedrock

Pits, gypsiferous

Geomorphic setting: Surface mine pits
Kind of material: Deposits derived from calcareous and gypsiferous sandstone and shale
Slope: 5 to 15 percent
Surface features: Open excavations from which gypsum has been mined. Removal of soil and, commonly, the underlying material has exposed bedrock or other material.
Soil properties: Runoff, depth to a restrictive feature, permeability, salinity, sodicity, available water capacity, and drainage are too variable to be rated.

Hydrologic properties
Present flooding: None
Present ponding: Occasional
Current water table: None within a depth of 6 feet

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Cyvar loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 5 to 15 percent
Geomorphic setting: Escarpments

Cyvar loam, nearly level, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 5 percent
Geomorphic setting: Erosional fan remnants

Cyvar, mixed mounds, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 5 to 15 percent
Geomorphic setting: Erosional fan remnants

Rock outcrop

Estimated percentage of the map unit: 0 to 5 percent
Slope: 5 to 15 percent
Geomorphic setting: Escarpments

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

755—Borreguero-Grazer-Rock outcrop association, 15 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 675 to 2,840 feet (207 to 866 meters)
Mean annual precipitation: 9 to 13 inches (229 to 330 millimeters)
Mean annual air temperature: 59 to 63 degrees F (15 to 17 degrees C)
Frost-free period: 210 to 240 days

Map Unit Composition

Borreguero sandy loam—30 percent
Grazer silty clay loam—25 percent
Rock outcrop—20 percent
Minor components—25 percent

Major Component Description

Borreguero sandy loam

Geomorphic setting:
  Backslopes on escarpments
  Backslopes on mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
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: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
  A—0 to 2 inches; sandy loam
  Bw1—2 to 5 inches; sandy clay loam
  Bw2—5 to 11 inches; sandy clay loam
  Cr—11 to 17 inches; soft or weathered bedrock

Grazer silty clay loam

Geomorphic setting: Backslopes on mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses and forbs
Slope: 15 to 30 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.6 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 4e-5
  Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
A—0 to 4 inches; silty clay loam
BA—4 to 11 inches; silty clay
Btk—11 to 34 inches; silty clay
BC—34 to 47 inches; silty clay
Cr—47 to 80 inches; soft or weathered bedrock

Rock outcrop

Geomorphic setting: Escarpments
Kind of rock: Sandstone
Slope: 15 to 65 percent
Surface runoff class: Very high

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Borreguero sandy loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Borreguero sandy loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 20 to 30 percent
Geomorphic setting: Mountain slopes

Borreguero sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Borreguero clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Exclose clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Erosional fan remnants

Borreguero sandy loam, calcareous, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam, rolling, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 8 to 15 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

757—Rock outcrop-Borreguero complex, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,400 to 3,835 feet (427 to 1,170 meters)
Mean annual precipitation: 10 to 15 inches (254 to 381 millimeters)
Mean annual air temperature: 58 to 62 degrees F (14 to 17 degrees C)
Frost-free period: 180 to 240 days

Map Unit Composition

Rock outcrop—50 percent
Borreguero sandy loam—35 percent
Minor components—15 percent

Major Component Description

Rock outcrop

Geomorphic setting: Mountain slopes
Kind of rock: Sandstone
Slope: 30 to 65 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Borreguero sandy loam

Geomorphic setting:
  Escarpments
  Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
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: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
  A—0 to 2 inches; sandy loam
  Bw1—2 to 5 inches; sandy clay loam
  Bw2—5 to 11 inches; sandy clay loam
  Cr—11 to 17 inches; soft or weathered bedrock

Minor Components

Borreguero sandy loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Roacha silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent

Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

758—Wisflat-Borreguero-Rock outcrop complex, 50 to 70 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains (fig. 24)
Elevation: 960 to 4,805 feet (293 to 1,466 meters)
Mean annual precipitation: 10 to 20 inches (254 to 508 millimeters)
Mean annual air temperature: 57 to 63 degrees F (14 to 17 degrees C)
Frost-free period: 170 to 240 days

Map Unit Composition

Wisflat sandy loam—35 percent
Borreguero sandy loam—30 percent
Rock outcrop—25 percent
Minor components—10 percent

Figure 24.—An area of Wisflat-Borreguero-Rock outcrop complex, 50 to 70 percent slopes, on the Curry Mountain Fault, on the steep western slope of Curry Mountain, southwest of Coalinga. The soils in the forefround are in map unit 711 (Currymountain-Wisflat-Borreguero association, 30 to 75 percent slopes).

Major Component Description

Wisflat sandy loam

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 50 to 70 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
A—0 to 6 inches; sandy loam
C—6 to 14 inches; sandy loam
Cr—14 to 16 inches; soft or weathered bedrock
R—16 to 20 inches; bedrock

Borreguero sandy loam

Geomorphic setting:
Escarpments
Mountain slopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 50 to 65 percent
Surface runoff class: Very high
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: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e

Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
A—0 to 2 inches; sandy loam
Bw1—2 to 5 inches; sandy clay loam
Bw2—5 to 11 inches; sandy clay loam
Cr—11 to 17 inches; soft or weathered bedrock

Rock outcrop

Geomorphic setting:
Escarpments
Mountain slopes
Kind of rock: Sandstone
Slope: 50 to 70 percent
Surface runoff class: Very high

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Domengine loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 65 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 65 percent
Geomorphic setting: Mountain slopes

Vaquero clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 70 percent
Geomorphic setting:
Mountain slopes
Slides

Vernado sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 65 percent
Geomorphic setting:
Escarpments
Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 70 percent
Geomorphic setting:
Escarpments
Mountain slopes

Wisflat sandy loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 1 percent

Slope: 50 to 70 percent
Geomorphic setting:
  Escarpments
  Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

761—Atravesada gravelly sandy loam, 30 to 70 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Salt Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 760 to 1,800 feet (232 to 549 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 270 days

Map Unit Composition

Atravesada gravelly sandy loam—85 percent
Minor components—15 percent

Major Component Description

Atravesada gravelly sandy loam

Geomorphic setting: Mountain slopes
Parent material: Mass-movement deposits derived from serpentinite and chrysotile asbestos
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 70 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.2 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XF042CA, Loamy Serpentinitic 8-9" p.z. (gravelly)

Typical profile
  A—0 to 7 inches; gravelly sandy loam

Bt—7 to 15 inches; gravelly loam
C—15 to 21 inches; gravelly loam
Cr—21 to 60 inches; soft or weathered bedrock

Minor Components

Atravesada gravelly sandy loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 20 to 30 percent
Geomorphic setting: Mountain slopes

Gewter clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 20 to 30 percent
Geomorphic setting: Hillslopes

Atravesada gravelly sandy loam, very steep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 70 to 80 percent
Geomorphic setting: Mountain slopes

Belgarra clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 20 to 30 percent
Geomorphic setting: Erosional fan remnants

Delgado sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 70 percent
Geomorphic setting: Hillslopes

Grazer silty clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Kettleman clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Mercey loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 1 percent
Slope: 40 to 70 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 20 to 70 percent
Geomorphic setting: Mountain slopes

Use and Management

Major uses: Livestock grazing; abandoned asbestos mines in a few areas (fig. 25)
Management: See the section “Use and Management of the Soils” for a description of management considerations.

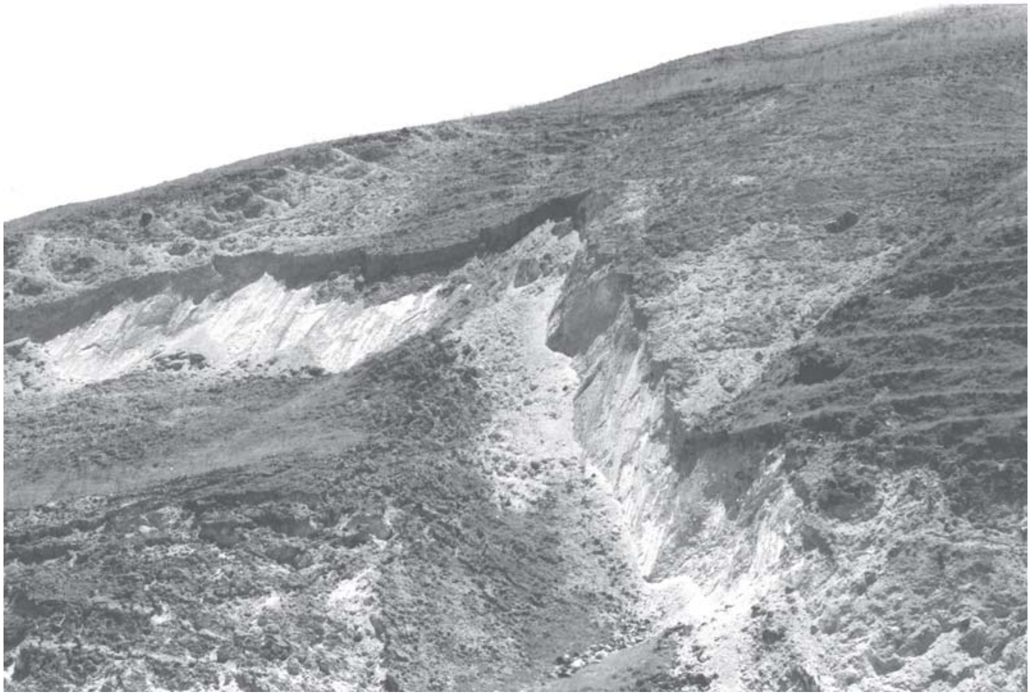


Figure 25.—Landslide on Atravesada gravelly sandy loam, 30 to 70 percent slopes, in an area of past asbestos mining activity near Salt Creek.

765—Atravesada-Pits, asbestos, complex, 2 to 30 percent slopes

Map Unit Setting

General location: Diablo Range, near Joaquin Ridge in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 3,680 to 4,960 feet (1,122 to 1,512 meters)
Mean annual precipitation: 17 to 26 inches (432 to 660 millimeters)
Mean annual air temperature: 48 to 56 degrees F (9 to 13 degrees C)
Frost-free period: 150 to 200 days

Map Unit Composition

Atravesada sandy loam—50 percent
Pits, asbestos—25 percent
Minor components—25 percent

Major Component Description

Atravesada sandy loam

Geomorphic setting: Mountain slopes

Parent material: Deposits derived from serpentinite and chrysotile asbestos
Typical vegetation: Shrubs and trees

"These plant communities are tolerant to high magnesium, nickel and chromium concentrations as well as low levels of basic plant nutrients required for growth and development. The influence of high levels of magnesium in accentuating calcium deficiencies and the toxic effects of heavy metals appear to be of some significance to the vegetative growth and development on these soils" (Key and Arroues, 1989, p. 306).

Slope: 2 to 30 percent
Surface runoff class: Medium
Depth to restrictive feature (paralithic bedrock): 10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE093CA, Loamy Serpentinitic 17-20" p.z.

Typical profile
Oi—0 to 0.5 inch; slightly decomposed plant material
A—0.5 inch to 6 inches; sandy loam
Bt—6 to 12 inches; sandy clay loam
Cr1—12 to 16 inches; weathered bedrock
Cr2—16 to 27 inches; weathered bedrock

Pits, asbestos

Geomorphic setting: Surface mine pits
Kind of material: Deposits derived from serpentinite and chrysotile asbestos
Slope: 2 to 30 percent
Surface features: Open excavations from which asbestos has been mined. Removal of soil and, commonly, the underlying material has exposed bedrock or other material.
Soil properties: Runoff, depth to a restrictive feature, permeability, salinity, sodicity, available water capacity, and drainage are too variable to be rated.

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Disturbed areas

Estimated percentage of the map unit: 0 to 10 percent
Slope: 2 to 30 percent
Geomorphic setting:
  Spoil piles
  Spoil banks

Atravesada sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 30 percent
Geomorphic setting: Mountain slopes

Atravesada sandy loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 30 percent
Geomorphic setting: Mountain slopes

Hentine very cobbly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 40 percent
Geomorphic setting: Mountain slopes

Hentine very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 40 percent
Geomorphic setting: Mountain slopes

Ponds

Estimated percentage of the map unit: 0 to 1 percent
Slope: 2 to 30 percent
Geomorphic setting: Ponds in depressions

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 2 to 30 percent
Geomorphic setting: Mountain slopes

Use and Management

Major uses: Recreation and abandoned asbestos mines
Management: See the section “Use and Management of the Soils” for a description of management considerations.

767—Atravesada-Pits, asbestos, complex, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range, near Joaquin Ridge in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 2,515 to 4,950 feet (768 to 1,509 meters)
Mean annual precipitation: 17 to 26 inches (432 to 660 millimeters)

Mean annual air temperature: 48 to 58 degrees F (9 to 14 degrees C)
Frost-free period: 150 to 200 days

Map Unit Composition

Atravesada sandy loam—50 percent
Pits, asbestos—25 percent
Minor components—25 percent

Major Component Description

Atravesada sandy loam

Geomorphic setting: Mountain slopes
Parent material: Deposits derived from serpentinite and chrysotile asbestos
Typical vegetation: Shrubs and trees

"These plant communities are tolerant to high magnesium, nickel and chromium concentrations as well as low levels of basic plant nutrients required for growth and development. The influence of high levels of magnesium in accentuating calcium deficiencies and the toxic effects of heavy metals appear to be of some significance to the vegetative growth and development on these soils" (Key and Arroues, 1989, p. 306).

Slope: 30 to 65 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE093CA, Loamy Serpentinitic 17-20" p.z.

Typical profile
  Oi—0 to 0.5 inch; slightly decomposed plant material
  A—0.5 inch to 6 inches; sandy loam
  Bt—6 to 12 inches; sandy clay loam
  Cr1—12 to 16 inches; weathered bedrock
  Cr2—16 to 27 inches; weathered bedrock

Pits, asbestos

Geomorphic setting: Surface mine pits
Kind of material: Deposits derived from serpentinite and chrysotile asbestos
Slope: 30 to 65 percent
Surface features: Open excavations from which asbestos has been mined. Removal of soil and, commonly, the underlying material has exposed bedrock or other material.
Soil properties: Runoff, depth to a restrictive feature, permeability, salinity, sodicity, available water capacity, and drainage are too variable to be rated.

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Disturbed areas

Estimated percentage of the map unit: 0 to 10 percent
Slope: 2 to 30 percent
Geomorphic setting:
Spoil banks
Spoil piles

Atravesada sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Atravesada sandy loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Mountain slopes

Atravesada sandy loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Hentine very cobbly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Hentine very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Pits

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Surface mine pits

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major uses: Recreation and abandoned asbestos mines (fig. 26)
Management: See the section “Use and Management of the Soils” for a description of management considerations.

Figure 26.—Abandoned asbestos mine in an area of Atravesada-Pits, asbestos, complex, 30 to 65 percent slopes.

769—Dumps-Pits complex, asbestos, 2 to 30 percent slopes

Map Unit Setting

General location: Diablo Range, near Joaquin Ridge in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 2,480 to 4,835 feet (756 to 1,475 meters)
Mean annual precipitation: 17 to 26 inches (432 to 660 millimeters)
Mean annual air temperature: 61 to 61 degrees F (16 degrees C)
Frost-free period: 170 to 200 days

Map Unit Composition

Dumps, asbestos—55 percent
Pits, asbestos—40 percent
Minor components—5 percent

Major Component Description

Dumps, asbestos

Geomorphic setting:
    Spoil piles
    Spoil banks
Kind of material: Deposits derived from serpentinite and chrysotile asbestos
Slope: 2 to 30 percent

Surface features: Smoothed or uneven accumulations or piles of waste rock and general refuse from asbestos mining activity.
Soil properties: Runoff, depth to a restrictive feature, permeability, salinity, sodicity, available water capacity, and drainage are too variable to be rated.

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Pits, asbestos

Geomorphic setting: Surface mine pits
Kind of material: Deposits derived from serpentinite and chrysotile asbestos
Slope: 2 to 30 percent
Surface features: Open excavations from which asbestos has been mined. Removal of soil and, commonly, the underlying material has exposed bedrock or other material.
Soil properties: Runoff, depth to a restrictive feature, permeability, salinity, sodicity, available water capacity, and drainage are too variable to be rated.

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Atravesada sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 30 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Recreation
Management: See the section “Use and Management of the Soils” for a description of management considerations.

770—Roacha-Millsholm-Lilten association, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,275 to 4,570 feet (390 to 1,393 meters)

Mean annual precipitation: 12 to 20 inches (305 to 508 millimeters)
Mean annual air temperature: 53 to 63 degrees F (12 to 17 degrees C)
Frost-free period: 180 to 230 days

Map Unit Composition

Roacha silty clay loam—40 percent
Millsholm clay loam—25 percent
Lilten silty clay loam—20 percent
Minor components—15 percent

Major Component Description

Roacha silty clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from marine shale
Typical vegetation: Grasses, forbs, shrubs, and trees
Slope: 30 to 65 percent, west to northeast aspects
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: Not assigned

Typical profile
  A—0 to 4 inches; silty clay loam
  Bt1—4 to 14 inches; silty clay
  Bt2—14 to 22 inches; clay
  C—22 to 28 inches; gravelly clay
  Cr—28 to 37 inches; soft or weathered bedrock

Millsholm clay loam

Geomorphic setting:
  Escarpments
  Mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 50 to 65 percent, northeast to west aspects
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.1 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE107CA, Shallow Loamy Hills 13-18" p.z.

Typical profile
A—0 to 7 inches; clay loam
Bt—7 to 13 inches; gravelly clay loam
Cr—13 to 16 inches; soft or weathered bedrock
R—16 to 19 inches; bedrock

Lilten silty clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from calcareous marine shale
Typical vegetation: Grasses, forbs, shrubs, and scattered trees
Slope: 30 to 40 percent, northeast to west aspects
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 7.3 inches (moderate)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: Not assigned

Typical profile
A1—0 to 2 inches; silty clay loam
A2—2 to 8 inches; silty clay loam
A3—8 to 18 inches; silty clay loam
C1—18 to 28 inches; silty clay loam
C2—28 to 41 inches; silty clay loam
Cr—41 to 60 inches; soft or weathered bedrock

Minor Components

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Currymountain loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent

Slope: 30 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Roacha, somewhat poorly drained, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Summits on mountain slopes

Sagaser loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent, west to northeast aspects
Geomorphic setting: Mountain slopes

Vernado sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 40 to 65 percent
Geomorphic setting:
  Escarpments
  Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

773—Hentine-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,400 to 4,900 feet (427 to 1,494 meters)
Mean annual precipitation: 10 to 26 inches (254 to 660 millimeters)
Mean annual air temperature: 56 to 63 degrees F (13 to 17 degrees C)
Frost-free period: 150 to 230 days

Map Unit Composition

Hentine very gravelly sandy loam—60 percent
Rock outcrop—25 percent
Minor components—15 percent

Major Component Description

Hentine very gravelly sandy loam

Geomorphic setting: Mountain slopes
Parent material: Deposits derived from serpentinite
Typical vegetation: Shrubs, grasses, forbs, and scattered trees
Slope: 30 to 65 percent
Surface runoff class: Very high
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: About 1.7 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE077CA, Shallow Loamy Hills 10-15" p.z. (gravelly)

Typical profile
  A—0 to 2 inches; very gravelly sandy loam
  Bt1—2 to 15 inches; very gravelly clay loam
  Bt2—15 to 18 inches; very gravelly clay loam
  R—18 to 20 inches; bedrock

Rock outcrop

Geomorphic setting: Mountain slopes
Kind of rock: Serpentinite
Slope: 30 to 65 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Minor Components

Atravesada sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent

Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Hentine very gravelly sandy loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Hentine very gravelly sandy loam, moderately deep, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Hentine very gravelly sandy loam, rolling, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 10 to 30 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

774—Hentine-Franciscan-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,115 to 4,970 feet (341 to 1,515 meters)
Mean annual precipitation: 10 to 20 inches (254 to 508 millimeters)
Mean annual air temperature: 56 to 63 degrees F (13 to 17 degrees C)
Frost-free period: 150 to 230 days

Map Unit Composition

Hentine very gravelly sandy loam—55 percent
Franciscan gravelly sandy loam—15 percent
Rock outcrop—15 percent
Minor components—15 percent

Major Component Description

Hentine very gravelly sandy loam

Geomorphic setting: Mountain slopes
Parent material: Deposits derived from serpentinite
Typical vegetation: Shrubs, grasses, forbs, and scattered trees
Slope: 30 to 65 percent

Surface runoff class: Very high
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: About 1.7 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE077CA, Shallow Loamy Hills 10-15" p.z. (gravelly)

Typical profile
A—0 to 2 inches; very gravelly sandy loam
Bt1—2 to 15 inches; very gravelly clay loam
Bt2—15 to 18 inches; very gravelly clay loam
R—18 to 20 inches; bedrock

Franciscan gravelly sandy loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from marine sandstone and/or metasedimentary rock
Typical vegetation: Trees, grasses, and shrubs
Slope: 30 to 65 percent
Surface runoff class: Very high
Depth to restrictive feature (lithic bedrock): 20 to 40 inches
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.8 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: Not assigned

Typical profile
A—0 to 5 inches; gravelly sandy loam
ABt—5 to 9 inches; gravelly loam
Bt1—9 to 15 inches; gravelly loam
Bt2—15 to 26 inches; cobbly loam
R—26 to 31 inches; bedrock

Rock outcrop

Geomorphic setting: Mountain slopes
Kind of rock: Metasedimentary and/or sedimentary rock
Slope: 30 to 65 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Minor Components

Atravesada sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Franciscan gravelly sandy loam, shallow, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Hentine very gravelly sandy loam, very shallow, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

782—Vaquero-Altamont complex, 15 to 50 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains and hills

Elevation: 1,295 to 3,640 feet (396 to 1,110 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Mean annual air temperature: 59 to 62 degrees F (15 to 17 degrees C)
Frost-free period: 200 to 240 days

Map Unit Composition

Vaquero clay—45 percent
Altamont clay—40 percent
Minor components—15 percent

Major Component Description

Vaquero clay

Geomorphic setting:
  Mountain slopes
  Slides
Parent material: Mass-movement deposits derived from calcareous shale and/or sandstone
Typical vegetation: Grasses and forbs
Slope: 15 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.2 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE001CA, Clayey Hills 10-14” p.z.

Typical profile
  A—0 to 3 inches; clay
  Bss—3 to 17 inches; clay
  Bssk—17 to 25 inches; clay
  Bk—25 to 36 inches; clay
  Cr—36 to 40 inches; soft or weathered bedrock

Altamont clay

Geomorphic setting:
  Mountain slopes
  Slides
Parent material: Mass-movement deposits derived from marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 15 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline

Sodicity: Not sodic
Available water capacity: About 8.8 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE001CA, Clayey Hills 10-14” p.z.

Typical profile
  A—0 to 9 inches; clay
  Bss—9 to 22 inches; clay
  Bkss—22 to 31 inches; clay
  Bk—31 to 54 inches; clay loam
  Cr—54 to 60 inches; soft or weathered bedrock

Minor Components

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 50 percent
Geomorphic setting: Mountain slopes

Gaviota sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Gewter clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting: Hillslopes

Morenogulch parachannery silty clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 60 percent

Geomorphic setting: Summits on mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 15 to 50 percent
Geomorphic setting:
  Mountain slopes
  Slides

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

783—Vaquero-Altamont complex, 50 to 75 percent slopes

Map Unit Setting

General location: Diablo Range, near Reef Ridge in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,400 to 2,400 feet (427 to 732 meters)
Mean annual precipitation: 10 to 13 inches (254 to 330 millimeters)
Mean annual air temperature: 61 to 62 degrees F (16 to 17 degrees C)
Frost-free period: 200 to 240 days

Map Unit Composition

Vaquero clay—45 percent
Altamont clay—40 percent
Minor components—15 percent

Major Component Description

Vaquero clay

Geomorphic setting:
  Mountain slopes
  Slides
Parent material: Mass-movement deposits derived from calcareous shale and/or sandstone
Typical vegetation: Grasses and forbs
Slope: 50 to 75 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 5.2 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned

Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE001CA, Clayey Hills 10-14” p.z.

Typical profile
A—0 to 3 inches; clay
Bss—3 to 17 inches; clay
Bssk—17 to 25 inches; clay
Bk—25 to 36 inches; clay
Cr—36 to 40 inches; soft or weathered bedrock

Altamont clay

Geomorphic setting:
Mountain slopes
Slides
Parent material: Mass-movement deposits derived from marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 50 to 75 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.8 inches (high)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE001CA, Clayey Hills 10-14” p.z.

Typical profile
A—0 to 9 inches; clay
Bss—9 to 22 inches; clay
Bkss—22 to 31 inches; clay
Bk—31 to 54 inches; clay loam
Cr—54 to 60 inches; soft or weathered bedrock

Minor Components

Grazer silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 50 percent
Geomorphic setting: Mountain slopes

Lilten silty clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 65 percent
Geomorphic setting: Mountain slopes

Borreguero sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 30 to 65 percent

Geomorphic setting: Mountain slopes

Gaviota loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Rock outcrop

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Gewter clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 20 to 30 percent
Geomorphic setting: Hillslopes

Morenogulch parachannery silty clay and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 75 percent
Geomorphic setting: Summits on mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 50 to 75 percent
Geomorphic setting:
  Mountain slopes
  Slides

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

817—Arburua loam, 2 to 8 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, north of Little Panoche Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 855 to 1,075 feet (262 to 329 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Arburua loam—88 percent
Minor components—12 percent

Major Component Description

Arburua loam

Geomorphic setting: Hillslopes

Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 2 to 8 percent
Surface runoff class: Low
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 4e-1
Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Bk—10 to 27 inches; loam
Cr—27 to 32 inches; soft or weathered bedrock
R—32 to 40 inches; bedrock

Minor Components

Chaqua loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Stream terraces

Conosta clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Strath terraces

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Erosional fan remnants

Vernalis loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Flood plains

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

818—Arburua loam, 8 to 15 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, north of Little Panoche Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 740 to 875 feet (226 to 268 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Arburua loam—85 percent
Minor components—15 percent

Major Component Description

Arburua loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 8 to 15 percent
Surface runoff class: Medium
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
    Present flooding: None
    Present ponding: None
    Current water table: None within a depth of 6 feet
    Natural drainage class: Well drained

Interpretive groups
    Land capability (irrigated): Not assigned
    Land capability (nonirrigated): 4e-1
    Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
    A—0 to 10 inches; loam
    Bk—10 to 27 inches; loam
    Cr—27 to 32 inches; soft or weathered bedrock
    R—32 to 40 inches; bedrock

Minor Components

Ayar clay and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 5 to 8 percent
Geomorphic setting: Hillslopes

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent
Geomorphic setting: Erosional fan remnants

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

819—Arburua loam, 15 to 30 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, north of Little Panoche Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 855 to 1,475 feet (262 to 451 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Arburua loam—85 percent
Minor components—15 percent

Major Component Description

Arburua loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 15 to 30 percent
Surface runoff class: Medium
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned

Land capability (nonirrigated): 4e-1
Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Bk—10 to 27 inches; loam
Cr—27 to 32 inches; soft or weathered bedrock
R—32 to 40 inches; bedrock

Minor Components

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Arburua loam, rolling, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 8 to 15 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Arburua loam, deep, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Conosta clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Strath terraces

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

820—Arburua loam, 30 to 50 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, north of Little Panoche Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 655 to 1,125 feet (201 to 344 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Arburua loam—85 percent
Minor components—15 percent

Major Component Description

Arburua loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 30 to 50 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
  A—0 to 10 inches; loam
  Bk—10 to 27 inches; loam
  Cr—27 to 32 inches; soft or weathered bedrock
  R—32 to 40 inches; bedrock

Minor Components

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Arburua loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Arburua loam, deep, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Rock outcrop

Estimated percentage of the map unit: 0 to 3 percent
Slope: 30 to 50 percent

Geomorphic setting: Hillslopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

822—Altamont clay, 5 to 8 percent slopes

Map Unit Setting

General location: Diablo Range in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 1,075 to 3,040 feet (328 to 927 meters)
Mean annual precipitation: 10 to 14 inches (254 to 356 millimeters)
Mean annual air temperature: 60 to 62 degrees F (16 to 17 degrees C)
Frost-free period: 200 to 270 days

Map Unit Composition

Altamont clay—85 percent
Minor components—15 percent

Major Component Description

Altamont clay

Geomorphic setting: Hillslopes
Parent material: Creep deposits derived from calcareous sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 5 to 8 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.8 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 4e-5
  Rangeland ecological site: R015XE001CA, Clayey Hills 10-14” p.z.

Typical profile
  A—0 to 9 inches; clay
  Bss—9 to 22 inches; clay
  Bkss—22 to 31 inches; clay
  Bk—31 to 54 inches; clay loam
  Cr—54 to 60 inches; soft or weathered bedrock

Minor Components

Altamont clay, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 5 percent
Geomorphic setting: Hillslopes

Altamont clay, hilly, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 8 to 30 percent
Geomorphic setting: Hillslopes

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent
Geomorphic setting: Hillslopes

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

823—Ayar clay, 5 to 8 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, north of Little Panoche Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 515 to 800 feet (158 to 244 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Ayar clay—85 percent
Minor components—15 percent

Major Component Description

Ayar clay

Geomorphic setting: Hillslopes
Parent material: Creep deposits derived from calcareous marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 5 to 8 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.3 inches (high)

Hydrologic properties
    Present flooding: None

Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 3e-5
Land capability (nonirrigated): 4e-5
Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
A—0 to 7 inches; clay
Bss—7 to 16 inches; clay
Bkss—16 to 34 inches; clay loam
Bk—34 to 59 inches; clay loam
Cr—59 to 72 inches; soft or weathered bedrock

Minor Components

Ayar clay, nearly level, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 5 percent
Geomorphic setting: Hillslopes

Ayar clay, rolling, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 8 to 15 percent
Geomorphic setting: Hillslopes

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Hillslopes

Pleito gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

827—Ayar-Arburua complex, 8 to 15 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, north of Little Panoche Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 540 to 835 feet (165 to 256 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Ayar clay—50 percent
Arburua loam—35 percent
Minor components—15 percent

Major Component Description

Ayar clay

Geomorphic setting: Hillslopes
Parent material: Creep deposits derived from calcareous marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 8 to 15 percent
Surface runoff class: Very high
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.3 inches (high)

Hydrologic properties
    Present flooding: None
    Present ponding: None
    Current water table: None within a depth of 6 feet
    Natural drainage class: Well drained

Interpretive groups
    Land capability (irrigated): Not assigned
    Land capability (nonirrigated): 4e-5
    Rangeland ecological site: R015XE075CA, Clayey Upland 9-13" p.z.

Typical profile
    A—0 to 7 inches; clay
    Bss—7 to 16 inches; clay
    Bkss—16 to 34 inches; clay loam
    Bk—34 to 59 inches; clay loam
    Cr—59 to 72 inches; soft or weathered bedrock

Arburua loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 8 to 15 percent
Surface runoff class: Medium
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
    Present flooding: None
    Present ponding: None
    Current water table: None within a depth of 6 feet
    Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 4e-1
Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Bk—10 to 27 inches; loam
Cr—27 to 32 inches; soft or weathered bedrock
R—32 to 40 inches; bedrock

Minor Components

Arburua loam, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Hillslopes

Arburua loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Ayar clay, hilly, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Ayar clay, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 8 percent
Geomorphic setting: Hillslopes

Bapos clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Erosional fan remnants

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Erosional fan remnants

Pleito gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 8 to 15 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

834—Bapos clay loam, 2 to 8 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, north of Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 875 to 1,240 feet (268 to 378 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Bapos clay loam—75 percent
Minor components—25 percent

Major Component Description

Bapos clay loam

Geomorphic setting: Erosional fan remnants
Parent material: Alluvium derived from mixed rock
Typical vegetation: Grasses and forbs
Slope: 2 to 8 percent
Surface runoff class: Very high
Slowest permeability class: Very slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.0 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 3e-3
  Land capability (nonirrigated): 4e-3
  Rangeland ecological site: R017XE041CA, Fine Loamy 8-10" p.z.

Typical profile
  A—0 to 8 inches; clay loam
  Btk—8 to 33 inches; clay
  2C—33 to 42 inches; clay loam
  3Cy—42 to 60 inches; gravelly clay loam

Minor Components

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 10 percent
Slope: 2 to 8 percent
Geomorphic setting: Erosional fan remnants

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent

Geomorphic setting: Hillslopes

Chaqua loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent
Geomorphic setting:
  Stream terraces
  Valleys

Conosta clay and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent
Geomorphic setting: Strath terraces

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

835—Pedcat loam, 0 to 2 percent slopes, eroded

Map Unit Setting

General location: Western edge of the San Joaquin Valley, north of Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 675 to 1,075 feet (207 to 329 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Pedcat loam, eroded—85 percent
Minor components—15 percent

Major Component Description

Pedcat loam, eroded

Geomorphic setting: Fan remnants
Parent material: Alluvium derived from metasedimentary rock and/or sedimentary rock
Typical vegetation: Grasses, forbs, and salt-tolerant shrubs
Slope: 0 to 2 percent
Surface runoff class: Very high
Depth to restrictive feature (natric horizon): 0 to 7 inches
Slowest permeability class: Very slow
Salinity: Saline within a depth of 40 inches
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 0.9 inch (very low)

Hydrologic properties
  Present flooding: Occasional
  Present ponding: Frequent
  Current water table: None within a depth of 6 feet
  Natural drainage class: Poorly drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7w
Rangeland ecological site: R017XF069CA, Loamy Saline-Alkali 9-12" p.z.

Typical profile
A—0 to 2 inches; loam
E—2 to 5 inches; loam
Btn1—5 to 13 inches; clay loam
Btn2—13 to 28 inches; clay
Btkn1—28 to 50 inches; clay loam
Btkn2—50 to 60 inches; sandy clay loam

Minor Components

Carranza gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan remnants

Vernalis loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Flood plains

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

842—Quinto-Millsholm-Rock outcrop complex, 40 to 75 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, near Mercey Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Mountains
Elevation: 1,010 to 2,315 feet (308 to 707 meters)
Mean annual precipitation: 10 to 11 inches (254 to 279 millimeters)
Mean annual air temperature: 60 to 62 degrees F (16 to 17 degrees C)
Frost-free period: 220 to 240 days

Map Unit Composition

Quinto gravelly sandy loam—35 percent
Millsholm clay loam—30 percent
Rock outcrop—20 percent
Minor components—15 percent

Major Component Description

Quinto gravelly sandy loam

Geomorphic setting: Mountain slopes
Parent material: Gravelly deposits derived from calcareous conglomerate and/or marine deposits derived from calcareous sandstone
Typical vegetation: Grasses, forbs, and shrubs
Slope: 40 to 75 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 18 inches to paralithic bedrock; 12 to 20 inches to lithic bedrock
Slowest permeability class: Moderately slow above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.0 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Somewhat excessively drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XE080CA, Shallow Coarse Loamy 10-16" p.z.

Typical profile
  A—0 to 6 inches; gravelly sandy loam
  Bt—6 to 11 inches; gravelly sandy clay loam
  Btk—11 to 17 inches; gravelly sandy clay loam
  Cr—17 to 19 inches; soft or weathered bedrock
  R—19 to 20 inches; bedrock

Millsholm clay loam

Geomorphic setting: Mountain slopes
Parent material: Material weathered from marine sandstone and shale
Typical vegetation: Grasses, forbs, and shrubs
Slope: 40 to 75 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.1 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None

Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 7e
Rangeland ecological site: R015XE083CA, Shallow Loamy Hills 13-18" p.z.

Typical profile
A—0 to 7 inches; clay loam
Bt—7 to 13 inches; gravelly clay loam
Cr—13 to 16 inches; soft or weathered bedrock
R—16 to 19 inches; bedrock

Rock outcrop

Geomorphic setting: Mountain slopes
Kind of rock: Sedimentary and/or metasedimentary rock
Slope: 40 to 75 percent
Surface runoff class: Very high

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Minor Components

Millsholm clay loam, steep, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 40 percent
Geomorphic setting: Mountain slopes

Quinto gravelly sandy loam, steep, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 30 to 40 percent
Geomorphic setting: Mountain slopes

Narbaitz loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 20 to 30 percent
Geomorphic setting: Gilgai areas on fan remnants

Wisflat sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 50 to 75 percent
Geomorphic setting: Mountain slopes

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 20 to 30 percent
Geomorphic setting: Mountain slopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

847—Carranza gravelly sandy loam, 2 to 8 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 540 to 1,360 feet (165 to 415 meters)
Mean annual precipitation: 8 to 10 inches (203 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Carranza gravelly sandy loam—85 percent
Minor components—15 percent

Major Component Description

Carranza gravelly sandy loam

Geomorphic setting: Fan remnants
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 2 to 8 percent
Surface runoff class: Medium
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 6.2 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 4e-11
  Rangeland ecological site: R017XE061CA, Loamy Fan Remnant 8-10" p.z.

Typical profile
  A—0 to 7 inches; gravelly sandy loam
  ABt—7 to 14 inches; gravelly sandy loam
  Bt1—14 to 20 inches; gravelly sandy clay loam
  Bt2—20 to 25 inches; very gravelly sandy clay loam
  Bt3—25 to 60 inches; gravelly sandy clay loam

Minor Components

Bapos clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Milham sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 5 percent

Geomorphic setting: Fan remnants

Pedcat fine sandy loam, eroded, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section "Use and Management of the Soils" for a description of management considerations.

849—Chaqua loam, 2 to 8 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, north of Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 935 to 1,045 feet (286 to 320 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Chaqua loam—85 percent
Minor components—15 percent

Major Component Description

Chaqua loam

Geomorphic setting: Stream terraces
Parent material: Alluvium derived from calcareous sandstone
Typical vegetation: Grasses and forbs
Slope: 2 to 8 percent
Surface runoff class: Medium
Depth to restrictive feature (paralithic bedrock): 40 to 60 inches
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 6.8 inches (moderate)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 3e-1
  Land capability (nonirrigated): 4e-1
  Rangeland ecological site: R017XE061CA, Loamy Fan Remnant 8-10" p.z.

Typical profile
  A—0 to 6 inches; loam

Bk—6 to 19 inches; loam
Btk1—19 to 25 inches; loam
Btk2—25 to 35 inches; loam
Btk3—35 to 47 inches; loam
Cr—47 to 60 inches; soft or weathered bedrock

Minor Components

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent
Geomorphic setting: Erosional fan remnants

Bapos clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 8 percent
Geomorphic setting: Erosional fan remnants

Conosta clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Strath terraces

Vernalis loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 5 percent
Geomorphic setting: Flood plains

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

851—Los Banos clay loam, 0 to 2 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, north of Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 330 to 600 feet (102 to 183 meters)
Mean annual precipitation: 8 to 10 inches (203 to 254 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Los Banos clay loam—85 percent
Minor components—15 percent

Major Component Description

Los Banos clay loam

Geomorphic setting: Unburied fan remnants
Parent material: Calcareous gravelly alluvium derived from mixed rock

Typical vegetation: Grasses and forbs
Slope: 0 to 2 percent
Surface runoff class: Medium
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.1 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2s-3
  Land capability (nonirrigated): 4s-3
  Rangeland ecological site: R017XE041CA, Fine Loamy 8-10" p.z.

Typical profile
  Ap—0 to 2 inches; clay loam
  Bt—2 to 13 inches; clay loam
  Btk1—13 to 20 inches; clay loam
  Btk2—20 to 53 inches; clay
  2Bk—53 to 60 inches; stratified very gravelly clay loam to very gravelly clay

Minor Components

Paver clay loam and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 0 to 2 percent
Geomorphic setting: Inset fans

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Los Banos very gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Unburied fan remnants

Panoche clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Pleito gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Unburied fan remnants

Use and Management

Major uses: Irrigated crops and homesite development

Management: See the section “Use and Management of the Soils” for a description of management considerations.

852—Los Banos clay loam, 2 to 8 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, near Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 505 to 855 feet (155 to 262 meters)
Mean annual precipitation: 8 to 10 inches (203 to 254 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Los Banos clay loam—85 percent
Minor components—15 percent

Major Component Description

Los Banos clay loam

Geomorphic setting: Fan remnants
Parent material: Calcareous gravelly alluvium derived from mixed rock
Typical vegetation: Grasses and forbs
Slope: 2 to 8 percent
Surface runoff class: Very high
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.1 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-3
  Land capability (nonirrigated): 4e-3
  Rangeland ecological site: R017XE041CA, Fine Loamy 8-10" p.z.

Typical profile
  Ap—0 to 2 inches; clay loam
  Bt—2 to 13 inches; clay loam
  Btk1—13 to 20 inches; clay loam
  Btk2—20 to 53 inches; clay
  2Bk—53 to 60 inches; stratified very gravelly clay loam to very gravelly clay

Minor Components

Paver clay loam and similar soils

Estimated percentage of the map unit: 0 to 6 percent
Slope: 2 to 8 percent
Geomorphic setting: Inset fans

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Alluvial fans

Los Banos gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Panoche clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Alluvial fans

Pleito gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Use and Management

Major uses: Irrigated crops and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

853—Los Banos-Pleito complex, 2 to 8 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, north of Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 380 to 1,295 feet (116 to 396 meters)
Mean annual precipitation: 8 to 10 inches (203 to 254 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Los Banos clay loam—55 percent
Pleito gravelly clay loam—30 percent
Minor components—15 percent

Major Component Description

Los Banos clay loam

Geomorphic setting: Fan remnants
Parent material: Calcareous gravelly alluvium derived from mixed rock
Typical vegetation: Grasses and forbs
Slope: 2 to 8 percent
Surface runoff class: High
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic

Available water capacity: About 8.1 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-3
  Land capability (nonirrigated): 4e-3
  Rangeland ecological site: R017XE041CA, Fine Loamy 8-10" p.z.

Typical profile
  Ap—0 to 2 inches; clay loam
  Bt—2 to 13 inches; clay loam
  Btk1—13 to 20 inches; clay loam
  Btk2—20 to 53 inches; clay
  2Bk—53 to 60 inches; stratified very gravelly clay loam to very gravelly clay

Pleito gravelly clay loam

Geomorphic setting: Fan remnants
Parent material: Calcareous gravelly alluvium derived from mixed rock
Typical vegetation: Grasses and forbs
Slope: 2 to 8 percent
Surface runoff class: High
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.2 inches (high)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2e-4
  Land capability (nonirrigated): 4e-4
  Rangeland ecological site: R017XE061CA, Loamy Fan Remnant 8-10" p.z.

Typical profile
  A1—0 to 2 inches; gravelly clay loam
  A2—2 to 9 inches; clay loam
  Bk—9 to 17 inches; clay loam
  Btk1—17 to 22 inches; clay loam
  Btk2—22 to 27 inches; clay loam
  2Bk—27 to 60 inches; gravelly sandy clay loam

Minor Components

Paver loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent
Geomorphic setting: Inset fans

Los Banos clay loam, less than 35 percent clay, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Los Banos clay loam, rolling, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 8 to 15 percent
Geomorphic setting: Fan remnants

Los Banos very gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Pleito gravelly clay loam, occasionally flooded, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Use and Management

Major uses: Irrigated crops, homesite development, and livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

855—Pleito gravelly clay loam, 15 to 30 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, north of Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 475 to 1,295 feet (146 to 396 meters)
Mean annual precipitation: 8 to 10 inches (203 to 254 millimeters)
Mean annual air temperature: 61 to 64 degrees F (16 to 18 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Pleito gravelly clay loam—85 percent
Minor components—15 percent

Major Component Description

Pleito gravelly clay loam

Geomorphic setting: Erosional fan remnants
Parent material: Calcareous gravelly alluvium derived from mixed rock
Typical vegetation: Grasses and forbs
Slope: 15 to 30 percent
Surface runoff class: Very high
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.2 inches (high)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 4e-4
Land capability (nonirrigated): 4e-4
Rangeland ecological site: R017XE061CA, Loamy Fan Remnant 8-10" p.z.

Typical profile
A1—0 to 2 inches; gravelly clay loam
A2—2 to 9 inches; clay loam
Bk—9 to 17 inches; clay loam
Btk1—17 to 22 inches; clay loam
Btk2—22 to 27 inches; clay loam
2Bk—27 to 60 inches; gravelly sandy clay loam

Minor Components

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Chaqua loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 8 percent
Geomorphic setting: Stream terraces

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 15 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major uses: Livestock grazing and homesite development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

863—Vernalis loam, 0 to 2 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 600 to 2,000 feet (183 to 610 meters)
Mean annual precipitation: 8 to 12 inches (203 to 305 millimeters)
Mean annual air temperature: 60 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 220 to 270 days

Map Unit Composition

Vernalis loam—85 percent
Minor components—15 percent

Major Component Description

Vernalis loam

Geomorphic setting: Flood plains
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.5 inches (high)

Hydrologic properties
Present flooding: Rare
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 1
Land capability (nonirrigated): 4c-1
Rangeland ecological site: R017XE061CA, Loamy Fan Remnant 8-10" p.z.

Typical profile
A—0 to 7 inches; loam
Bt—7 to 28 inches; clay loam
Btk—28 to 50 inches; clay loam
C—50 to 60 inches; sandy clay loam

Minor Components

Vernalis loam, gently sloping, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 5 percent
Geomorphic setting: Flood plains

Anela very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Flood plains

Conosta clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Strath terraces

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Pleito gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Carranza gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Narbaitz loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 15 percent
Geomorphic setting: Gilgai areas on erosional fan remnants

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Flood plains

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

865—Conosta clay loam, 2 to 8 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, north of Little Panoche Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 810 to 1,045 feet (247 to 320 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Conosta clay loam—85 percent
Minor components—15 percent

Major Component Description

Conosta clay loam

Geomorphic setting: Strath terraces
Parent material: Alluvium derived from conglomerate
Typical vegetation: Grasses and forbs
Slope: 2 to 8 percent
Surface runoff class: High
Depth to restrictive feature (paralithic bedrock): 20 to 40 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet

Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 3e-3
Land capability (nonirrigated): 4e-3
Rangeland ecological site: R015XE026CA, Loamy Slopes 9-12" p.z.

Typical profile
A—0 to 5 inches; clay loam
Bt1—5 to 14 inches; clay
Bt2—14 to 19 inches; gravelly clay
Btk1—19 to 27 inches; gravelly clay
Btk2—27 to 32 inches; very gravelly clay loam
Cr—32 to 40 inches; soft or weathered bedrock

Minor Components

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Vernalis loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 2 to 5 percent
Geomorphic setting: Flood plains

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Hillslopes

Bapos clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 8 percent
Geomorphic setting: Fan remnants

Narbaitz loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 5 to 8 percent
Geomorphic setting: Gilgai areas on erosional fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

870—Wisflat-Rock outcrop-Arburua complex, 15 to 30 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, north of Little Panoche Creek in the California Coast Ranges
MLRA: 15

Geomorphic setting: Hills
Elevation: 740 to 1,075 feet (226 to 329 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Wisflat sandy loam—35 percent
Rock outcrop—30 percent
Arburua loam—20 percent
Minor components—15 percent

Major Component Description

Wisflat sandy loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses and forbs
Slope: 15 to 30 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
  A—0 to 6 inches; sandy loam
  C—6 to 14 inches; sandy loam
  Cr—14 to 16 inches; soft or weathered bedrock
  R—16 to 20 inches; bedrock

Rock outcrop

Geomorphic setting: Hillslopes
Kind of rock: Sandstone
Slope: 15 to 30 percent
Surface runoff class: Very high

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Arburua loam

Geomorphic setting: Hillslopes

Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 15 to 30 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 6e
  Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
  A—0 to 10 inches; loam
  Bk—10 to 27 inches; loam
  Cr—27 to 32 inches; soft or weathered bedrock
  R—32 to 40 inches; bedrock

Minor Components

Arburua loam, steep, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Wisflat sandy loam, steep, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 30 to 50 percent
Geomorphic setting: Hillslopes

Pleito gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent
Geomorphic setting: Erosional fan remnants

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

871—Wisflat-Rock outcrop-Arburua complex, 30 to 50 percent slopes

Map Unit Setting

General location: Eastern edge of the Diablo Range, north of Little Panoche Creek in the California Coast Ranges
MLRA: 15
Geomorphic setting: Hills
Elevation: 695 to 1,115 feet (213 to 341 meters)
Mean annual precipitation: 9 to 10 inches (229 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Wisflat sandy loam—35 percent
Rock outcrop—30 percent
Arburua loam—20 percent
Minor components—15 percent

Major Component Description

Wisflat sandy loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from marine sandstone
Typical vegetation: Grasses and forbs
Slope: 30 to 50 percent
Surface runoff class: Very high
Depth to restrictive feature: 10 to 19 inches to paralithic bedrock; 11 to 20 inches to lithic bedrock
Slowest permeability class: Moderately rapid above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
  Present flooding: None
  Present ponding: None
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 7e
  Rangeland ecological site: R015XF033CA, Shallow Coarse Loamy 9-13" p.z.

Typical profile
  A—0 to 6 inches; sandy loam
  C—6 to 14 inches; sandy loam
  Cr—14 to 16 inches; soft or weathered bedrock
  R—16 to 20 inches; bedrock

Rock outcrop

Geomorphic setting: Hillslopes
Kind of rock: Sandstone
Slope: 30 to 50 percent

Surface runoff class: Very high

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 8
Rangeland ecological site: Not assigned

Arburua loam

Geomorphic setting: Hillslopes
Parent material: Material weathered from calcareous marine sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 30 to 50 percent
Surface runoff class: High
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock; 24 to 41 inches to lithic bedrock
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 4.1 inches (low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 6e
Rangeland ecological site: R015XE020CA, Fine Loamy 9-13" p.z.

Typical profile
A—0 to 10 inches; loam
Bk—10 to 27 inches; loam
Cr—27 to 32 inches; soft or weathered bedrock
R—32 to 40 inches; bedrock

Minor Components

Wisflat sandy loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Arburua loam, hilly, and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 15 to 30 percent
Geomorphic setting: Hillslopes

Ayar clay and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 8 to 15 percent
Geomorphic setting: Hillslopes

Pleito gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 15 to 30 percent

Geomorphic setting: Erosional fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

872—Vernalis loam, 2 to 5 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley, near Little Panoche Creek
MLRA: 17
Geomorphic setting: Valleys
Elevation: 935 to 1,455 feet (286 to 445 meters)
Mean annual precipitation: 8 to 10 inches (203 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 220 to 270 days

Map Unit Composition

Vernalis loam—90 percent
Minor components—10 percent

Major Component Description

Vernalis loam

Geomorphic setting: Flood plains
Parent material: Alluvium derived from sandstone and shale
Typical vegetation: Grasses and forbs
Slope: 2 to 5 percent
Surface runoff class: Low
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.5 inches (high)

Hydrologic properties
    Present flooding: Rare
    Present ponding: None
    Current water table: None within a depth of 6 feet
    Natural drainage class: Well drained

Interpretive groups
    Land capability (irrigated): 2e-1
    Land capability (nonirrigated): 4e-1
    Rangeland ecological site: R017XE061CA, Loamy Fan Remnant 8-10" p.z.

Typical profile
    A—0 to 7 inches; loam
    Bt—7 to 28 inches; clay loam
    Btk—28 to 50 inches; clay loam
    C—50 to 60 inches; sandy clay loam

Minor Components

Vernalis loam, nearly level, and similar soils

Estimated percentage of the map unit: 0 to 5 percent

Slope: 0 to 2 percent
Geomorphic setting: Flood plains

Conosta clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 2 to 8 percent
Geomorphic setting: Strath terraces

Narbaitz loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 15 percent
Geomorphic setting: Gilgai areas on erosional fan remnants

Pleito gravelly clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 2 to 8 percent
Geomorphic setting: Erosional fan remnants

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

873—Narbaitz-Pleito association, 5 to 30 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 915 to 1,370 feet (280 to 418 meters)
Mean annual precipitation: 8 to 10 inches (203 to 254 millimeters)
Mean annual air temperature: 61 to 63 degrees F (16 to 17 degrees C)
Frost-free period: 250 to 270 days

Map Unit Composition

Narbaitz loam—60 percent
Pleito gravelly clay loam—30 percent
Minor components—10 percent

Major Component Description

Narbaitz loam

Geomorphic setting: Gilgai areas on erosional fan remnants
Parent material: Alluvium derived from metasedimentary and/or sedimentary rock
Typical vegetation: Grasses and forbs
Slope: 5 to 15 percent
Surface runoff class: Very high
Depth to restrictive feature: 6 to 12 inches to an abrupt textural change; 18 to 28 inches to dense material
Slowest permeability class: Very slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 1.3 inches (very low)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Moderately well drained

Interpretive groups
Land capability (irrigated): 3e-3
Land capability (nonirrigated): 4e-3
Rangeland ecological site: R017XF077CA, Loamy Upland 8-10" p.z.

Typical profile
A1—0 to 3 inches; loam
A2—3 to 9 inches; sandy clay loam
2Btss—9 to 22 inches; clay
3Bdtk—22 to 38 inches; extremely gravelly sandy clay
3Bk—38 to 60 inches; very gravelly sandy clay loam

Pleito gravelly clay loam

Geomorphic setting: Erosional fan remnants
Parent material: Calcareous gravelly alluvium derived from mixed rock
Typical vegetation: Grasses and forbs
Slope: 15 to 30 percent
Surface runoff class: Very high
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.2 inches (high)

Hydrologic properties
Present flooding: None
Present ponding: None
Current water table: None within a depth of 6 feet
Natural drainage class: Well drained

Interpretive groups
Land capability (irrigated): 4e-4
Land capability (nonirrigated): 4e-4
Rangeland ecological site: R017XE061CA, Loamy Fan Remnant 8-10" p.z.

Typical profile
A1—0 to 2 inches; gravelly clay loam
A2—2 to 9 inches; clay loam
Bk—9 to 17 inches; clay loam
Btk1—17 to 22 inches; clay loam
Btk2—22 to 27 inches; clay loam
2Bk—27 to 60 inches; gravelly sandy clay loam

Minor Components

Arburua loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 8 to 15 percent
Geomorphic setting: Hillslopes

Ayar clay and similar soils

Estimated percentage of the map unit: 0 to 2 percent

Slope: 5 to 8 percent
Geomorphic setting: Hillslopes

Carranza gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 8 percent
Geomorphic setting: Fan remnants

Vernalis loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Flood plains

Springs

Estimated percentage of the map unit: 0 to 1 percent
Slope: 5 to 30 percent
Geomorphic setting: Hillslopes

Use and Management

Major use: Livestock grazing
Management: See the section “Use and Management of the Soils” for a description of management considerations.

940—Milham-Polvadero complex, organic surface, 0 to 5 percent slopes

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 245 to 1,000 feet (76 to 305 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 65 degrees F (17 to 18 degrees C)
Frost-free period: 250 to 280 days

Map Unit Composition

Milham sandy loam, organic surface—40 percent
Polvadero sandy loam, organic surface—40 percent
Minor components—20 percent

Major Component Description

Milham sandy loam, organic surface

Geomorphic setting: Fill areas on fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Slope: 0 to 5 percent
Surface runoff class: Very high
Surface features: The Oe horizon consists of cattle manure in feedlots. The Oa horizon is an interface of mixed organic and mineral soil under the cattle manure cover. The Ad horizon is the top of the natural soil profile. It is affected physically by compaction (caused by the cattle) and chemically by the manure.
Depth to restrictive feature (dense material): 4 to 8 inches
Slowest permeability class: Very slow

Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
 Present flooding: None
 Present ponding: None
 Current water table: None within a depth of 6 feet
 Natural drainage class: Well drained

Interpretive groups
 Land capability (irrigated): 2e-1
 Land capability (nonirrigated): 7e
 Rangeland ecological site: Not assigned

Typical profile
 Oe—0 to 4 inches; herbaceous material
 Oa—4 to 6 inches; sandy loam
 Ad—6 to 12 inches; sandy loam
 Bt—12 to 22 inches; sandy clay loam
 Btk—22 to 37 inches; sandy clay loam
 Bk—37 to 66 inches; sandy loam

Polvadero sandy loam, organic surface

Geomorphic setting: Fill areas on fan remnants
Parent material: Alluvium derived from calcareous sedimentary rock
Slope: 0 to 5 percent
Surface runoff class: Very high
Surface features: The Oe horizon consists of cattle manure in feedlots. The Oa horizon is an interface of mixed organic and mineral soil under the cattle manure cover. The Ad horizon is the top of the natural soil profile. It is affected physically by compaction (caused by the cattle) and chemically by the manure.
Depth to restrictive feature: 4 to 8 inches to dense material; 14 to 26 inches to a natric horizon
Slowest permeability class: Very slow
Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 1.5 inches (very low)

Hydrologic properties
 Present flooding: None
 Present ponding: None
 Current water table: None within a depth of 6 feet
 Natural drainage class: Well drained

Interpretive groups
 Land capability (irrigated): 2e-1
 Land capability (nonirrigated): 7e
 Rangeland ecological site: Not assigned

Typical profile
 Oe—0 to 4 inches; herbaceous material
 Oa—4 to 6 inches; sandy loam
 Ad—6 to 13 inches; sandy loam
 A—13 to 18 inches; sandy loam
 Btkn1—18 to 36 inches; sandy clay loam
 Btkn2—36 to 58 inches; sandy clay loam

C—58 to 66 inches; sandy loam

Minor Components

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 12 percent
Slope: 0 to 2 percent
Geomorphic setting: Fill areas on fan skirts

Guijarral sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 2 to 5 percent
Geomorphic setting: Fill areas on fan remnants

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 5 percent
Geomorphic setting: Fill areas on alluvial fans

Panoche clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 5 percent
Geomorphic setting: Fill areas on alluvial fans

Use and Management

Major use: Feedlots
Management: See the section “Use and Management of the Soils” for a description of management considerations.

941—Bisgani-Elnido association, 0 to 1 percent slopes

Map Unit Setting

General location: San Joaquin Valley, adjacent to the San Joaquin River, north of Firebaugh
MLRA: 17
Geomorphic setting: Valleys
Elevation: 105 to 140 feet (33 to 44 meters)
Mean annual precipitation: 8 to 9 inches (203 to 229 millimeters)
Mean annual air temperature: 62 to 63 degrees F (17 degrees C)
Frost-free period: 230 to 250 days

Map Unit Composition

Bisgani loamy sand—45 percent
Elnido sandy loam—40 percent
Minor components—15 percent

Major Component Description

Bisgani loamy sand

Geomorphic setting: Bars on flood plains
Parent material: Alluvium derived from igneous rock
Typical vegetation: Annual grasses and forbs
Slope: 0 to 1 percent

Surface runoff class: Negligible
Slowest permeability class: Rapid
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.7 inches (low)

Hydrologic properties
Present flooding: Frequent
Present ponding: None
Current water table: Within a depth of 6 feet
Natural drainage class: Poorly drained
Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 4w-2
Rangeland ecological site: Not assigned

Typical profile
A—0 to 10 inches; loamy sand
Cg1—10 to 13 inches; loamy sand
Cg2—13 to 60 inches; sand

Elnido sandy loam

Geomorphic setting: Channels on flood plains
Parent material: Alluvium derived from igneous rock
Typical vegetation: Annual grasses, forbs, shrubs, and trees
Slope: 0 to 1 percent
Surface runoff class: Negligible
Slowest permeability class: Moderately rapid
Salinity: Not saline
Sodicity: Sodic within a depth of 40 inches
Available water capacity: About 6.6 inches (moderate)

Hydrologic properties
Present flooding: Frequent
Present ponding: None
Current water table: Within a depth of 6 feet
Natural drainage class: Poorly drained
Altered hydrology: Hydrology has been altered in some or all areas of this soil through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage.

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): 4w-2
Rangeland ecological site: Not assigned

Typical profile
Ap—0 to 14 inches; sandy loam
Bwg—14 to 32 inches; sandy loam
Bkg—32 to 40 inches; fine sandy loam
Cg1—40 to 53 inches; sandy loam
Cg2—53 to 60 inches; sand

Minor Components

River channels

Estimated percentage of the map unit: 0 to 6 percent
Slope: 0 to 1 percent
Geomorphic setting: Channels on flood plains

Bisgani sandy loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 1 percent
Geomorphic setting: Bars on flood plains

Bisgani loamy sand, stratified, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Backswamps
  Flood plains

Elnido sandy loam, stratified and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Channels on flood plains

Elnido sandy loam, dark thick surface, and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 1 percent
Geomorphic setting:
  Basin floors
  Channels on flood plains

Use and Management

Major uses: Wildlife habitat and recreation
Management: See the section “Use and Management of the Soils” for a description of management considerations.

950—Pits, gravel

Map Unit Setting

General location: Western edge of the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 415 to 960 feet (128 to 293 meters)

Map Unit Composition

Pits, gravel—85 percent
Minor components—15 percent

Major Component Description

Pits, gravel

Geomorphic setting:
  Fan remnants
  Flood plains
Kind of material: Alluvium from mixed rock
Slope: 0 to 5 percent
Surface features: This component consists of areas where gravel has been or is being quarried, quarry roads, and related structures. These features have so obscured or altered the landscape that identification of the soil is not possible.
Soil properties: Runoff, depth to a restrictive feature, permeability, salinity, sodicity, available water capacity, and drainage are too variable to be rated.

Hydrologic properties
  Present flooding: Rare
  Present ponding: None
  Current water table: None within a depth of 6 feet

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): 8
  Rangeland ecological site: Not assigned

Minor Components

Cerini sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 4 percent
Slope: 0 to 2 percent
Geomorphic setting:
  Alluvial fans
  Bars and channels on flood plains

Los Banos clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan remnants

Guijarral sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 2 to 5 percent
Geomorphic setting: Fan remnants

Panoche loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Use and Management

Major use: Gravel pits

Management: See the section “Use and Management of the Soils” for a description of management considerations.

960—Excelsior, sandy substratum-Westhaven association, flooded, 0 to 2 percent slopes

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 305 to 845 feet (93 to 259 meters)
Mean annual precipitation: 7 to 8 inches (178 to 203 millimeters)
Mean annual air temperature: 62 to 64 degrees F (17 to 18 degrees C)
Frost-free period: 240 to 280 days

Map Unit Composition

Excelsior sandy loam, sandy substratum—50 percent
Westhaven loam—30 percent
Minor components—20 percent

Major Component Description

Excelsior sandy loam, sandy substratum

Geomorphic setting:
  Alluvial fans
  Bars and channels on flood plains
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Annual grasses, forbs, shrubs, and trees
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderate
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 6.8 inches (moderate)

Hydrologic properties
  Present flooding: Occasional
  Present ponding: Occasional
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2w-2
  Land capability (nonirrigated): 7w
  Rangeland ecological site: Not assigned

Typical profile
  A1—0 to 7 inches; sandy loam
  A2—7 to 23 inches; sandy loam
  C1—23 to 53 inches; stratified loamy sand to silt loam
  C2—53 to 72 inches; loamy sand

Westhaven loam

Geomorphic setting:
  Alluvial fans
  Bars and channels on flood plains
Parent material: Alluvium derived from calcareous sedimentary rock
Typical vegetation: Annual grasses, forbs, shrubs, and trees
Slope: 0 to 2 percent
Surface runoff class: Low
Slowest permeability class: Moderately slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 9.7 inches (high)

Hydrologic properties
  Present flooding: Occasional
  Present ponding: Occasional
  Current water table: None within a depth of 6 feet
  Natural drainage class: Well drained

Interpretive groups
  Land capability (irrigated): 2w-2
  Land capability (nonirrigated): 7w
  Rangeland ecological site: Not assigned

Typical profile
  Ap—0 to 7 inches; loam
  Bw—7 to 17 inches; loam
  Bk1—17 to 42 inches; stratified loam to silty clay loam
  Bk2—42 to 65 inches; stratified loamy sand to silty clay loam
  C—65 to 72 inches; stratified loam to silty clay loam

Minor Components

Ciervo clay and similar soils

Estimated percentage of the map unit: 0 to 10 percent
Slope: 0 to 2 percent
Geomorphic setting: Fan skirts

Excelsior sandy loam and similar soils

Estimated percentage of the map unit: 0 to 5 percent
Slope: 0 to 2 percent
Geomorphic setting:
  Alluvial fans
  Bars and channels on flood plains

Cerini clay loam and similar soils

Estimated percentage of the map unit: 0 to 3 percent
Slope: 0 to 2 percent
Geomorphic setting: Alluvial fans

Anela very gravelly sandy loam and similar soils

Estimated percentage of the map unit: 0 to 2 percent
Slope: 0 to 2 percent
Geomorphic setting: Flood plains

Use and Management

Major uses: Wildlife habitat and irrigated crops
Management: See the section "Use and Management of the Soils" for a description of management considerations.

980—Urban land

Map Unit Setting

General location: San Joaquin Valley, near Lemoore Naval Air Station
MLRA: 17
Geomorphic setting: Valleys
Elevation: 215 to 235 feet (67 to 72 meters)

Map Unit Composition

Urban land—97 percent
Minor components—3 percent

Major Component Description

Urban land

Slope: 0 to 2 percent
Surface features: This component consists of land covered by streets, parking lots, buildings, airstrips, and storage tanks that have so obscured or altered the landscape that identification of the soil is not possible. The largest area is part of Lemoore Naval Air Station.
Soil properties: Runoff, depth to a restrictive feature, permeability, salinity, sodicity, available water capacity, and drainage are too variable to be rated.

Hydrologic properties
Present flooding: Rare
Present ponding: None
Current water table: None within a depth of 6 feet

Interpretive groups
Land capability (irrigated): Not assigned
Land capability (nonirrigated): Not assigned
Rangeland ecological site: Not assigned

Minor Components

Calflax clay loam, saline-sodic, and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Lethent clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Unburied fan remnants

Posochanet clay loam and similar soils

Estimated percentage of the map unit: 0 to 1 percent
Slope: 0 to 1 percent
Geomorphic setting: Fan skirts

Use and Management

Major use: Urban development
Management: See the section “Use and Management of the Soils” for a description of management considerations.

981—Sewage disposal ponds

Map Unit Setting

General location: Near communities in the San Joaquin Valley
MLRA: 17
Geomorphic setting: Valleys
Elevation: 140 to 645 feet (44 to 198 meters)

Map Unit Composition

Sewage disposal ponds—100 percent

Major Component Description

Sewage disposal ponds

Slope: 0 percent
Surface features: Bodies of water that are part of the process of sewage disposal associated with community sewage systems.
Soil properties: Runoff, depth to a restrictive feature, permeability, salinity, sodicity, available water capacity, and drainage are too variable to be rated.

Hydrologic properties
  Present flooding: Very rare

Interpretive groups
  Land capability (irrigated): Not assigned
  Land capability (nonirrigated): Not assigned
  Rangeland ecological site: Not assigned

Use and Management

Major use: Sewage disposal
Management: See the section “Use and Management of the Soils” for a description of management considerations.

982—Water

Map Unit Setting

General location: San Joaquin Valley
MLRA: 17

Map Unit Composition

Water—100 percent

Major Component Description

This map unit consists of perennial water bodies that include natural or human-made streams, rivers, lakes, ponds, and estuaries that in most years are covered with water at least during the period that is warm enough for plants to grow. Many areas, such as the Little Panoche Reservoir, the California Aqueduct, and the San Joaquin River, are covered with water throughout the year. The water polygons are delineated according to the aerial imagery used during compilation of maps. Water bodies that are too small or narrow are not delineated.

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, engineers, 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 for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Irrigated Crops and Pasture

General management needed for irrigated crops and pasture is suggested in this section. The estimated yields of the main crops are listed for some soils, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the soil properties information given in the description of each soil under the heading "Detailed Soil Map Units." General management factors and considerations are described in the paragraphs that follow. Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Management Practices

The management practices needed in the survey area include, but are not limited to, chiseling and subsoiling, conservation cropping rotation, conservation tillage, cover crops, crop residue management, hayland management, irrigation land leveling, irrigation water management, prescribed grazing, subsurface water removal, surface water control, and toxic salt reduction. Technical terms used in this section are defined in the Glossary.

Chiseling and subsoiling are used to increase the effective rooting depth in soils that have a plowpan. Chiseling the plowpan enhances permeability and internal drainage, helps to prevent a perched water table, and allows deeper root penetration. Chiseling is temporarily beneficial on clayey soils, such as Ciervo, Lethent, and Tranquillity soils, but these soils may rapidly return to their original condition. Applying a system of conservation tillage can significantly reduce the need for this practice.

Conservation cropping rotation consists of an established sequence of crops in combination with certain cultural and management practices. A successful cropping system is achieved if the crops and practices provide benefits that more than offset the effects of soil-depleting crops and deteriorating practices. Crop rotations are recommended on all tilled soils in the survey area and are important in pest management.

On irrigated cropland, practices include the rotation of various row and field crops and the return of crop residue to the soil. It may include cover crops of grasses and legumes, adequate fertilization, and weed and pest control. Examples are corn and small grain in rotation or beans, tomatoes, and alfalfa in rotation.

Conservation tillage involves keeping to a minimum the number of operations necessary to prepare a seedbed, plant the crop, and control weeds. Methods of conservation tillage suitable for the crops grown in this survey area, such as cotton and processing tomatoes, are being developed and adopted. Excessive tillage operations tend to break down soil structure, cause compaction, reduce the amount of organic matter in the soil, and create a plowpan below the tilled layer. These conditions increase particle and tailpipe emission, increase the hazard of erosion, decrease the water intake capability and organic matter content of the soil, and restrict root penetration. Combining tillage operations to reduce the number of trips over a field and delaying tillage operations while the soils are wet help to maintain soil tilth, prevent excessive compaction, and conserve energy. This type of tillage is particularly beneficial on Ciervo, Tranquillity, and Calflax soils.

Cover crops are beneficial in orchards and vineyards and on soils left fallow during the rainy season. Cover crops help to maintain or increase the rate of water infiltration, improve winter access for cultural operations, and help to control erosion on sloping land. Growing cover crops reduces the amount of dust in the air and thus improves working conditions and helps to control spider mites. Mowing the cover crop to a height of 2 to 4 inches in late winter or early spring reduces the likelihood that frost will damage a cold-sensitive crop. The cover crop should then be allowed to produce seed.

Crop residue management consists of returning crop residue to the soil or allowing it to remain on the soil surface. The residue returned to the soil helps to maintain soil tilth, the supply of organic matter, and fertility and reduces the hazard of erosion. On soils with slopes of more than 2 percent, such as Wasco sandy loam, 2 to 5 percent slopes, and on soils that are subject to wind erosion, such as Excelsior loamy sand, sandy substratum, 0 to 2 percent slopes, crop residue left on or near the soil surface helps to control erosion during critical erosion periods. Organic matter influences the development and stabilization of soil structure and the general physical environment of the soil, increasing the rate of water infiltration and the available water capacity.

Crop residue should seldom be burned or removed. Amendments high in content of organic matter generally are beneficial. Care should be taken to maintain a ratio of carbon to nitrogen that is low enough for nitrogen to remain available to the crop. Nitrogen applied with amendments in the fertilizer program should be accounted for.

High-residue crops, such as corn, barley and wheat, can make up for the effects of low-residue crops, such as tomatoes and sugar beets, in a cropping system. Other excellent sources of organic matter are prunings from orchards and vineyards, animal manure, and grasses and legumes.

Hayland management is needed to protect irrigated hayland, achieve maximum production, maintain a desirable plant community, and extend the life of the planting. The practices needed in a hayland management program include irrigation water management, applications of fertilizer, and proper timing of mowing and baling activities, which should be carried out when the soils are firm and dry enough to support the load.

When irrigated hay crops are established, seed should be planted into a firm seedbed early in fall or in spring. The first mowing should be delayed until the plants are well established. The spacing of borders on flood-irrigated hayland should be in multiples of the cutting width of the mower to be used.

Irrigation land leveling is necessary to conserve irrigation water. It helps to ensure that irrigation water is applied uniformly to the entire field and that the field does not have any wet swales or dry ridges. It permits better field arrangements that conserve labor, time, and energy. Following the initial leveling of a field, the first crop to be planted should be an annual crop. Growing an annual crop will give the filled areas a chance to settle. The field can be smoothed before a longer living crop is planted. Accurate land leveling is important. Laser-guided equipment can be used to produce a very uniform grade. Large benefits can be realized by re-leveling periodically and by re-leveling fields that were leveled without the aid of laser equipment.

In this survey area, 43,550 acres has undergone severe shallow subsidence. This acreage is in areas of map unit 490 (Cerini sandy loam, subsided, 0 to 5 percent slopes), map unit 491 (Cerini clay loam, subsided, 0 to 5 percent slopes), map unit 492 (Panoche loam, subsided, 0 to 5 percent slopes), and map unit 493 (Panoche clay loam, subsided, 0 to 5 percent slopes). These areas should not be leveled because they will continue to subside in a manner that is not uniform.

Irrigation water management is achieved by controlling the rate and timing of irrigation water application and the amount of water applied so that the needs of the crop for water are met in a planned and efficient manner. This management ensures the efficient use of the available water in the soil, minimizes erosion, helps to prevent costly water losses, and protects water quality. The irrigation methods used in this survey area are furrow, border, basin, sprinkler, microsprinkler, and trickle systems. Furrow and sprinkler systems are the most common irrigation methods in the area. Their use is limited to nearly level slopes. Microsprinkler and trickle irrigation systems are common in orchards. Vegetables, such as peppers and fresh market tomatoes, are being subirrigated with drip systems with increasing frequency.

Prescribed grazing is needed to prevent soil deterioration, allow maximum production, maintain a desirable plant community, and extend the life of pastures. The practices used in an irrigated pasture management program include irrigation water management, rotation grazing, applications of fertilizer, harrowing or dragging in order to scatter animal droppings, mowing as necessary to maintain uniform growth, and weed control. Grazing during irrigation runs or when the soil is wet is not recommended.

When a pasture is to be established, selection of a suitable plant mixture is important. On most soils in the survey area, mixtures that include a perennial grass and trefoil or clover can produce an abundance of high-quality forage. To maintain plant density, annual pastures should be managed so that the plants produce enough seed to maintain a good stand.

Subsurface water removal is required on some soils to keep river seepage and low-quality water below the primary root zone of the plants. Among the soils that may require subsurface drainage are Armona soils and Calflax and Ciervo soils that are saline-sodic and wet.

Subsurface drainage can be improved by constructing open drainage ditches or tile drains. Proper methods of drainage water removal are needed to dispose of any poor-quality water that is collected by the drainage system. High-quality ground water should be protected from possible pollution by any drainage water that is of low quality.

Surface water control is needed where water from rainfall or irrigation is a problem in low areas and in areas adjacent to levees or at the lower end of irrigated fields. Excess surface water reduces crop production. It can be controlled by land shaping and grading, open drainage ditches, maintenance of the existing natural drainageways, irrigation land leveling, irrigation tailwater recovery systems, and irrigation water management. Among the soils that require surface water control are Tachi, Tranquillity, and Dospalos soils.

Protection from flooding is needed on all soils on the flood plains along the San Joaquin River in the survey area. All low-lying soils along the San Joaquin River, such as Armona, Bisgani, and Elnido soils, require an extensive levee system that includes pumped outlets to provide flood protection and lower the water table.

Toxic salt reduction is needed on soils in which salts rise to the surface and accumulate in the root zone over a period of years. This problem is common in areas with poor drainage or a high water table. A drainage system is necessary in these areas. Leaching can reduce the content of soluble salts. Gepford and Tranquillity soils are examples of soils in the survey area that are affected by salinity. Intensive management is required to reduce the salinity and sodicity of these soils and thus maintain their productivity. Careful application of irrigation water is needed to prevent the buildup of a high water table. See the section “Saline-Sodic Soils” for guidelines on reclaiming the saline-sodic soils in the survey area.

Plants Best Suited to the Soils

Soils strongly influence the kind of crop and pasture plants that can be grown in this survey area. The climate in the area favors a wide variety of crops. More than 60 different crops are grown on the irrigated land in the survey area.

Field Crops

Irrigated field crops are grown on a wide variety of soils in the survey area. Cotton and wheat are grown on very deep soils with few limitations, such as Panoche clay loam. They also are grown on saline-sodic soils with a high water table, such as Ciervo clay, saline-sodic, wet. The conservation practices necessary for sustained productivity on fan skirts and basin floors include surface and subsurface water-removal systems and toxic salt reduction.

Alfalfa

Alfalfa grows best on very deep, well drained soils, such as Cerini soils. It also grows well on some other soils, such as Gepford soils, in areas where the water table is carefully managed and protection from flooding is provided.

Vegetable Crops

Vegetable crops are grown on very deep soils, such as Excelsior, Cerini, and Westhaven soils. In some areas removal of subsurface water is required. Chiseling is a common practice used to break up compacted layers. Rotation with field crops helps to maintain tilth and reduce the likelihood disease problems. Portable sprinkler systems that are used to germinate processing tomatoes are commonly replaced by furrow irrigation as the crop develops.

Fruit and Nut Crops

Fruit and nut crops are best suited to the very deep, medium textured soils in the survey area, such as Cerini, Panoche, Excelsior, and Milham soils. The most common irrigation systems in areas of these crops are microsprinkler and drip systems. Orchard cover crops may be grown to improve water infiltration, reduce the risk of erosion, control dust, and improve access between irrigation runs.

Pastures

Pasture species can grow well on a wide variety of soils in the survey area. They are commonly grown on very deep soils with a high water table, such as Gepford and Tachi soils. The pastures in the area are increasingly converted to silage crops for the dairy industry. Pasture is commonly irrigated with graded borders. Water management, applications of fertilizer, and rotation grazing are key management practices. For additional information, refer to the NRCS MLRA 17 Vegetative Guide, available at the local NRCS Service Center.

Yields Per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in tables 5 and 6. Table 5 lists yields for six salt-tolerant crops, and table 6 lists yields for six crops that are sensitive to salinity. These 12 crops represent 90 percent of the acreage used for irrigated crops in the survey area in 2002. In any given year, yields may be higher or lower than those indicated in the tables because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the tables.

The yields are based mainly on the experience and records of water districts, farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered. Much of the yield data for this survey area is a compilation of yields cross referenced by location and map unit for all crops grown in 1994 in the Westlands Water District. More than 3,000 locations were researched, and more than 1,600 actual yield figures were used to determine an average yield for most of the crops grown on each map unit. Yield data for a specific map unit were averaged with other yield data for the same crop and map unit whenever the percentage of one map unit in the field exceeded 75 percent. Most yields were measured on fields that were 160 acres in size.

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

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

Estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology, such as new cultivars and remote sensing for precision agriculture using GIS and GPS systems, is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the two yields tables are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small.

More than 60 different crops are grown on the irrigated land in this survey area, and it is not feasible to show the yields for all of these crops. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land forming 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 (USDA, 1961).

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 given in all soil surveys.

The land capability classification for the soils in the survey area is given in the section “Detailed Soil Map Units” and in the tables 5, 6, and 7.

Important Farmlands

Two kinds of important farmland are recognized in this soil survey—prime farmland and additional farmland of statewide importance.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 434,520 acres in the survey area, or more than 30 percent of the total acreage, would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available. Most of the prime farmland is in the western part of the San Joaquin Valley, mainly in the western part of general soil map unit 3 and in general soil map units 5, 6, and 8, which are described under the heading “General Soil Map Units.” Almost all of the prime farmland is used for irrigated crops. The crops grown on this land, mainly cotton, processing tomatoes, wheat, and almonds, account for an estimated one-fourth of the county’s total agricultural income each year.

A recent trend in areas of nearly level soils on fan skirts is the loss of prime farmland because of increases in salinity. This salinization of soils formerly considered prime farmland has occurred in areas that do not have adequate drainage. As indicated in the sections “Altered Soils” and “Saline-Sodic Soils,” approximately 48 percent of the irrigated land in the survey area is affected by saline-sodic conditions. The acreage of irrigated soils that have become saline-sodic has increased by approximately 120,000 acres since 1985. Many of these soils qualified as prime farmland before they developed a perched high water table and saline-sodic conditions. This degradation of the soil resource has had the greatest impact on prime farmland in the western part of Fresno County. The loss of prime farmland is critically important to the quality of life in the San Joaquin Valley. The loss of prime farmland and the conversion of this land to other uses puts pressure on marginal lands, which generally have steeper slopes, are more erodible, are droughty, and cannot be so easily cultivated.

The rate at which prime farmland has been lost because of a high water table and salinity has slowed dramatically. Observation well logs indicated a dramatic drop in the depth to a high water table on the upslope, western side of the survey area in 2003. Therefore, it is likely that the extent of the salinity problem in the survey area is close to the maximum in total acres affected. Salinity may increase, however, on the lower end of the fan skirts. These areas may become so high in salinity that they can no longer be profitably farmed. Some of these areas have already become fallow because of salinity and lack of drainage.

The map units in the survey area that are considered prime farmland are listed in table 8. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Farmland of Statewide Importance

This is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating this land are to be determined by the appropriate State agency or agencies. Generally, farmland of statewide importance includes soils that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some of the soils may produce as high a yield as prime farmland if conditions are favorable. In some States farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

Soils on about 409,900 acres in the survey area, or nearly 30 percent of the total acreage, meet the requirements for farmland of statewide importance. Some of these soils previously met the requirements for prime farmland. The salinization of former prime farmland soils in areas that lack an adequate drainage system is described in the sections “Altered Soils,” “Saline-Sodic Soils,” and “Prime Farmland.”

The map units in the survey area that are considered farmland of statewide importance are listed in table 9. This list does not constitute a recommendation for a particular land use. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Storie Index

By Melissa A. Oliva-Vargas, undergraduate intern, and Randal J. Southard, professor, Department of Land, Air, and Water Resources, University of California, Davis.

The soils in the area are rated in table 10 according to the Storie index (Storie, 1933 and 1976). This index expresses numerically the relative degree of suitability of a soil for general intensive agricultural uses at the time of the evaluation. The rating is based on soil characteristics and is obtained by evaluating surface and subsurface chemical and physical soil properties and surface landscape features. Not considered in the rating are availability of water for irrigation, local climate, size and accessibility of mapped areas, distance to markets, and other factors that might determine the desirability of growing certain plants in a given locality. Therefore, the index should not be used as the only indicator of land value. Where the local economic and geographic factors are known to the user, however, the Storie index may provide additional objective information for land tract value comparisons.

Four general factors are used in determining the index rating. These are *A*—the permeability, available water capacity, and depth of the soil; *B*—the texture of the surface soil; *C*—the dominant slope of the soil body; and *X*—other conditions more readily subject to management or modification by the land user. In this survey area, these conditions include drainage and flooding, salinity and alkalinity, fertility, acidity, erosion, and microrelief. For some soils, the rating is determined by more than one of these X conditions.

A rating of 100 percent expresses the most favorable, or ideal, condition for general crop production. Lower percentage ratings are assigned for less favorable conditions or characteristics. Factor ratings, in percentages, are selected from tables prepared from data, including yield data. Certain properties are assigned a range of values to allow for variations in the properties that affect the suitability of the soil for general agricultural purposes.

The index rating for a component of a map unit is obtained by multiplying the percentage rating values given to its four factors, A, B, C, and X. If more than one condition is recognized for the X factor for a soil, the value for each condition acts as a multiplier. Therefore, any of the general factors or X conditions may dominate or control the final rating. As an example, consider the map unit Ciervo clay, saline-sodic, wet, 0 to 1 percent slopes. The factors are as follows:

A—95 percent because of a moderately dense subsoil with very slow permeability
B—60 percent because of the clay texture of the surface layer, which is sticky and difficult to cultivate when wet
C—100 percent because of the nearly level landscape
X—80 percent because of a high water table at a depth of 4 to 6 feet; 60 percent because of salinity (8 to 16 decisiemens per meter in the subsoil) and sodicity (a sodium adsorption ratio13 to 50); 95 percent because of fertility.

The product of the three factors affecting X is 46 percent. The product of A, B, C, and X is 26 percent.

In table 10, an index rating is shown for the named soil components of the map units in the survey area. To calculate a map unit index, take the percentage of each of the named components in the map unit as a weighted average. Miscellaneous areas are considered to be unsuited to agriculture and are assigned a rating of zero. Inclusions of other soils, not specified in the map unit name, are ignored in the calculations.

Named components are assigned grades according to their suitability for general intensive agriculture as shown by their Storie index ratings. The six grades and their range in index ratings are:

Grade 1—80 to 100
Grade 2—60 to 79
Grade 3—40 to 59
Grade 4—20 to 39
Grade 5—10 to 19
Grade 6—less than 10

Grade 1 soils are well suited to intensively grown irrigated crops that are climatically adapted to the region.

Grade 2 soils are good agricultural soils, although they are not so desirable as soils in grade 1 because of a less permeable subsoil, deep cemented layers (e.g., duripans), a gravelly or moderately fine textured surface layer, moderate or strong slopes, restricted drainage, low available water capacity, lower soil fertility, or a slight or moderate hazard of flooding.

Grade 3 soils are only fairly well suited to agriculture because of moderate soil depth; moderate to steep slopes; restricted permeability in the subsoil; a clayey, sandy, or gravelly surface layer; somewhat restricted drainage; acidity; low fertility; or a hazard of flooding.

Grade 4 soils are poorly suited. They are more limited in their agricultural potential than the soils in grade 3 because of such restrictions as a shallower depth; steeper slopes; poorer drainage; a less permeable subsoil; a gravelly, sandy, or clayey surface layer; channeled or hummocky microrelief; or acidity.

Grade 5 soils are very poorly suited to agriculture and are seldom cultivated. They are more commonly used as pasture, rangeland, or woodland.

Grade 6 soils and miscellaneous areas are not suited to agriculture because of very severe or extreme limitations. They are better suited to limited use as rangeland, protective habitat, woodland, or watershed.

Saline-Sodic Soils

Soluble salts and sodium in soils can be traced to several sources. Most originated in the decomposition of soil minerals and rocks by weathering. In this survey area, where the amount of rainfall is low and the evaporation rate is high, soluble salts remain within the soil profile and may accumulate sufficiently to restrict the growth of plants. In addition, some areas receive salt-charged runoff or ground water. In areas that have a high water table, water may rise by capillary action and bring dissolved salts to the surface of the soil (fig. 27). The salts remain as the moisture evaporates. Percolating water from seasonal rainfall modifies the location and amount of salts that accumulate within the soil, but it does not remove the salts from the soil. Over time, productivity is seriously impacted. Crop yields decline, crop choices are limited, and the land eventually loses its commercial value.

Most of the salt-affected soils in the survey area are on fan skirts, basin floors, and flood plains associated with the Fresno Slough and the San Joaquin River. The

Figure 27.—An area on the flood plain along Panoche Creek where the soil has a salt crust on the surface, illustrating the source of much of the salt in the alluvial fan deposits downstream.

shallow ground water at these lower elevations becomes saline because of salts in the soil and evapotranspiration from the surface of the soil. The soluble salts that accumulate in these soils consist principally of sodium sulfate, along with smaller quantities of calcium and magnesium sulfate. Smaller amounts of sodium carbonate, sodium chloride, and calcium chloride also occur in some soils in the western part of Fresno County. About 48 percent of the irrigated land in this survey area is affected by saline-sodic conditions.

Saline soils contain enough soluble salts to interfere with the growth of most crops but do not have enough sodium to alter physical soil properties. In a saline soil, the conductivity of the saturation extract is more than 4 decisiemens per meter (at 25 degrees C) and the sodium adsorption ratio is less than 13. Wekoda clay, partially drained, 0 to 1 percent slopes, is an example of a saline soil in this survey area.

Saline-sodic soils have enough soluble salts to interfere with the growth of most crops and enough exchangeable sodium to affect physical soil properties and plant growth adversely. The sodium adsorption ratio is more than 13, and the conductivity of the saturation extract is less than 4 decisiemens per meter (at 25 degrees C). Agnal silty clay, 0 to 1 percent slopes, is an example of a saline-sodic soil in the survey area.

Nonsaline-sodic soils have enough exchangeable sodium to interfere with the growth of most crop s and affect physical soil properties. The sodium adsorption ratio is more than 13, and the conductivity of the saturation extract is less than 4 decisiemens per meter (at 25 degrees C). Polvadero soils are among the nonsaline-sodic soils in the survey area.

Field and laboratory determinations indicate that the amount of soluble salts and sodium can vary considerably in this survey area. Some general guidelines that should be helpful in dealing with the problem can be given. Some key items to be considered when a reclamation program is planned are described in the following paragraphs.

Water supply.—An ample supply of good-quality water is a primary requirement. More water than is needed to grow crops should be applied. The additional water is for leaching the salts downward into the lower part of the subsoil or below. If extensive reclamation is planned in the area and the content of salts is not known, a laboratory determination should be made.

Drainage.—Adequate drainage is necessary to remove excess salts from the soil. On about 290,000 acres in the survey area, the soils have a perched water table within 6 feet of the surface. This acreage is approximately 36 percent of the irrigated land in the survey area. Improvement is likely only to that depth in the soil for which adequate drainage can be provided. The better the drainage, the more readily excess salts can be removed. If drainage is not adequate and no measures are taken to improve it, little change is likely. Open ditches and drain tiles are the two most common methods used to lower a high water table. Subsurface or drain tiles can alleviate the drainage problems by removing excess water from the upper part of the soil. A suitable outlet for drainage water must be available if the reclamation process is to function properly. The discharge from these drains into local waterways is prohibited in most of the San Joaquin Valley because of the high levels of selenium frequently occurring in drainage water. Figure 28 (“Dominant Natural Drainage Class”) and figure 29 (“Minimum Depth to Water Saturation”) illustrate the extent of drainage properties in the survey area.

Soils are flushed with irrigation water to reduce salinity and thus maintain productivity. Prior to 1986, drainage water collected from fields south of Mendota was discharged into the San Luis Drain for disposal into saline Bay-Delta waters. The San Luis Drain was closed in 1986, however, because of public concern over the environmental degradation of the Bay-Delta and selenium contamination of the

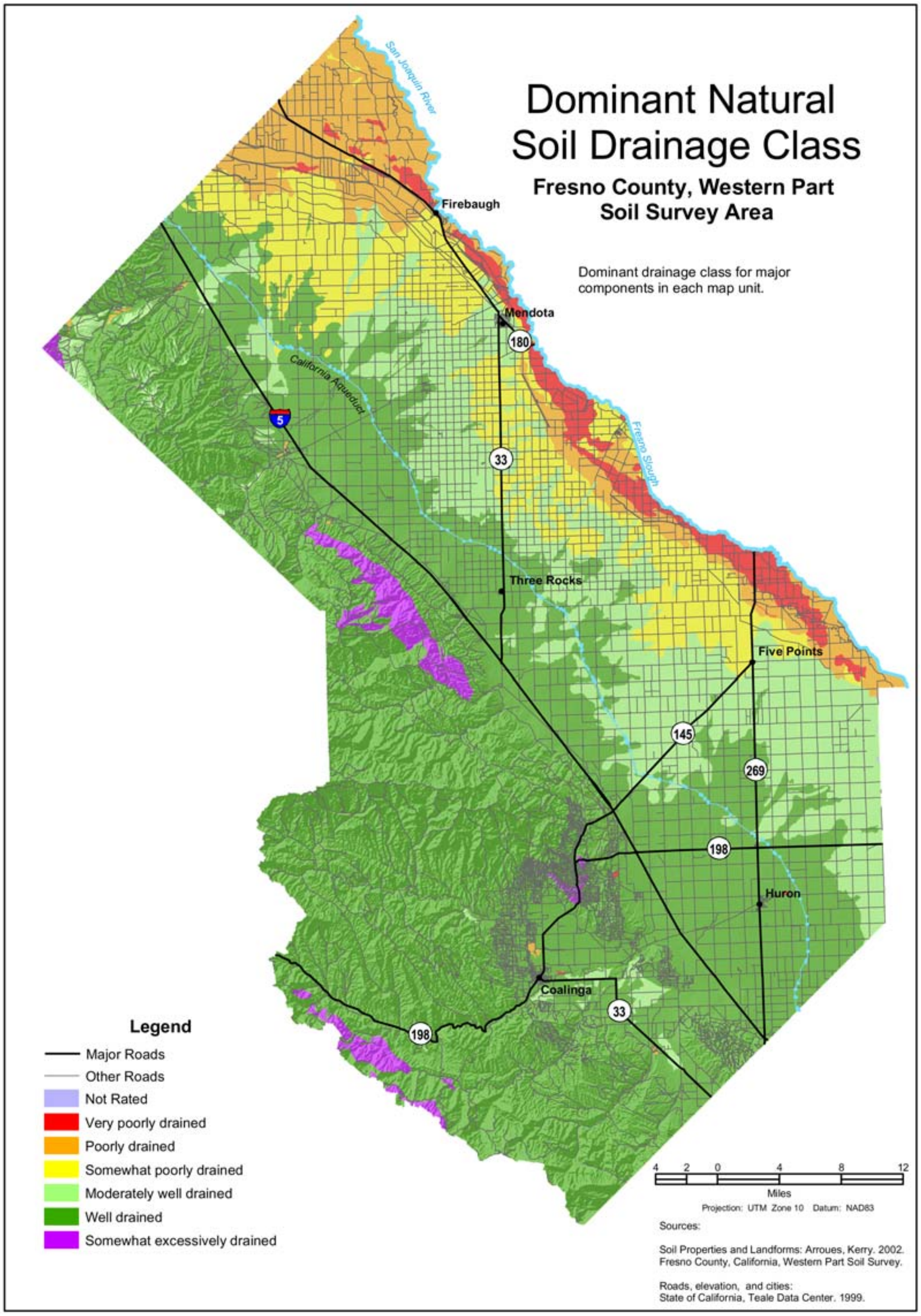
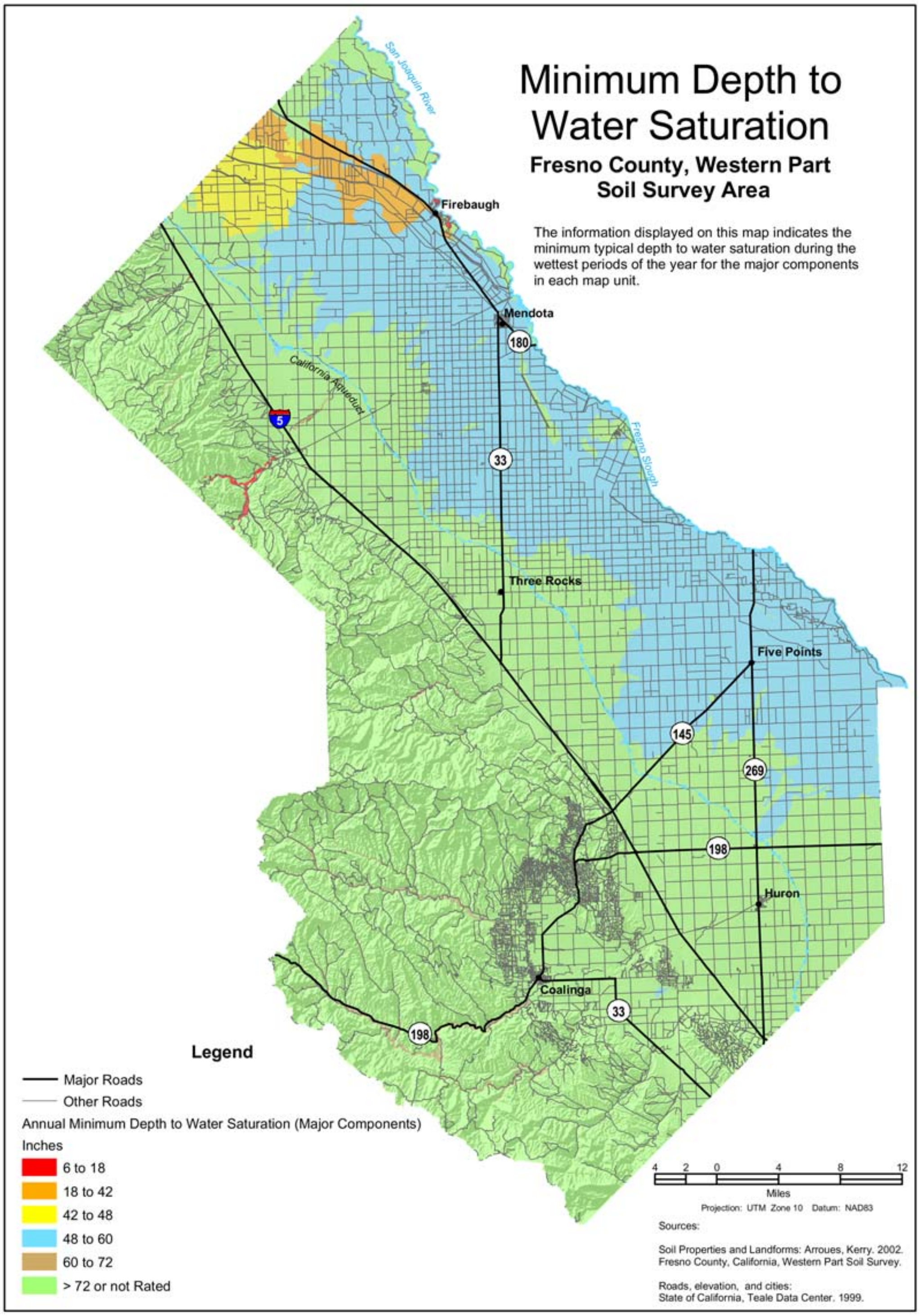


Figure 28.—Natural drainage classes in the western part of Fresno County.



The information displayed on this map indicates the minimum typical depth to water saturation during the wettest periods of the year for the major components in each map unit.

Sources:

Soil Properties and Landforms: Arroues, Kerry. 2002. Fresno County, California, Western Part Soil Survey.

Roads, elevation, and cities: State of California, Teale Data Center. 1999.

Figure 29.—Depth to water saturation in the western part of Fresno County.

Kesterson Wildlife Refuge. Without an outlet for drainage water, the growers' options for purging their land of salts are limited.

In 1992, with passage of the Central Valley Project Improvement Act, the Bureau of Reclamation began development of a "land retirement" program. One objective was to reduce the extent of the drainage problem by taking land out of production. Another approach to the drainage problem is Integrated On-Farm Drainage Management (IFDM). The major objectives of IFDM are efficient use of water, utilization of drainage water, management of salt and selenium on the farm, reduction of risks to wildlife from drainage water, use of methods that reduce the effects on other resources, use of IFDM on farms throughout the area that have a high water table, and increased sustainability of farming. The long-term goal is long-term production of food and fiber crops.

Rate of internal drainage.—Many factors affect the downward movement of water through the soil, including texture, bulk density, porosity, structure, and the shrinking and swelling of the soil upon wetting and drying. The more rapid the rate of internal drainage, the more quickly excess salts can be removed and the sooner improvements can be made. Lethent clay loam is an example of a soil with dense, slowly permeable subsoil. Reclamation is generally not successful unless this soil is deeply plowed and mixed or ripped and the subsoil is broken.

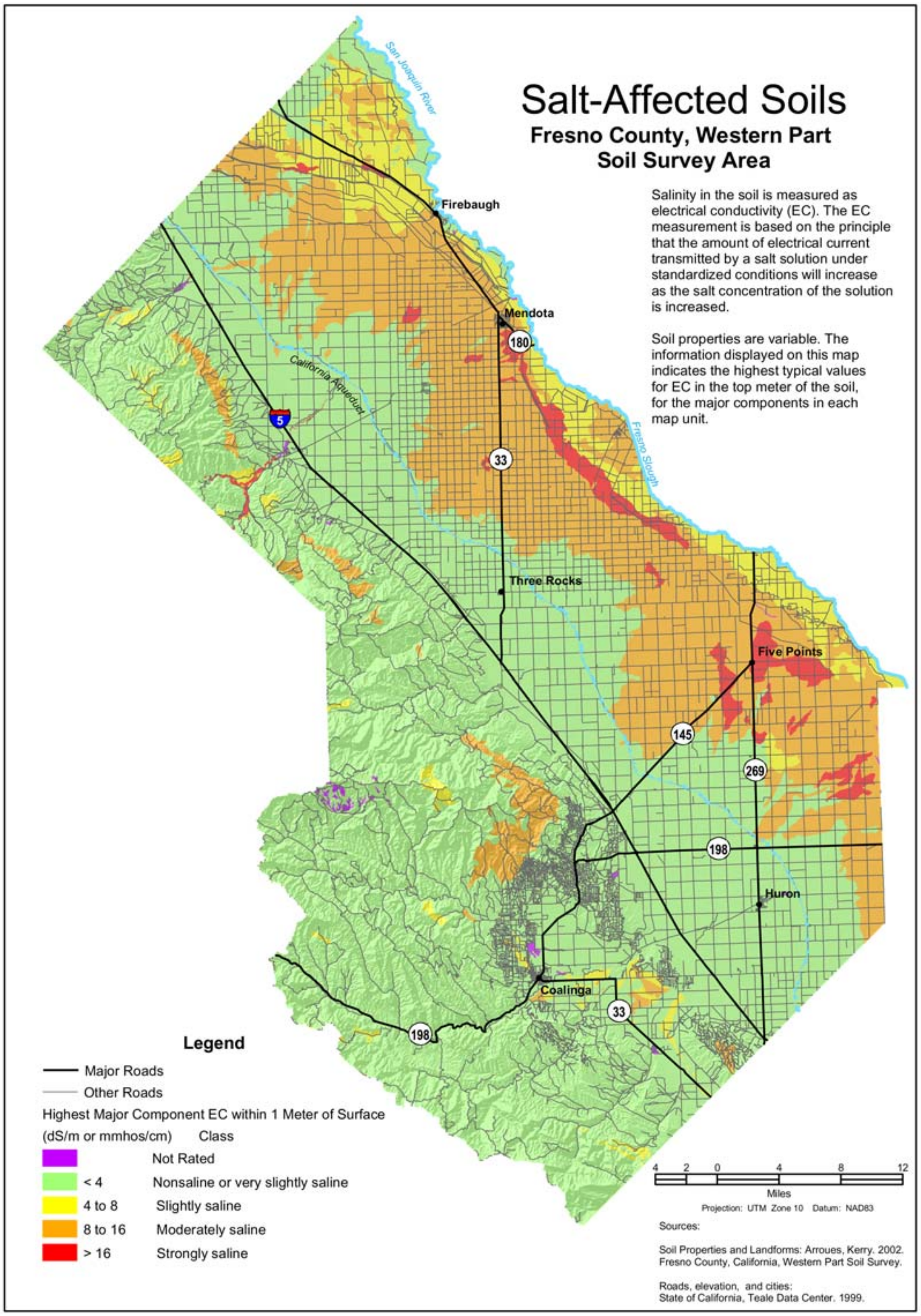
Amount of excess salts and sodium.—If internal drainage is adequate or is artificially improved, even severely affected saline-sodic soils can be improved by leaching the salts through the soil profile. If a sufficient amount of water is used, the salts will be flushed downward.

Removing excess sodium is somewhat more difficult and expensive than removing excess salts. A chemical change must take place in the soils. This is generally brought about by applying gypsum (calcium sulfate). A soil test helps to determine how much gypsum should be applied to obtain the desired results. Gypsum supplies the calcium to replace the excess sodium on the surface of the clay particles. Calcium can also be obtained by applying sulfuric acid in bulk quantities. The acid reacts with the calcium carbonate common in the soils. Both the calcium and hydrogen ions displace the adsorbed sodium. The acid method often achieves quick results, but it is more expensive and extra care is needed in handling the acid. Elemental sulfur can be used instead of gypsum, but sulfur takes longer to react. Before it can act, sulfur must be changed to sulfate. This change is made by microbes living in the soil. About the same result is obtained with any of these materials, but time and cost differences should be considered.

Intensive management is necessary to reclaim saline-sodic soils that have a high content of clay, such as saline-sodic Tranquillity and Ciervo soils. The key practices needed to improve these soils include leveling the land; subsoiling, which can improve water infiltration; establishing drainage ditches or installing subsurface drains; applying gypsum or sulfur to correct the sodic condition and improve permeability; applying water to leach excess salts downward; and establishing plants that can tolerate salts and sodium. A suitable outlet for drainage water must be available for this reclamation process to function.

Considerable effort has been made to identify salt-tolerant crops, forages, and halophytes, which can either be irrigated with saline drainage water or used as native vegetation in water-logged soils that have become heavily salinized and are being retired from agricultural production. Salinity and boron levels are the main determinants of what can be grown on these sites (Benes, 2003).

The table "Chemical Properties of the Soils" gives a range of soil salinity and sodicity for all of the soils in the survey area. Figures 30 and 31 show the extent of salt-affected and sodium-affected soils in the survey area. The laboratory tables in the Appendix display actual data for salts and the sodium adsorption ratio for several typical profiles in the survey area.



Salinity in the soil is measured as electrical conductivity (EC). The EC measurement is based on the principle that the amount of electrical current transmitted by a salt solution under standardized conditions will increase as the salt concentration of the solution is increased.

Soil properties are variable. The information displayed on this map indicates the highest typical values for EC in the top meter of the soil, for the major components in each map unit.

Sources:

Soil Properties and Landforms: Arroues, Kerry. 2002. Fresno County, California, Western Part Soil Survey.

Roads, elevation, and cities: State of California, Teale Data Center. 1999.

Figure 30.—Salt-affected soils in the western part of Fresno County.

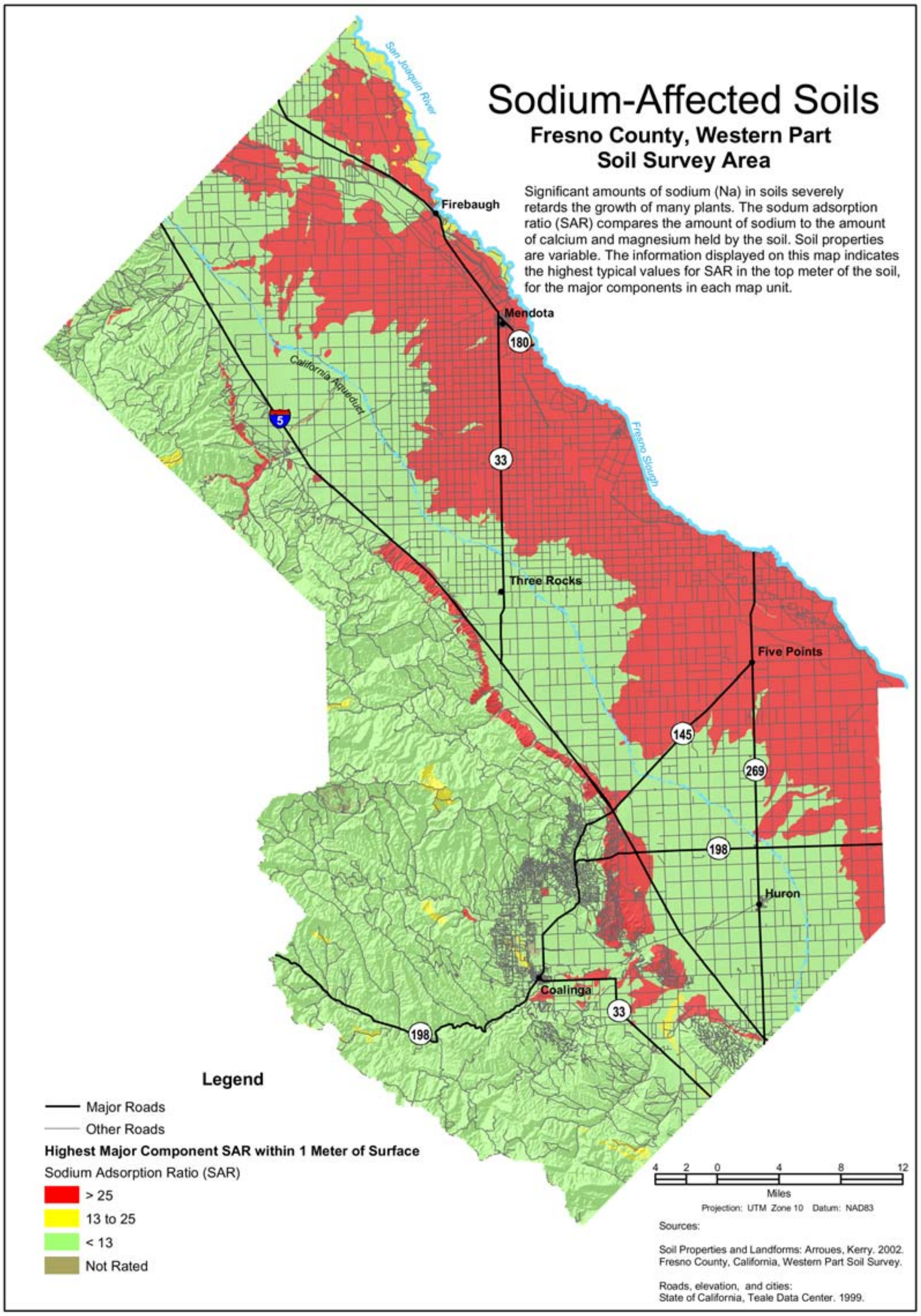


Figure 31.—Sodium-affected soils in the western part of Fresno County.

Assistance in interpreting laboratory tests of soil and water and detailed reclamation schedules for various soil conditions can be obtained from the local office of the Natural Resources Conservation Service or from the Fresno County Farm Advisor's Office.

Management of Dairy Manure

Prepared by Robert Fry, State Agronomist, Natural Resources Conservation Service.

In 2002, the dairy herd in Fresno County had reached 86,115 animals housed at 109 dairies, an average of 790 dairy cows per dairy (CDFA, 2002). Since this soil survey was completed, several large dairies have been approved or built. The dairy industry is growing in the county, and much of the growth is in the western part of the county.

The growth of the dairy industry can impact air and water quality as it benefits the economy. Salts and nitrates can leach into ground water if manure containing these compounds is not managed properly. Discharge of manure into streams or canals because of flooding or human error can affect surface waters. Air quality may be impaired by volatilization of ammonia from manure during the winter. Ammonia combines in the atmosphere with the oxides of nitrogen contained in auto emissions to form ammonium nitrate, which is an air pollutant. Currently, there is little direct evidence that properly managed dairies pollute water in Fresno County. In the case of ground water, however, it may take a pollutant many years to reach the water table. Thus, the impacts of the industry on water quality may not yet be apparent. Emphasis should now be placed on proper management of manure to protect water quality.

Typically, the dairies in Fresno County own or manage enough cropland to grow most of the silage and hay required by their herds. Dairy manure, applied to cropland, supplies a large portion of the nutrients required for crop production. In most cases there is enough farmland to apply the manure without overloading, if the application is properly managed. Overloading occurs when much more nutrient is applied than the crop can use and the excess is allowed to move below the root zone of the crop. If a dairy does not have enough cropland to use all of the manure produced, the manure may be used offsite through sale or agreements with neighbors to accept the excess. This transfer is accomplished more easily if the manure is handled when it is dry.

Most manure is collected on the dairy by washing down the facilities with water and storing it in a pond. This water is reused several times to flush the dairy housing areas before it is applied with irrigation water to cropland. Typically, water has been used to cool the milk, wash the cows before milking, and flush the milking parlor before it is used to flush heavy loads of manure from the feeding and loafing areas. Some manure is collected when it is dry. The dry material is scraped and stacked. It is applied to cropland once or twice a year. Depending on the design of the dairy, as little as 15 percent or as much as 85 percent or more of the manure may be handled when dry.

There are three major concerns in manure management that relate directly to the soil conditions on the dairy. These are:

1.—The design and construction of the dairy facilities, particularly the manure storage, transfer, and treatment facilities;
2.—The application of manure on cropland; and
3.—The management and design of irrigation systems used to apply liquid manure.

During the construction of a manure-storage pond, soil conditions and depth to the local water table must be considered. If a pond is constructed on sandy soils, the manure may leak and move offsite in the sandy layers, perhaps entering the ground water. Some research has indicated that ponds tend to seal soon after receiving the manure, which is high in content of fibrous organic material. According to 1995 State regulations, a pond must have at least 10 percent clay in the soil lining the sides and bottom of the pond to limit seepage from the pond. If pond has areas that do not meet this criterion, soil with 10 percent clay can be applied or mixed to a depth of about 1 foot over the necessary sections. Bisgani soils are an example of soils in the survey area that have extensive sandy layers that do not have the 10 percent clay minimum. Other soils, such as Elnido soils, have a sandy substratum. Some map units may have minor components of sandy soil. Sandy layers can be exposed either on the bottom of the pond or on the side slopes. They must be treated in either case. If the sand streaks are above the level of the inlet to the pond, they generally do not require treatment. Constructing a pond on Bisgani or Elnido soils requires extensive treatment because these soils generally have less than 10 percent clay.

There must be at least 5 feet between the bottom of the pond and the highest known depth to a local water table. This requirement may limit the depth of the pond or may require that the pond be built entirely or partly above the natural ground surface. Ponds may not be built into ground water. Within the survey area, Armona, Gepford, Tachi, Lillis, Tranquillity, Agnal, saline-sodic Ciervo, Deldota, Chateau, Wekoda, Posochanet, and Calflax soils have a high water table. These soils are on fan skirts, flood plains, or basin floors. They may occur as minor components in map units on similar landforms.

Dairy facilities must be protected from the flooding caused by a 100-year frequency peak streamflow. This flooding is a concern mainly on alluvial fans, flood plains, and basin floors. Construction of the dairy above this flooding zone or construction of a protective levee or berm is necessary. Local flooding zone maps should be reviewed before the site for a dairy is selected.

The second major concern, the application of manure to cropland, may contribute to ground-water contamination. An excellent practice reuses nutrients from the manure and improves the condition of the soil without contaminating water. Careful management of manure is necessary since soils and crops cannot use excessive amounts of manure. When excessive amounts are applied to soils, the risk of pollution is increased. In areas of Bisgani and other sandy soils occurring in elongated stringers in the northeastern part of the survey area, near the San Joaquin River, management of manure is particularly important. Nitrates and other salts from the manure can move rapidly through these sandy soils with irrigation water or rainfall. The manure must be applied in amounts close to the requirements of the crops, and the applications must be timed so that nitrogen is available when needed by the crop. Proper timing also reduces the risk of leaching nitrate out of the root zone. Soil and plant tests can be used to measure the nutrient needs before manure or commercial fertilizers are applied or to assess nitrogen management needs after the crops are harvested. The nutrient content of the manure should be estimated at or near the point of application. The manager also should measure the nitrate applied with irrigation water. The amount of nitrogen applied with manure and fertilizer can be reduced by the amount applied with irrigation water.

The amount of manure applied to cropland may be limited by the amount of salts in the manure. Salts accumulate in the soil and water and may be the highest long-term risk to water quality. The Regional Water Quality Control Board has standards that limit the application of salts to cropland with manure. The risks to water quality from salts are higher on sandy soils but are not limited to them. In areas that have soils with a high content of clay, pollutants may occur but they move more slowly.

The third major concern is the design and management of the irrigation system. The rate of water intake and the available water capacity are the key soil factors to be considered. Both of these factors are affected by salinity or soil compaction, which should be evaluated in the management plan. Soils that have a high intake rate can be best managed with sprinkler or drip irrigation. Neither system is commonly used to apply manure in the survey area. For furrow or border irrigation, the length of the runs should be short and an adequate flow rate per foot or border width is needed. The available water capacity affects the amount of water applied during irrigation and the frequency of irrigation. The amount of water to be applied and the frequency of irrigation are the two key decisions made during irrigation. Sandy soils have a high intake rate and a low available water capacity and can benefit from short runs and frequent, lower volume applications.

Manure is frequently mixed with irrigation water and applied directly to the cropland. Irrigation systems must be designed and managed so that they apply water evenly and in known amounts. When water is not evenly applied to a field, the portion of the field receiving excess water also receives excess manure. Depending on the amount of the water and the condition of the soil, the excess water can percolate below the root zone while carrying salts and nutrients. This percolation can occur throughout the entire field when water is applied far in excess of the available water capacity of the soil. These salts and nutrients may eventually enter the ground water.

The irrigation system should allow the manager to send water containing manure to as many fields on the dairy as is needed to appropriately apply the available liquid manure. If all of the cropland that requires applications of manure receives manure at appropriate rates, the risk of contaminating ground water is reduced. When some fields receive more manure than others because the irrigation system cannot distribute the manure throughout the farm, the risk to water quality is increased.

To avoid losses, irrigation water should not be applied to soils that are too moist. The decision to apply water should be made after the soil moisture level has been estimated. Excess water applied to overly moist soils may runoff at unexpected rates or move below the root zone, carrying nutrients and salts. Applying water containing manure during winter can have a magnified effect. Fields may be moist from rainfall or may not support a crop to use the water. If the storage pond must be lowered in winter, the water should be applied after consideration of the moisture level of the soil in the receiving field and the nutrient demand of the crop. If this process occurs frequently and the dairy does not have not enough fields for the appropriate application of manure, the storage pond may need to be enlarged. Alternatively, such measures as roof gutters to divert rainfall or reduced sprinkler pen washing times can reduce flow to the pond. Special attention is needed if manure is to be applied to Bisgani, Elnido, and other sandy soils in winter since these soils are leached readily.

When the irrigation system ties together all water sources and all fields, it gives the irrigator flexibility. The irrigator can move manure to the field best ready to accept it and can deliver the manure to all fields at the correct flow rates. The design of the system should account for the need to measure waterflow rates, nutrient concentration in the manure, and the flow rates of manure entering the irrigation system from the storage pond. Mixing and dilution of manure water should be considered when the irrigation system is designed. Manure and water do not mix in the pipeline and must be mixed prior to field application. Dilution may be done in the pond, but it requires additional space. All systems require measures that prevent backflow.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and provide food and cover for wildlife. They also protect trees and gardens and furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

The trees that are commonly grown as windbreaks in the survey area are Russian-olive, Arizona cypress, and eucalyptus. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service or from a commercial nursery.

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 11 shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops. They ratings are for application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation.

Ratings are both descriptive and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the 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 (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group (WEG), the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals.

Rangeland

Prepared by Curtis J. Talbot and Loretta J. Metz, Rangeland Management Specialists, Natural Resources Conservation Service.

Rangeland is located in the western half of the survey area, generally between Interstate 5 and the boundary between Fresno County and San Benito and Monterey Counties. It begins on the fan remnants adjacent to the western edge of the San Joaquin Valley within MLRA 17 (Sacramento and San Joaquin Valleys) and ascends to the crest of the Coast Range within MLRA 15 (Central California Coast Range).

In this survey area precipitation, elevation, and aspect play the greatest roles in determining the kind and amount of vegetation produced on rangeland. If areas have similar climate and topography, however, differences in the kind and amount of rangeland or forest understory vegetation are closely related to the kind of soil. Effective management of the rangeland is based on the relationship between soils, vegetation, and the availability of water.

The rangeland on erosional fan remnants in MLRA 17 is characterized by a vegetative cover of annual grasses and forbs. Cyvar and similar soils annually produce 1,500 pounds per acre. A major limitation affecting grazing in this area is the poor distribution of livestock water. The commonly occurring ecological sites on these landforms are Loamy 6-8” p.z. (R017XG043CA) and Loamy Fan Remnant 8-10” p.z. (R017XE061CA).

Moving westward, on the west edge of MLRA 17 and into the eastern part of MLRA 15, an increase in precipitation results in a higher annual production of about 2,000 pounds per acre on Kettleman and similar soils. The vegetative cover, though, is still dominated by annual grasses and forbs. Poor distribution of livestock water continues to be a major limitation. The commonly occurring ecological sites in this area include Loamy 5-8” p.z. (R015XG008CA) and Shallow Loamy 5-8” p.z. (R015XG009CA).

Farther west, within MLRA 15, the landscape is marked by the appearance of brush and trees, although annual production remains about the same as that in the eastern areas. Representative soils in this area include Roacha and Lilten soils. On south- and west-facing slopes, shrubs, such as California buckwheat, characterize the overstory. The commonly occurring ecological sites include Clayey Upland 9-13” p.z. (R015XE075CA) and Clayey Hills 10-14” p.z. (R015XE001CA). On north- and east-facing slopes, trees are characteristic. Blue oak is more common toward the north end of the survey area, and California juniper is more common toward the south end. The most commonly occurring ecological sites are Quercus douglasii-Juniperus californica/Bromus hordeaceus (F015XE078CA) and Shallow Coarse Loamy 10-16” p.z. (R015XE080CA). Steep slopes are a major limitation in this area. Proper stocking rates and a uniform distribution of grazing animals leave an adequate amount of plant residue on the surface and thus protect the surface and ensure future productivity of desirable herbaceous plants.

At the higher elevations in the survey area, near the top of the Coast Range, Hentine and similar soils are shallow and steep. The typical vegetation pattern is thick chaparral, of which chamise is the most common shrub. On north-facing slopes, such trees Coulter pine, foothill pine, and blue oak dominate the overstory. The commonly occurring ecological sites include Quercus douglasii-Pinus sabiniana/Bromus hordeaceus (F015XE074CA), Clayey Hills 10-14” p.z. (R015XE001CA), and Shallow Loamy Hills 10-15” p.z. (gravelly) (R015XE077CA). The annual understory production drops to about 1,000 pounds per acre. Grazing is not very practical in this area because of steep slopes, low forage production, and impenetrable stands of shrubs.

Table 12 shows, for each soil that supports rangeland or forest understory vegetation, the ecological site; the potential annual production of vegetation in favorable, normal, and unfavorable years; the potential natural vegetation; and the average percent composition by dry weight of each species. An explanation of the column headings in table 12 follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, which has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total annual production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service. For a spatial representation of the dominant ecological sites in this survey area, refer to figure 32, which is a thematic map, and to the legend for this map in table 13. Additional information about rangeland ecological sites is given in the “National Range and Pasture Handbook” (USDA, NRCS). Information about ecological sites on forestland (ecological sites with potential natural vegetation dominated by trees and having more than 25 percent canopy cover by vertical projection) is given in to the “National Forestry Manual” (USDA, NRCS).

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area 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 and the temperatures 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.

Potential natural vegetation consists of the grasses, grasslike plants, forbs, shrubs, and trees that make up most of the potential natural plant community on each ecological site. These plants are 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.

Range management requires knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present similarity index and rangeland trend. Similarity index is determined by comparing the present plant community with the potential natural plant community on a particular ecological site. The more closely the existing community resembles the potential community, the higher the similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about similarity index and rangeland trend is available in chapter 4 of the “National Range and Pasture Handbook” (USDA, NRCS).

The objective in rangeland management commonly is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a similarity index somewhat different from the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

The major rangeland practices that are needed on the rangeland in the survey area include prescribed grazing, water developments, fencing, brush management, range planting, and animal trails and walkways.

Prescribed grazing, formerly called “proper grazing,” is the controlled harvest of vegetation by grazing or browsing animals, managed with the intent of achieving a specified objective. Properly following a grazing management plan (a “prescription”) improves or maintains the health and vigor of selected plants. Other benefits of prescribed grazing include improved animal health, improved water quality, and decreased soil erosion. The factors to be considered when a grazing prescription is designed include the degree of plant utilization, the proper distribution of livestock and grazing, the season of use, the type of grazing animal, the type of vegetation (both beneficial and harmful), the distribution of water, and the stocking rate.

Water developments provide livestock and wildlife clean, dependable water on selected sites. Providing water at carefully selected sites can improve the distribution of wildlife. Other benefits include improved animal health and reduced pressure on riparian areas. The factors to be considered when a water development is planned include the type and number of animals, the terrain, the season of use, the soil limitations on selected sites, and the cost of installation and maintenance.

Fencing is used to form a barrier to livestock, wildlife, or people. It facilitates other conservation practices that treat natural resources. The factors to be considered when a fencing project is planned include the ease of livestock management, wildlife movement needs, the soil limitations on selected sites, the cost of construction and maintenance, and legal considerations.

Fencing of Altamont, Climara, Vaquero, and Ayar soils in the Clayey Hills 10-14” p.z. (R015XE001CA) and Clayey Upland 9-13” p.z. (R015XE075CA) ecological sites is difficult. Excessive shrinking and swelling of these soils may force fenceposts out of the ground. Also, landslides and soil creep on the Climara soils in map units 728 and 733 may move fences to downslope areas.

Brush management is the removal or manipulation of shrubby plants. It can be conducted by chemical, mechanical, or biological means or by prescribed burning. Properly managing brush helps to create the desired plant community. The desired plant community can be maintained by prescribed grazing. Other benefits include improved forage, enhanced wildlife habitat, removal of noxious plants, and reduction of wildfire hazards. The factors to be considered when brush management is planned include the form of management, the growth stage of the targeted shrubs, the cost of implementation and followup, the availability of alternative forage during implementation, and the hazards to other natural resources.

Range planting is the establishment of native or nonnative vegetation that is adapted to the area. It results in the desired plant community. The benefits of range planting include improvement in the amount and/or kind of forage species, browse, or cover for livestock and wildlife; reduction of the erosion hazard; and protection of other natural resources. The factors to be considered when a range planting is planned include the nutritional or other value of selected species of vegetation, the soil limitations that affect planting, the soil moisture and temperature regimes, the available water capacity of the soil, the time needed for establishment of the planting, the cost of implementation, and the availability of alternative forage during establishment.

Animal trails and walkways allow livestock and wildlife to access and move through areas of difficult terrain. The benefits of the trails and walkways include improved grazing proficiency; better access to forage, water, and shelter; and easier handling of livestock. The factors to be considered when a trail or walkway in planned include the cost of implementation and maintenance, and the hazard of soil erosion, and damage to other natural resources.

Technical assistance in managing rangeland can be obtained from the local offices of the Natural Resources Conservation Service, the Cooperative Extension Service, and the Westside Resource Conservation District.

Table 14 (“Correlated Ecological Sites”) provides a quick cross-reference of the ecological site ID and name for the sites correlated in this survey area. Table 15 (“Index of Common and Scientific Plant Names and Plant Symbols”) aids in correctly identifying plants and is a cross-reference for the plant species shown in table 12. The current plant synonymy as reported in the “PLANTS Database” (USDA, 2002; http://plants.usda.gov) was used.

General Ecological Site Map Units

Figure 32 (“General Ecological Site Map Units”) shows broad areas that have a distinctive pattern of soils, potential natural vegetation, relief, hydrology, and other characteristics. Each map unit on the general ecological site map is a unique natural landscape. Typically, it consists of one or more major ecological sites or miscellaneous areas and some minor “associated” ecological sites or miscellaneous areas. Each unit is numbered and is referenced in table 13 (“General Ecological Site Map Unit Legend”). The general soil map units were used as a foundation for development of the ecological site map units. All ecological sites are correlated to soil components, and the dominant ecological site(s) for each unit was selected on the basis of the total acreage of those sites and soil components within the unit. The soil components and ecological sites of one general ecological site map unit can occur in another but in a different pattern.

The general ecological site map can be used to compare the suitability of large areas for general land uses and productivity. Areas of suitable ecological sites can be identified on the map. Likewise, areas where the ecological sites are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a ranch or pasture or for selecting a site for a pond, fence, road, or other structure. The ecological sites in any one map unit differ from place to place in potential natural vegetation, physiographic features, soil features, hydrologic characteristics, and other characteristics that affect management and the determination of achievable objectives.

Recreational Development

The soils of the survey area are rated in the tables 16 and 17 according to limitations that affect their suitability for recreation uses. The ratings are both descriptive 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. *Slight* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Moderate* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Severe* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the 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 (1.00) and the point at which the soil feature is not a limitation (0.00).

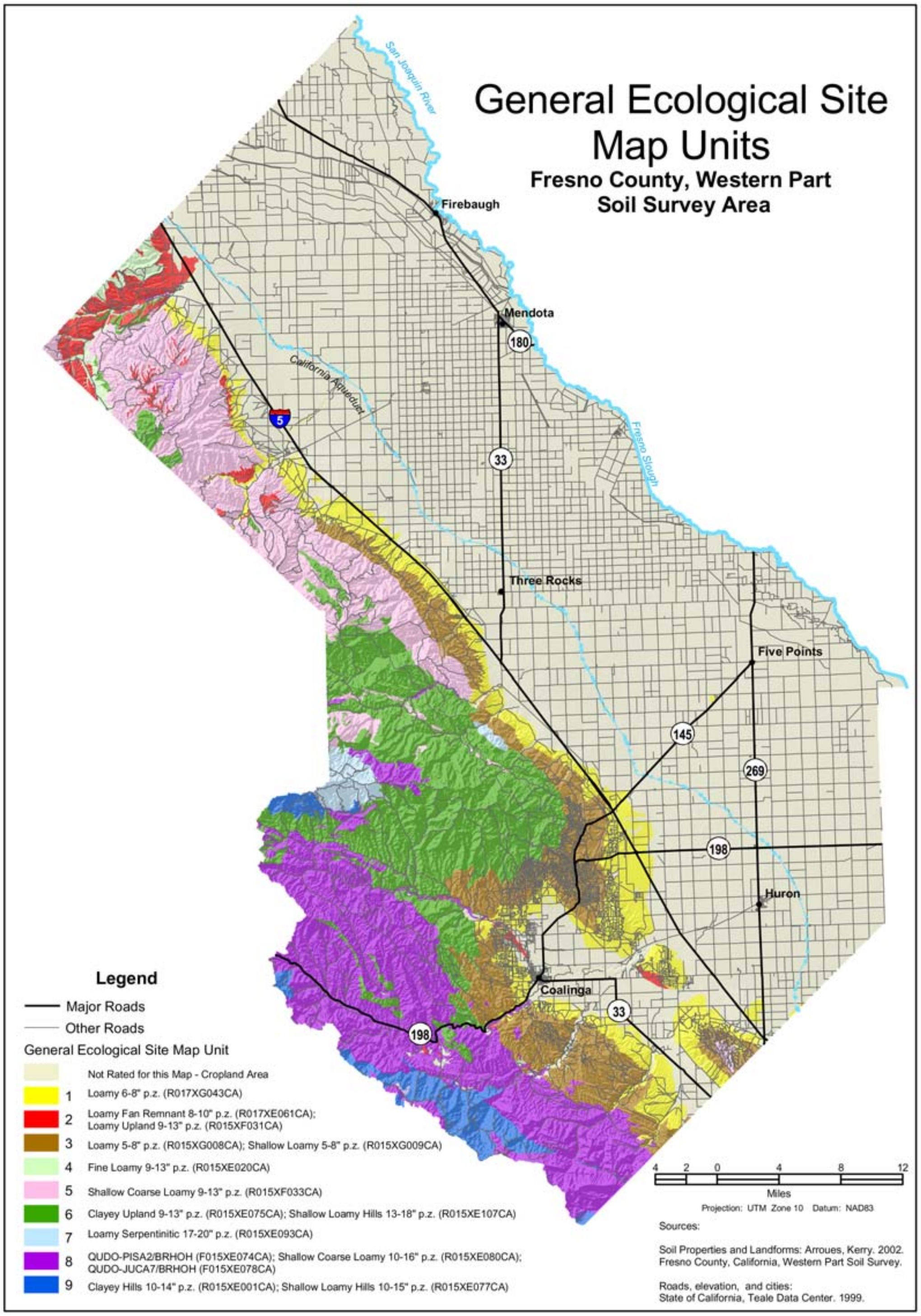


Figure 32.—Ecological sites in the western part of Fresno County.

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 16 and 17 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

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 rock fragments. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Major Management Considerations

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

Dusty: Soil particles detach easily and cause dust.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Permeability: The movement of water through the soil adversely affects the specified use. The permeability may be either too slow or too fast.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Salinity (EC): Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture: At some depth the soil has a sand content or sandy texture that results in soil that is soft and loose, droughty, and low in fertility or is too fine for use as gravel.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Sodicity (SAR): Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Surface clay: The clay content or clayey texture of the surface layer results in a soil that is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

Picnic Areas

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 wetness, ponding, flooding, permeability, and rock fragments. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Major Management Considerations

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

Dusty: Soil particles detach easily and cause dust.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Permeability: The movement of water through the soil adversely affects the specified use. The permeability may be either too slow or too fast.

pH: The pH of the soil is too low (acid) or too high (basic) for most plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Salinity (EC): Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture: At some depth the soil has a sand content or sandy texture that results in soil that is soft and loose, droughty, and low in fertility or is too fine for use as gravel.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Sodicity (SAR): Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Surface clay: The clay content or clayey texture of the surface layer results in a soil that is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

Playgrounds

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 rock fragments on the surface 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, percent clay or sand, content of organic matter, depth to soil wetness, ponding, flooding, permeability, and rock fragments. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Major Management Considerations

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

Dusty: Soil particles detach easily and cause dust.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Permeability: The movement of water through the soil adversely affects the specified use. The permeability may be either too slow or too fast.

pH: The pH of the soil is too low (acid) or too high (basic) for most plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Salinity (EC): Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture: At some depth the soil has a sand content or sandy texture that results in soil that is soft and loose, droughty, and low in fertility or is too fine for use as gravel.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Sodicity (SAR): Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Surface clay: The clay content or clayey texture of the surface layer results in a soil that is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

Paths and Trails

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 rock fragments on the surface, depth to soil wetness, ponding, flooding, slope, texture of the surface layer, and the amount of sand, clay, or organic matter.

Major Management Considerations

Dusty: Soil particles detach easily and cause dust.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

K factor: The soil is in a potential water erosion class.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Sand or sandy texture: At some depth the soil has a sand content or sandy texture that results in soil that is soft and loose, droughty, and low in fertility or is too fine for use as gravel.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Surface clay: The clay content or clayey texture of the surface layer results in a soil that is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

Off-Road Motorcycle Trails

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 rock fragments on the surface, slope, depth to soil wetness, ponding, flooding, texture of the surface layer, and the amount of clay, sand, or organic matter.

Major Management Considerations

Dusty: Soil particles detach easily and cause dust.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Sand or sandy texture: At some depth the soil has a sand content or sandy texture that results in soil that is soft and loose, droughty, and low in fertility or is too fine for use as gravel.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Surface clay: The clay content or clayey texture of the surface layer results in a soil that is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

Lawns, Landscaping, and Golf Fairways

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. 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 soil wetness, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

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 soil wetness, ponding, slope, rock fragments on the surface, texture of the surface layer, and the amount of sand, clay, or organic matter. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Major Management Considerations

Available water capacity (AWC): The available water capacity may be in a range that restricts the growth of plants.

Calcium carbonates: The amount of calcium carbonates may be high enough to restrict plant growth.

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

pH: The pH of the soil is too low (acid) or too high (basic) for most plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

Salinity (EC): Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture: At some depth the soil has a sand content or sandy texture that results in soil that is soft and loose, droughty, and low in fertility or is too fine for use as gravel.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

Sodicity (SAR): Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Sulfur content: The sulfur levels in the soil may be high enough to restrict plant growth.

Surface clay: The clay content or clayey texture of the surface layer results in a soil that is slippery and sticky when wet and slow to dry. The soil climate may modify the limitation.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

Wildlife Habitat

Prepared by Karen L. Fullen, Biologist, Natural Resources Conservation Service.

Fish and wildlife are valuable resources in this survey area. They improve the quality of the environment, act as early indicators of pollution, and provide numerous opportunities for recreation. Wildlife-related activities, such as nature study, bird-watching, hunting, and fishing, have a positive effect on the economy of the area. Many types of wildlife provide natural control of weeds, insects, and animal pests.

Warm-water fish, such as bass, bluegill, crappie and other sunfish, catfish, and several nongame species, inhabit the San Joaquin River, the Fresno Slough, Little Panoche Creek Retention Reservoir, the California Aqueduct, and other bodies of water in the survey area. In addition to habitat for fish and other aquatic wildlife, the river, sloughs, creeks, and drainageways provide corridors of riparian vegetation, which are critical habitat for a wide variety of mammals, birds, reptiles, amphibians, and insects. In the part of the survey area in the San Joaquin Valley, these corridors commonly are the only perennial habitat left for wildlife.

The Mendota Wildlife Refuge, as well as the rivers, sloughs, and other wetlands in the survey area, provide important habitat for migratory waterfowl of the Pacific Flyway. Chaparral and oak woodland areas of the Diablo Mountains are home to a portion of the Pacheco herd of Columbian black-tailed deer. The San Benito Mountain Natural Area supports a unique plant community, including some rare and endangered species.

Human activities have various effects on wildlife populations. Many wildlife species, including coyotes, opossums, and ground squirrels, can tolerate these activities and actually thrive in close association with humans. Conversely, the existence of some species has been threatened by human modification of the environment. Species that have been listed as threatened or endangered by the State or Federal Government in the survey area include San Joaquin kit fox, blunt-nosed leopard lizard, and giant kangaroo rat. Species that are being considered for listing include California tiger salamander and riparian brush rabbit. Critical habitat for these species should be preserved. Preserving habitat for threatened and endangered species can also benefit other species and can reduce the need for additional future listings.

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

To provide a better understanding of the relationship between soils and habitats, the soils of the survey area have been assigned to five habitat groups (fig. 33). These groups are based on the map units described under the heading “General Soil Map Unite.” Each group consists of soils that are on similar landforms, have similar properties, and produce or have the potential to produce similar vegetation. The description of each group includes landforms, soil properties, vegetative elements, habitats of special value, and management considerations.

Wetlands and Related Habitats

This group consists of parts of general soil map unit 1. The soils are dominantly on flood plains on the basin floor. Most of the flood plains are elongated areas near the center of the basin floor, in the middle of the San Joaquin Valley. The soils are nearly

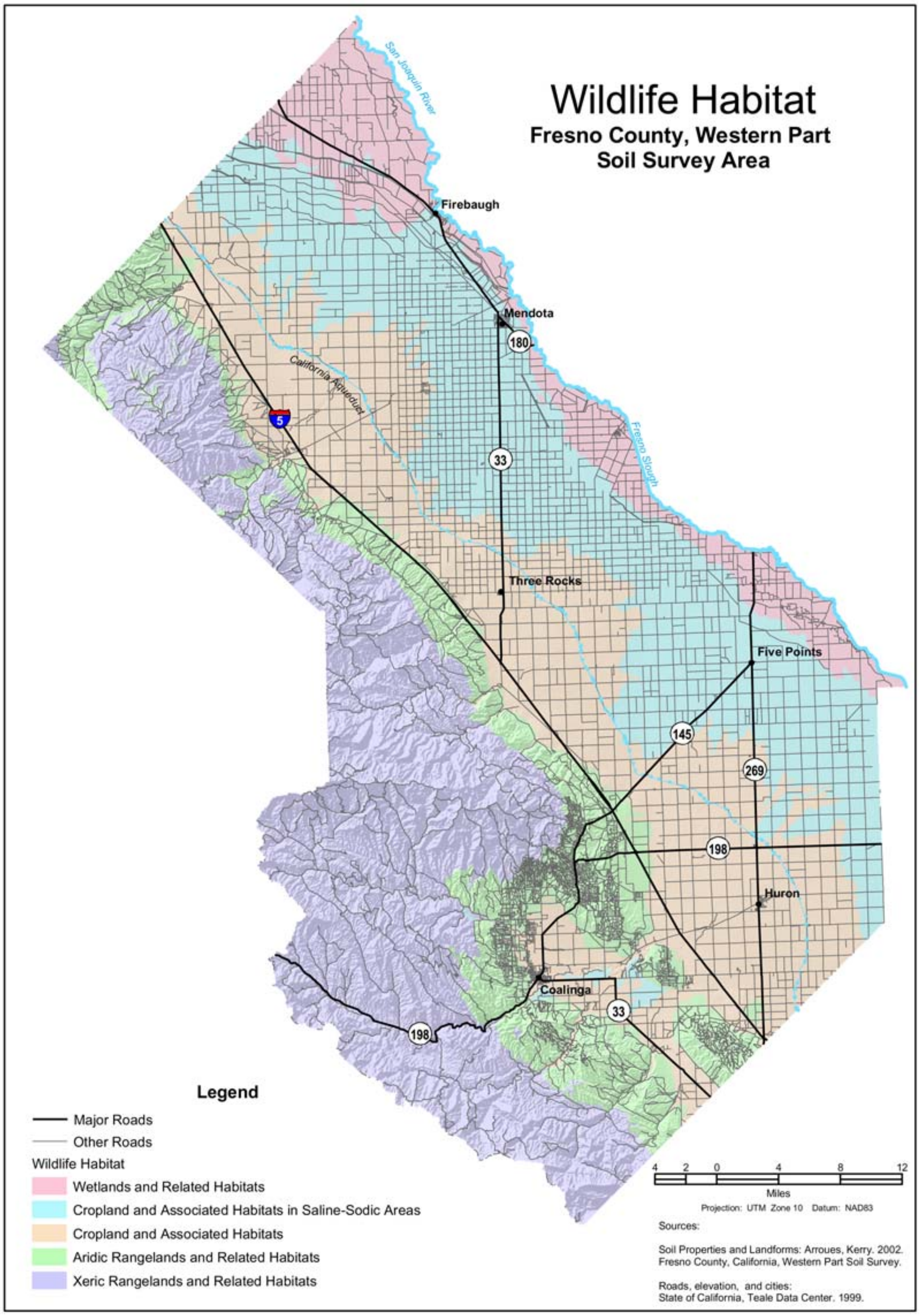


Figure 33.—Kinds of wildlife habitat in the western part of Fresno County.

level, very deep, coarse textured to fine textured, and very poorly drained or poorly drained. The vegetative elements include grain and seed crops, domestic grasses and legumes, wild herbaceous plants, saline and nonsaline wetland plants, and riparian shrubs, trees, and vines.

Habitats of special value include the Mendota Wildlife Refuge and other riparian areas associated with waterways. This type of habitat provides food, water, and cover for a greater diversity of wildlife than any other type in the Central Valley. Riparian habitat has been reduced to less than 10 percent of the historical amount in the survey area by flood control and drainage projects that have made conversion to agriculture and homesite development possible. A narrow corridor of riparian vegetation along a streambank commonly is the only perennial wildlife habitat remaining in agricultural areas. Wetlands associated with the San Joaquin River, such as sloughs, marshes, and oxbow lakes, also have been largely eliminated.

Management considerations include protecting the existing riparian vegetation. Large trees and snags should be retained as perches and nesting sites for birds.

Maintaining and restoring riparian and wetland habitats on these soils may be limited by an artificially lowered water table and a reduction in the frequency of flooding caused by the construction of drainage systems, dams, and levees. This limitation can be overcome by the application of supplemental water. Another method that has been used in this survey area involves strategic breaching of levees in order to restore floodwater flows to the desired wildlife habitat area while still protecting cropland and homesites from inundation. In some areas the soils in this group are limited by saline-sodic conditions. Plants used in developing wetland habitat in these saline-sodic areas must be tolerant of saline-sodic conditions.

Cropland and Associated Habitats in Saline-Sodic Areas

This group consists of parts of general soil map units 2, 4, and 7. The soils are dominantly on fan skirts. In some areas they are on fan remnants near Lemoore Naval Air Station. The soils are nearly level, very deep, medium textured to fine textured, and somewhat poorly drained or moderately well drained. The vegetative elements include grain and seed crops, grasses and legumes, and wild herbaceous plants.

Habitats of special value include irrigated pasture, alfalfa, and grain fields, especially fields of rice. Herons, cranes, other waterfowl, and pheasants utilize these areas for resting and/or feeding.

Management considerations for improving wildlife habitat in this group include providing water in summer and food and cover throughout the year. A summer water supply generally is readily available from irrigation systems. Year-round food and cover can be supplied by establishing hedgerows along field borders, leaving grain standing in the fields throughout winter, and maintaining naturally occurring vegetation in adjacent uncultivated areas. Plants that are tolerant of saline-sodic conditions should be selected. Rodent problems can often be controlled by installing raptor perches and nest boxes on field borders.

Cropland and Associated Habitats

This group consists of parts of general soil map units 3, 5, and 6. The soils are dominantly on alluvial fans and the upper part of fan skirts. They are nearly level to undulating, very deep, moderately coarse textured to fine textured, and moderately well drained or well drained. The vegetative elements include grain and seed crops, grasses and legumes, and wild herbaceous plants.

Habitats of special value include irrigated pasture and alfalfa and grain fields. Herons, cranes, other waterfowl, and pheasants utilize these areas for resting and/or feeding. Vineyards and orchards provide cover, nesting, and roosting sites for other birds, including doves and quail.

Management considerations for improving wildlife habitat in this group include providing water in summer and food and cover throughout the year. A summer water supply generally is readily available from irrigation systems. Year-round food and cover can be supplied by establishing hedgerows along field borders, leaving grain standing in the fields throughout winter, planting cover crops in orchards and vineyards, and maintaining naturally occurring vegetation in the adjacent uncultivated areas. Rodent problems commonly can be controlled by installing raptor perches and nest boxes on field borders.

Aridic Rangelands and Related Habitats

This group consists of general soil map units 8, 9, 10, and 11. The soils are dominantly on fan remnants and hills. They are nearly level to steep, moderately coarse textured to moderately fine textured, shallow to very deep, and somewhat excessively drained or well drained. The vegetation on these soils is influenced by soil depth and parent material, slope, aspect, and the timing and amount of precipitation. The vegetative elements range from wild herbaceous plants to upland shrubs and occasional trees.

Habitats of special value include riparian areas along creeks. Riparian areas provide corridors of cover and water in otherwise open and arid regions.

Management considerations include grazing systems that improve the amount of ground cover and promote the growth of plant species most desirable to livestock and wildlife. In riparian areas strict control of grazing is needed to maintain the characteristic plant communities and the wildlife dependent on them. Brush clearing and thinning activities should be planned so that they enhance the habitat by retaining the most productive patches of shrubs for cover. The development of year-round water supplies, such as livestock troughs and guzzlers, and the careful management of existing water sources in springs and riparian areas greatly enhance the habitat for all wildlife.

Xeric Rangelands and Related Habitats

This group consists of general soil map units 12, 13, 14, 15, and 16. The soils are dominantly on mountains. They are gently sloping to very steep, moderately coarse textured to fine textured, shallow to very deep, and well drained. The vegetation on these soils is diverse and is influenced by soil depth, parent material, slope, aspect, and elevation. The vegetative elements range from wild herbaceous plants to upland shrubs and trees.

Habitats of special value include oak and pine-oak woodlands, chaparral and coastal sagebrush areas, serpentine plant communities, and riparian areas along creeks. Oaks and pines provide food and nesting, perching, and roosting sites for many wildlife species, especially birds. More than 160 species of birds and 60 species of mammals (one-third of all the mammals in California) live in oak woodlands. The shrubs of the chaparral and coastal sagebrush communities provide dense cover and food for a wide variety of animals. Deer browse the leaves of these plants and bed down under their cover. Many of the shrubs also produce berries used by birds and other animals. In general soil map units 14 and 16, the soils that formed in material weathered from serpentinite support unique plant communities. Riparian areas provide corridors of cover and water in otherwise open and arid regions.

Management considerations include grazing systems that increase the amount of ground cover and promote the growth of plant species most desirable to livestock and wildlife. In riparian areas strict control of grazing is needed to maintain the characteristic plant communities and the wildlife dependent on them. Brush clearing and thinning activities should be planned so that they enhance the habitat by retaining the most productive food trees and patches of shrubs for cover. Retaining oaks and pines that are past maturity, as well as their snags, at the rate of one or two per acre provides optimum perching, nesting, and food-storage sites for birds and cavity-nesting mammals. Fallen trees and branches provide feeding, perching, and sheltering areas. The development of year-round water supplies, such as livestock troughs and guzzlers, and the careful management of existing water sources in springs and riparian areas greatly enhance the habitat for all wildlife.

Hydric Soils

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (U.S. Army Corps of Engineers, 1987). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 1998) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

A list of map unit components (both major and minor) that meet the definition of hydric soils is on file in section 2 of the NRCS Field Office Technical Guide in Fresno, California. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

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 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 within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

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

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations 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 grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the 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, and industrial 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, topsoil, reclamation material, and roadfill; plan pond reservoir areas, embankments, dikes, and levees; 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 18 and 19 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 descriptive 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. *Slight* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Moderate* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Severe* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the 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 (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 soil wetness, ponding, flooding, subsidence, linear extensibility (LEP or 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 soil wetness, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount, size, and depth 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 soil wetness, ponding, flooding, subsidence, linear extensibility (LEP or 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, size, and depth 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 soil wetness, ponding, flooding, the amount of rock fragments, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (LEP or 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 rock fragments, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal soil wetness, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to soil wetness, and linear extensibility (LEP or shrink-swell potential) influence the resistance to sloughing.

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

Major Management Considerations for Dwellings

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for dwellings.
- If slopes are more than 8 percent, the cuts needed to provide level building sites can expose the bedrock.
- The bedrock can serve as a good base for the foundation.
- Frequent irrigation cycles and controlled application rates help to maintain vegetation.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for dwellings.
- If slopes are more than 8 percent, the cuts needed to provide level building sites can expose the cemented pan.
- The pan can serve as a good base for the foundation.
- Frequent irrigation cycles and controlled application rates help to maintain vegetation and prevent the development of a perched water table.
- If deep-rooted plants, such as trees, are planted, the pan should be ripped or broken up to increase the rooting depth.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The hazard of flooding should be considered before buildings or capital improvements are planned and installed.
- The buildings should be constructed above the expected level of flooding.
- Dikes and channels that have outlets for floodwater can be used to protect the buildings from flooding.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- A drainage system is needed where building foundations are constructed.

Shrink-swell (LEP): The shrinking of soil when dry and the swelling when wet are expressed as the linear extensibility percent (LEP). Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

- Properly designing foundations and footings and diverting runoff away from buildings help to prevent the structural damage caused by shrinking and swelling.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil. Excavation for buildings increases the hazard of erosion.

- During construction all bare ground should be mulched. A ground cover should be established to prevent excessive erosion during periods of heavy rainfall.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

- A drainage system is needed where roads and building foundations are constructed.

Major Management Considerations for Small Commercial Buildings

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for small commercial buildings.
- If slopes are more than 4 percent, the cuts needed to provide level building sites can expose the bedrock.
- The bedrock can serve as a good base for the foundation.
- Frequent irrigation cycles and controlled application rates help to maintain vegetation.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for small commercial buildings.
- If slopes are more than 4 percent, the cuts needed to provide level building sites can expose the cemented pan.
- The pan can serve as a good base for the foundation.
- Frequent irrigation cycles and controlled application rates help to maintain vegetation and prevent the development of a perched water table.
- If deep-rooted plants, such as trees, are planted, the pan should be ripped or broken up to increase the rooting depth.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The hazard of flooding should be considered before small commercial buildings or capital improvements are planned and installed.
- The buildings should be constructed above the expected level of flooding.
- Dikes and channels that have outlets for floodwater can be used to protect the buildings from flooding.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- A drainage system is needed where building foundations are constructed.

Shrink-swell (LEP): The shrinking of soil when dry and the swelling when wet are expressed as the linear extensibility percent. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

- Properly designing foundations and footings and diverting runoff away from buildings help to prevent the structural damage caused by shrinking and swelling.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil. Excavation for buildings increases the hazard of erosion.

- During construction all bare ground should be mulched. A ground cover should be established to prevent excessive erosion during periods of heavy rainfall.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

- A drainage system is needed where building foundations are constructed.

Major Management Considerations for Local Roads and Streets

AASHTO GI (soil strength): Engineering properties of the soil expressed as the AASHTO Group Index indicate soil strength. Values of more than 8 indicate low soil strength for road construction.

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for local roads and streets.
- If slopes are more than 8 percent, the cuts needed to provide level sites for roads and streets can expose the bedrock.
- The bedrock can serve as a good base for the road or street.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for local roads and streets.
- If slopes are more than 8 percent, the cuts needed to provide level sites local roads and streets can expose the cemented pan.
- The pan can serve as a good base for the road or street.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Frost action: The upward or lateral movement of the soil caused by the formation of ice lenses may damage roads and streets.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- A drainage system is needed where roads are constructed.

Shrink-swell (LEP): The shrinking of soil when dry and the swelling when wet are expressed as the linear extensibility percent. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

- Properly designing the road base and diverting runoff away from the roads help to prevent the road damage caused by shrinking and swelling.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil. Excavation for roads increases the hazard of erosion.

- During construction all bare ground should be mulched. A ground cover should be established to prevent excessive erosion during periods of heavy rainfall.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and road construction.

- A drainage system is needed where roads are constructed.

Major Management Considerations for Shallow Excavations

Clay or clayey texture: At some depth the content of clay or a clayey texture results in soil that is slippery and sticky when wet and slow to dry.

Caving potential: The walls or sides of excavations tend to cave inwards. All soil excavations have a potential to cave, but some soils have a higher potential than others.

Bulk density (dense layer): A soil layer has a bulk density that results in a soil that is too dense for the use.

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for excavations.
- If slopes are more than 8 percent, excavations can expose the bedrock.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for excavations.
- If slopes are more than 8 percent, excavations can expose the cemented pan.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The hazard of flooding should be considered when excavations are planned.
- Dikes and channels that have outlets for floodwater can be used to protect the excavations.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- A drainage system is needed during wet periods.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil. Excavation increases the hazard of erosion.

- During construction all bare ground should be mulched. A ground cover should be established to prevent excessive erosion during periods of heavy rainfall.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

- A drainage system is needed during wet periods.

Sanitary Facilities

Tables 20 and 21 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 descriptive and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Slight* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Moderate* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Severe* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the 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 (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. Rock fragments 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, rock fragments, and content of organic matter.

The permeability of the soil 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 also is a hazard if fractured bedrock is within a depth of 40 inches, if soil wetness is high enough in the profile 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 rock fragments 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.

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

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

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 table 21 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 soil wetness, 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 table 21 are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to soil wetness, 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 table 21 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 soil wetness, 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 rock fragments 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 soil wetness 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.

Major Management Considerations for Septic Tank Absorption Fields

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for septic tank absorption fields.
- The filtering capacity of the leach lines is restricted by the limited soil volume available for filtering the effluent, or bedrock can prevent installation of the leach lines. If the leach lines are installed too close to the bedrock, the effluent can contaminate ground water.
- Enlarging the septic tank absorption fields helps to overcome the limited depth to bedrock.
- If slopes are more than 8 percent, the cuts needed to provide essentially level sites can expose the bedrock.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

- The pan reduces the soil volume available for filtering the effluent. Tests should be made below the pan depth to determine if the lines should be placed below the pan.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The hazard of flooding should be considered before capital improvements are planned and the system is installed.
- The system should be located above the expected level of flooding.
- Dikes and channels that have outlets for floodwater can be used to protect the onsite sewage-disposal system from flooding.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Permeability: The movement of water through the soil adversely affects the specified use. The permeability may be either too slow or too fast.

- Restricted permeability increases the possibility of failure of septic tank absorption fields.
- The restricted permeability can be overcome by increasing the size of the absorption field and using coarser textured backfill material or by placing the leach lines in strata that are more permeable.
- Building up or mounding the site for the septic system with suitable fill material increases the filtering capacity of the absorption field.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- Using suitable fill material to raise the filter field improves the performance of the septic system.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

- Onsite investigation is needed to identify areas where the soil is suitable for septic tank absorption fields.
- Installing the leach lines on the contour helps to prevent the seepage of effluent in downslope areas.
- During construction all bare ground should be mulched. A ground cover should be established to prevent excessive erosion during periods of heavy rainfall.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of the septic system.

Major Management Considerations for Sewage Lagoons

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for a sewage lagoon.
- Enlarging the sewage lagoon helps to overcome the limited depth to bedrock.
- If slopes are more than 2 percent, the cuts needed to provide essentially level lagoon sites can expose the bedrock.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for a sewage lagoon.
- Enlarging the sewage lagoon helps to overcome the limited depth to a cemented pan.
- If slopes are more than 2 percent, the cuts needed to provide essentially level lagoon site can expose the cemented pan.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The hazard of flooding should be considered before capital improvements are planned and the sewage lagoon is installed.
- The sewage lagoon should be located above the expected level of flooding.
- Dikes and channels that have outlets for floodwater can be used to protect the sewage lagoon from flooding.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Permeability: The movement of water through the soil adversely affects the specified use. The permeability may be either too slow or too fast.

- A suitable lining is needed to prevent seepage and the contamination of ground water.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- Using suitable fill material to raise the sewage lagoon improves performance.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

- Onsite investigation is needed to identify areas where the soil is suitable for sewage lagoons.
- Installing sewage lagoons on the contour helps to prevent the seepage of effluent in downslope areas.
- During construction all bare ground should be mulched. A ground cover should be established to prevent excessive erosion during periods of heavy rainfall.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

- Using suitable fill material to raise the sewage lagoon a sufficient distance above the seasonal high water table improves performance.

Major Management Considerations for Trench Sanitary Landfills

Clay or clayey texture: At some depth the content of clay or a clayey texture results in soil that is slippery and sticky when wet and slow to dry.

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for a sanitary landfill.
- Enlarging the sanitary landfill helps to overcome the limited depth to bedrock.

- If slopes are more than 8 percent, the cuts needed to provide essentially level sites can expose the bedrock.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for a sanitary landfill.
- If the cemented pan is thick, enlarging the sanitary landfill helps to overcome the limited depth to the pan.
- If the cemented pan is thin and suitable soil material is underneath the pan, ripping the pan can improve performance.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The hazard of flooding should be considered before capital improvements are planned and the sanitary landfill is installed.
- The sanitary landfill should be located above the expected level of flooding.
- Dikes and channels that have outlets for floodwater can be used to protect the sanitary landfill from flooding.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Permeability: The movement of water through the soil adversely affects the specified use. The permeability may be either too slow or too fast.

- A suitable lining is needed to prevent seepage and the contamination of ground water.

pH: The pH of the soil is too low (acid) or too high (basic) for most plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- Using suitable fill material to raise the sanitary landfill improves performance.

Salinity (EC): Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture: At some depth the content of sand or a sandy texture results in soil that is soft and loose, droughty, and low in fertility or is too fine for use as gravel.

Sodicity (SAR): Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

- Onsite investigation is needed to identify areas where the soil is suitable for a sanitary landfill.
- Installing sanitary landfills on the contour helps to prevent seepage of effluent in downslope areas.
- During construction all bare ground should be mulched. A ground cover should be established to prevent excessive erosion during periods of heavy rainfall.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

- Using suitable fill material to raise the sanitary landfill a sufficient distance above the seasonal high water table improves performance.

Major Management Considerations for Area Sanitary Landfills

Depth to bedrock: Bedrock is close enough to the surface to restrict the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for a sanitary landfill.

- Enlarging the sanitary landfill helps to overcome the limited depth to bedrock.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

- Onsite investigation is needed to identify areas where the soil is deep enough for a sanitary landfill.
- Enlarging the sanitary landfill helps to overcome the limited depth to a cemented pan.

Flooding: The soil is flooded by moving water from stream overflow, runoff, or high tides.

- The hazard of flooding should be considered before capital improvements are planned and the sanitary landfill is installed.
- The sanitary landfill should be located above the expected level of flooding.
- Dikes and channels that have outlets for floodwater can be used to protect the sanitary landfill from flooding.

Permeability: The movement of water through the soil adversely affects the specified use. The permeability may be either too slow or too fast.

- A suitable lining is needed to prevent seepage and the contamination of ground water.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- Using suitable fill material to raise the sanitary landfill improves performance.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

- Onsite investigation is needed to identify areas where the soil is suitable for a sanitary landfill.
- Installing sanitary landfills on the contour helps to prevent seepage of effluent in downslope areas.
- During construction all bare ground should be mulched. A ground cover should be established to prevent excessive erosion during periods of heavy rainfall.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

- Using suitable fill material to raise the sanitary landfill a sufficient distance above the seasonal high water table improves performance.

Major Management Considerations for Daily Cover for Landfill

Calcium carbonates: The amount of calcium carbonates may be high enough to restrict plant growth.

Clay or clayey texture: At some depth the content of clay or a clayey texture results in soil that is slippery and sticky when wet and slow to dry.

Depth to bedrock: Bedrock is too near the surface.

- Onsite investigation is needed to identify areas where the soil is deep enough to be a source of cover material.

Depth to pan: Dense, hard, somewhat impervious cemented soil material at a specific depth restricts the use.

- Onsite investigation is needed to identify areas where the soil is deep enough to be a source of cover material.

Fragments: The profile contains enough fragments of a specific size to restrict site preparation or trafficability.

Packing: The Unified class OL, OH, CH, or MH indicates that soil may be difficult to compact with regular earthwork construction equipment.

Organic matter (OM): A high content of organic matter at some depth, sometimes expressed as a Unified soil class (PT, OL, or OH), can result in poor engineering properties and subsidence. A low content of organic matter can restrict plant growth.

Permeability: The movement of water through the soil adversely affects the specified use. The permeability may be either too slow or too fast.

- The material is too coarse for use as landfill cover, and seepage through the material may contaminate ground water.

pH: The pH of the soil is too low (acid) or too high (basic) for most plant growth.

Ponding: Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration.

- Seasonal ponding may restrict access to the material.

Salinity (EC): Excess water-soluble salts in the soil restrict the growth of most plants.

Sand or sandy texture: At some depth the content of sand or a sandy texture results in soil that is soft and loose, droughty, and low in fertility or is too fine for use as gravel.

Slope: The slope is steep enough that special practices are required to ensure satisfactory performance of the soil.

- Onsite investigation is needed to identify areas where the slope is suitable.
- If slopes are more than 8 percent, the needed cuts may expose undesirable material.
- The cuts should be mulched. A ground cover should be established to prevent excessive erosion during periods of heavy rainfall.

Sodicity (SAR): Excess exchangeable sodium, which imparts poor physical properties, restricts the growth of plants.

Wetness: Wetness near the surface or a high water table restricts the growth of plants and the construction of facilities.

- Seasonal wetness may restrict access to the material.

Construction Materials

Tables 22 and 23 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.

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.

The soils are rated as a *good* or *poor* source of sand and gravel. A rating of *good* means that the source material is likely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

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 22, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes, the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

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 table 23 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 table 23, 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 rock fragments, depth to soil wetness, 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 24 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and for embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In table 24, 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.

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.

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. Soil wetness near the surface affects the amount of usable material. It also affects the ability of the soil to withstand traffic.

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 25 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, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

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 26 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.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 26, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In table 26, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 26, 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 content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

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 earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- 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 26, 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.

Erosion factors are shown in table 26 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 six 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.

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.

Chemical Properties

Table 27 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.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

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 or decisiemens per meter 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.

Water Features

Table 28 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 28 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 28 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 29 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.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

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

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.

Physical and Chemical Analyses of Selected Soils

The results of physical and chemical analyses of several typical pedons in the survey area are given in the laboratory tables in the Appendix. The data are for soils sampled at carefully selected sites. The pedons are representative of the series described in the section “Soil Series and Their Morphology.” Soil samples were analyzed by the Soil Survey Laboratory, United States Department of Agriculture, Natural Resources Conservation Service, Lincoln, Nebraska.

Most determinations, except those for grain-size analysis and bulk density, were made on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an ovendry basis. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods (USDA, 1996).

Coarse materials—(2-75 mm fraction) weight estimates of the percentages of all material less than 75 mm (3B1).

Coarse materials—(2-250 mm fraction) volume estimates of the percentages of all material greater than 2 mm (3B2).

Sand—(0.05-2.0 mm fraction) weight percentages of material less than 2 mm (3A1).

Silt—(0.002-0.05 mm fraction) pipette extraction, weight percentages of all material less than 2 mm (3A1).

Clay—(fraction less than 0.002 mm) pipette extraction, weight percentages of material less than 2 mm (3A1).

Carbonate clay—(fraction less than 0.002 mm) pipette extraction, weight percentages of material less than 2 mm (3A1d).

Water retained—pressure extraction, percentage of ovendry weight of less than 2 mm material; $^1/_3$ or $^1/_{10}$ bar, natural clod (4B1c), 15 bars (4B2a).

Water-retention difference—between $^1/_3$ bar and 15 bars for whole soil (4C1).

Bulk density—of material less than 2 mm, saran-coated clods field moist (4A1a), $^1/_3$ bar (4A1d), ovendry (4A1h).

Linear extensibility (coefficient of linear extensibility)—change in clod dimension based on whole soil (4D1).

Organic carbon—wet combustion. Walkley-Black modified acid-dichromate, ferric sulfate titration (6A1c).

Total nitrogen—Kjeldahl (6B3a).

Extractable cations—ammonium acetate pH 7.0, atomic absorption; calcium (6N2e), magnesium (6O2d), sodium (6P2b), potassium (6Q2b).

Extractable acidity—barium chloride-triethanolamine IV (6H5a).
Cation-exchange capacity—ammonium acetate, pH 7.0, steam distillation (5A8b).
Cation-exchange capacity—sum of cations (5A3a).
Effective cation-exchange capacity—sum extractable cations plus aluminum (5A3b).
Base saturation—ammonium acetate, pH 7.0 (5C1).
Base saturation—sum of cations, TEA, pH 8.2 (5C3).
Ratios and estimates to total clay—cation-exchange capacity, 15-bar water (8D1).
Fabric-related analyses, liquid limit (4F1).
Fabric-related analyses, plasticity index (4F).
Reaction (pH)—1:1 water dilution (8C1f).
Reaction (pH)—saturated paste (8C1b).
Reaction (pH)—calcium chloride (8C1f).
Aluminum—potassium chloride extraction (6G9a).
Aluminum—dithionite-citrate extraction (6G7a).
Iron—dithionite-citrate extraction (6C2b).
Sesquioxides—dithionate-citrate extract; iron (6C2b), aluminum (6G7a), manganese (6D2a).
Soil resistivity—saturated paste (8E1).
Total soluble salts—estimate from electrical conductivity of saturated paste (8D5).
Predict-salt prediction test (8I).
Chemical analyses, total selenium content (8P).
Carbonate as calcium carbonate—(fraction less than 2 mm) manometric (6E1g).
Gypsum—precipitation in acetone (6F1a).
Soluble ions—acid titration, saturated paste; carbonate (6I1b), bicarbonate (6J1b).
Soluble ions—anion chromatograph, saturated paste; chloride (6K1c), sulfate (6L1c), nitrate (6M1c).
Electrical conductivity—saturation extract (8A3a).
Sodium adsorption ratio (5E).
Extractable phosphorus—Bray P-1 (6S3).
Mineralogy, instrumental analyses, X-ray diffraction, Phillips XRG-300 X-ray diffractometer, thin film on glass, resin pretreatment II (7A2i).
Mineralogy, instrumental analyses, differential scanning calorimetry (7A6).
Mineralogy, total analysis (7C3)

Engineering Index Test Data

The tables in the Appendix show laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are representative of the series described in the section “Soil Series and Their Morphology.” The soil samples were analyzed by the Soil Survey Laboratory, United States Department of Agriculture, Natural Resources Conservation Service, Lincoln, Nebraska.

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

The tests and methods are AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 422 (ASTM), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 4318 (ASTM); Plasticity index—T 90 (AASHTO), D 4318 (ASTM); Moisture density—T 99 (AASHTO), D 698 (ASTM); Specific gravity—T 100 (AASHTO), D 854 (ASTM); California bearing ratio—T 193 (AASHTO), D 1883 (ASTM); and Shrinkage—T 92 (AASHTO), D 427 (ASTM).

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 30 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 Durixeralfs (*Dur*, meaning duripan, 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 Durixeralfs.

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, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy, mixed, superactive, thermic, shallow Typic Durixeralfs.

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.

TAXADJUNCTS. Taxadjuncts are soils that have properties outside the range of any recognized series and that are outside higher category class limits by one or more differentiating characteristics of the series. A taxadjunct is given the name of an established series that is most similar in characteristics. It is adjunct to, but not part of, the named series (Soil Survey Division Staff, 1993).

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.

Agnal Series

The Agnal series consists of very deep, poorly drained soils on fan skirts. These soils formed in alluvium derived from igneous rock, sedimentary rock, or both. Slopes are 0 to 1 percent.

Taxonomic class: Fine, smectitic, thermic Typic Aquisalids

Typical Pedon

Map unit: Agnal silty clay, 0 to 1 percent slopes

Anz1—0 to 2 inches; dark grayish brown (2.5Y 4/2) silty clay, very dark grayish brown (2.5Y 3/2) moist; strong coarse subangular blocky structure; very hard, firm, very sticky and moderately plastic; many very fine roots throughout; few very fine interstitial and tubular and few very fine interstitial pores; electrical conductivity of 15 decisiemens per meter; sodium adsorption ratio of 51; slightly alkaline (pH 7.4); abrupt smooth boundary.

Anz2—2 to 6 inches; dark grayish brown (2.5Y 4/2) clay, very dark grayish brown (2.5Y 3/2) moist; weak medium subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; many very fine roots throughout; many very fine interstitial pores; electrical conductivity of 28 decisiemens per meter; sodium adsorption ratio of 107; moderately alkaline (pH 8.1); abrupt smooth boundary.

Bnyz1—6 to 9 inches; dark grayish brown (2.5Y 4/2) clay, very dark grayish brown (2.5Y 3/2) moist; strong very fine granular structure parting to single grain; very hard, very friable, moderately sticky and moderately plastic; few very fine roots and very fine interstitial pores; many fine and medium irregular soft masses of iron-manganese; very slightly effervescent; disseminated carbonates; electrical conductivity of 68 decisiemens per meter; sodium adsorption ratio of 265; moderately alkaline (pH 8.3); abrupt smooth boundary.

Bnyz2—9 to 10 inches; dark grayish brown (2.5Y 4/2) clay, very dark grayish brown (2.5Y 3/2) moist; strong very fine granular structure; very hard, very friable, moderately sticky and moderately plastic; few very fine roots; many very fine and fine interstitial pores; many fine and medium irregular gypsum crystals; very slightly effervescent; disseminated carbonates; electrical conductivity of 71 decisiemens per meter; sodium adsorption ratio of 254; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bnyz3—10 to 17 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; weak fine angular blocky structure parting to weak fine subangular blocky; very hard, friable, moderately sticky and moderately plastic; few very fine roots throughout; common to many very fine and fine interstitial and tubular pores; patchy pressure faces throughout; common fine to coarse irregular gypsum crystals and very few fine rounded soft dark masses; strongly effervescent; disseminated carbonates; electrical conductivity of 39 decisiemens per meter; sodium adsorption ratio of 113; common fine distinct very dark gray (5Y 3/1) redoximorphic depletions; strongly alkaline (pH 8.9); gradual wavy boundary.

Bnyz4—17 to 25 inches; light brownish gray (2.5Y 6/2) silty clay, dark grayish brown (2.5Y 4/2) moist; weak fine angular blocky structure parting to weak fine subangular blocky parting to weak very fine subangular blocky; extremely hard, friable, very sticky and moderately plastic; few very fine roots throughout; common to many very fine and fine interstitial and tubular pores; patchy pressure faces throughout; common fine and medium irregular gypsum crystals and few fine rounded soft dark masses; strongly effervescent; disseminated carbonates; electrical conductivity of 33 decisiemens per meter; sodium adsorption ratio of 95; few fine distinct very dark gray (5Y 3/1) redoximorphic depletions; very strongly alkaline (pH 9.1); gradual wavy boundary.

Bnyz5—25 to 34 inches; light brownish gray (2.5Y 6/2) silty clay, dark grayish brown (2.5Y 4/2) moist; extremely hard, friable, very sticky and moderately plastic; few very fine roots throughout; very few medium discontinuous tubular pores; patchy pressure faces throughout; few fine irregular gypsum crystals and few fine rounded soft dark masses of iron and manganese; electrical conductivity of 30 decisiemens per meter; sodium adsorption ratio of 84; strongly effervescent; disseminated carbonates; strongly alkaline (pH 8.8); gradual wavy boundary.

Bnyz6—34 to 44 inches; light brownish gray (2.5Y 6/2) silty clay, dark grayish brown (2.5Y 4/2) moist; massive; extremely hard, friable, very sticky and very plastic; few very fine roots throughout; common very fine and fine interstitial and tubular pores; patchy pressure faces throughout; common fine and medium irregular gypsum crystals and common fine rounded soft dark masses of iron-manganese; electrical conductivity of 34 decisiemens per meter; sodium adsorption ratio of 92; strongly effervescent; disseminated carbonates; strongly alkaline (pH 8.6); gradual wavy boundary.

Bnyz7—44 to 59 inches; light yellowish brown (2.5Y 6/4) silty clay, olive brown (2.5Y 4/4) moist; massive; extremely hard, friable, very sticky and very plastic; few very fine roots throughout; common very fine and fine interstitial and few medium discontinuous tubular pores; patchy pressure faces throughout; common very fine and fine irregular gypsum crystals; strongly effervescent; disseminated carbonates; electrical conductivity of 25 decisiemens per meter; sodium adsorption ratio of 70; strongly alkaline (pH 8.8); gradual wavy boundary.

Bnyz8—59 to 70 inches; light yellowish brown (2.5Y 6/4) silty clay, olive brown (2.5Y 4/4) moist; massive; extremely hard, friable, very sticky and very plastic; few very fine roots throughout; few very fine interstitial and tubular pores; patchy pressure faces throughout; common very fine and fine irregular gypsum crystals and few medium irregular gypsum crystals; strongly effervescent; disseminated carbonates; electrical conductivity of 16 decisiemens per meter; sodium adsorption ratio of 46; strongly alkaline (pH 8.6).

Location of typical pedon: Fresno County, California; about 8 miles south-southeast of the community of Dos Palos, 150 feet south of railroad tracks and 35 feet west of drainage canal; 1,250 feet north and 1,975 feet east of the southwest corner of sec. 11, T. 12 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 53 minutes 54 seconds N. and long. 120 degrees 31 minutes 10 seconds W.; USGS Oxalis Topographic Quadrangle, NAD 27.

Range in Characteristics

The content of organic matter ranges from 1 to 3 percent in the A horizon and then decreases regularly with depth below the A horizon.

The A horizon has dry color of 2.5Y 4/2 or 4/3. Moist color is 2.5Y 3/2 or 3/3. Texture is silty clay or clay. The content of clay ranges from 50 to 58 percent. The calcium carbonate equivalent is 0 to 1 percent. The content of gypsum is 0 to 1 percent. Electrical conductivity ranges from 13 to 30 decisiemens per meter. The sodium adsorption ratio ranges from 45 to 110.

The B horizon has dry color of 2.5Y 4/2, 4/3, 6/2, 6/3, or 6/4. Moist color is 2.5Y 3/2, 4/2, 4/3, or 4/4. Texture is silty clay or clay. The content of clay ranges from 50 to 58 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. The content of gypsum ranges from 1 to 6 percent. Electrical conductivity ranges from 15 to 90 decisiemens per meter. The sodium adsorption ratio ranges from 40 to 300.

Additional characterization data for this typical pedon, sample number 87CA019014 (1478-1488), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

Altamont Series

The Altamont series consists of deep, well drained soils on mountains, hills, and slides on mountains. These soils formed in mass movement and creep deposits derived from marine sandstone and shale. Slopes range from 5 to 75 percent.

Taxonomic class: Fine, smectitic, thermic Aridic Haploxererts

Typical Pedon

Map unit: Altamont clay, 5 to 8 percent slopes

A1—0 to 3 inches; dark grayish brown (10YR 4/2) clay, dark brown (10YR 3/3) moist; strong very coarse angular blocky structure parting to moderate coarse angular blocky; extremely hard, friable, moderately sticky and very plastic; common very fine and few fine roots in cracks; few very fine tubular pores; 0.75- to 1.5-inch wide cracks; neutral (pH 6.6); abrupt smooth boundary.

A2—3 to 9 inches; dark grayish brown (10YR 4/2) clay, dark brown (10YR 3/3) moist; strong very coarse and coarse prismatic structure parting to moderate very coarse angular blocky; common very fine and fine roots in cracks; few very fine tubular pores; 0.75- to 1.5-inch wide cracks; neutral (pH 6.7); clear smooth boundary.

Bss—9 to 22 inches; dark grayish brown (10YR 4/2) clay, dark brown (10YR 3/3) moist; strong very coarse prismatic structure; common very fine and fine roots in cracks; few very fine tubular pores; 0.75- to 1.5-inch wide cracks; intersecting slickensides; neutral (pH 6.9); abrupt wavy boundary.

Bkss—22 to 31 inches; light brownish gray (10YR 6/2) clay, brown (10YR 4/3) moist; moderate coarse angular blocky structure; few very fine roots; few very fine tubular pores; 0.75- to 1.5-inch wide cracks; intersecting slickensides; strongly effervescent; carbonates that are disseminated and are segregated as common (10 percent) fine threads and soft masses; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bk—31 to 54 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist; massive; few very fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as many (22 percent) fine threads; moderately alkaline (pH 8.0); abrupt smooth boundary.

Cr—54 to 60 inches; light yellowish brown (10YR 6/4), highly weathered, interbedded sandstone and shale; slightly effervescent; carbonates that are segregated as common (10 percent) fine threads.

Location of typical pedon: Fresno County, California; about 6 miles southwest of the community of Coalinga; 1,050 feet south and 600 feet west of the northeast corner of sec. 2, T. 22 S., R. 14 E., Mount Diablo Base and Meridian; lat. 36 degrees 2 minutes 58 seconds N. and long. 120 degrees 25 minutes 28 seconds W.; USGS Curry Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with interbedded sandstone and shale ranges from 40 to 60 inches. Cracks open and close at least once each year. Cracks close in November or December and remain closed until April or May. They remain open the rest of the year. Mean annual soil temperature ranges from 59 to 65 degrees F. The content of gravel ranges from 0 to 7 percent.

The A horizon has dry color of 10YR 4/2 or 5/2. Moist color is 10YR 3/2 or 3/3. The content of organic matter ranges from 0.7 to 2.0 percent. The content of clay ranges from 40 to 50 percent.

The Bss horizon has dry color of 10YR 5/2 or 4/2. Moist color is 10YR 3/2 or 3/3. The content of clay ranges from 40 to 50 percent. Reaction is neutral or slightly alkaline.

The Bkss horizon has dry color of 10YR 5/2, 5/3, 5/4, 6/2, or 6/3. Moist color is 10YR 5/2, 5/3, 4/2, or 4/3. The content of clay ranges from 40 to 50 percent. The calcium carbonate equivalent ranges from 1 to 2 percent.

The Bk horizon has dry color of 10YR 5/4, 5/3, 6/4, or 6/3. Moist color is 10YR 5/4, 5/3, 4/3, or 4/4. The content of clay ranges from 35 to 39 percent. The calcium carbonate equivalent ranges from 1 to 4 percent.

Altaslough Series

The Altaslough series consists of very deep, somewhat poorly drained soils on flood plains and basin floors. These soils formed in mixed alluvium derived dominantly from igneous rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine-loamy, mixed, superactive, calcareous, thermic Typic Endoaquolls

Typical Pedon

Map unit: Altaslough clay loam, 0 to 1 percent slopes

Ap1—0 to 13 inches; dark gray (5Y 4/1) clay loam, black (5Y 2/1) moist; weak and moderate medium and coarse subangular blocky structure; very hard, extremely firm, moderately sticky and moderately plastic; moderately few very fine to medium roots throughout; many very fine and fine and moderately few medium tubular and interstitial pores; few (1 percent) fine recent redoximorphic masses that have accumulated iron and are lining pores; slightly effervescent; carbonates that are disseminated and are segregated as few (1 percent) irregular medium hard concretions that dissolve in dilute HCl; accessory recent redoximorphic iron and manganese accumulations; electrical conductivity of 2.2 decisiemens per meter; sodium adsorption ratio of 13; moderately alkaline (pH 7.9); clear smooth boundary.

Ap2—13 to 24 inches; 70 percent dark gray (5Y 4/1) and 30 percent light olive gray (5Y 6/2) clay loam, 70 percent black (5Y 2/1) and 30 percent olive gray (5Y 5/2) moist; weak medium subangular blocky structure; very hard, extremely firm, moderately sticky and moderately plastic; common very fine and few fine and medium roots throughout; many very fine and fine and moderately few medium tubular and interstitial pores; slightly effervescent; carbonates that are disseminated in dark gray (5Y 4/1) matrix; carbonates that are segregated in light olive gray (5Y 6/2) matrix as few (1 percent) fine irregular threads and as few (1 percent) medium irregular hard concretions that dissolve in dilute HCl; concretions have accessory recent redoximorphic iron and manganese accumulations; electrical conductivity of 8.1 decisiemens per meter; sodium adsorption ratio of 9; moderately alkaline (pH 7.9); abrupt smooth boundary.

Bknzg1—24 to 36 inches; light olive gray (5Y 6/2) clay loam, olive gray (5Y 5/2) moist; matrix that changes color on exposure to air; moderate medium subangular blocky structure; extremely hard, very firm, moderately sticky and moderately plastic; moderately few very fine roots throughout; common fine and common very fine tubular and interstitial pores; common (2 percent) irregular fine prominent yellowish brown (10YR 5/8), moist, recent redoximorphic masses that have accumulated iron and are in the matrix; strongly effervescent; carbonates that are disseminated and are segregated as common (3 percent) irregular fine threads and soft masses and as common (5 percent) irregular fine and medium hard concretions that dissolve in dilute HCl; accessory recent redoximorphic iron and manganese accumulations; electrical conductivity of 5.4 decisiemens per meter; sodium adsorption ratio of 25; moderately alkaline (pH 8.0); clear smooth boundary.

Bknzg2—36 to 45 inches; light gray (5Y 7/2) clay loam, olive gray (5Y 5/2) moist; matrix that changes color on exposure to air; weak medium subangular blocky structure; extremely hard, very firm, moderately sticky and moderately plastic; very few very fine and fine roots between peds matted along faces of concretions; common fine and common very fine tubular and interstitial pores; common (2 percent) irregular fine prominent yellowish brown (10YR 5/8), moist, recent redoximorphic masses that have accumulated iron and are in the matrix; few (1 percent) cylindrical fine and medium recent iron depletions lining pores; strongly effervescent; carbonates that are disseminated and are segregated as common (8 percent) irregular fine threads and soft masses and as common (10 percent) dendritic medium and coarse hard concretions that dissolve in dilute HCl; accessory recent redoximorphic iron and manganese accumulations; electrical conductivity of 9.9 decisiemens per meter; sodium adsorption ratio of 54; moderately alkaline (pH 8.2); clear smooth boundary.

Bknzg3—45 to 51 inches; light gray (5Y 7/2) clay loam, olive gray (5Y 5/2) moist; matrix that changes color on exposure to air; moderate medium subangular blocky structure; extremely hard, extremely firm, moderately sticky and moderately plastic; very few very fine roots between peds matted along faces of concretions; common very fine and fine tubular and interstitial pores; common (2 percent) irregular fine prominent yellowish brown (10YR 5/8), moist, recent redoximorphic masses that have accumulated iron and are in the matrix; strongly effervescent; carbonates that are disseminated and are segregated as common (10 percent) irregular medium and coarse hard concretions that dissolve in dilute HCl and as many (40 percent) dendritic coarse and very coarse hard concretions that dissolve in acid, surrounding redoximorphic depletions; accessory recent redoximorphic iron and manganese accumulations; electrical conductivity of 5.1 decisiemens per meter; sodium adsorption ratio of 34; moderately alkaline (pH 8.3); abrupt smooth boundary.

2Bknzg4—51 to 64 inches; pale yellow (5Y 7/3) loam, olive (5Y 5/3) moist; weak fine subangular blocky structure; extremely hard, firm, slightly sticky and slightly plastic; common medium tubular and interstitial pores; many (60 percent) irregular medium prominent brownish yellow (10YR 6/8), moist, recent redoximorphic masses that have accumulated iron and are in the matrix; few (1 percent) cylindrical fine and medium recent iron depletions lining pores; slightly effervescent; carbonates that are disseminated and are segregated as common (20 percent) dendritic medium coarse and very coarse hard concretions that dissolve in dilute HCl; concretions surrounding redoximorphic depletions with accessory recent iron and manganese accumulations; electrical conductivity of 10.9 decisiemens per meter; sodium adsorption ratio of 60; strongly alkaline (pH 8.5); abrupt smooth boundary.

2Bknzg5—64 to 72 inches; light gray (5Y 7/2) fine sandy loam, light brownish gray (2.5Y 6/2) moist; massive; very hard, firm, slightly sticky and slightly plastic; common medium tubular and interstitial pores; many (60 percent) irregular medium prominent brownish yellow (10YR 6/8), moist, recent redoximorphic masses that have accumulated iron and are in the matrix; common (2 percent) fine irregular mica flakes throughout; slightly effervescent; carbonates that are disseminated and are segregated as common (10 percent) dendritic medium and coarse hard concretions that dissolve in dilute HCl; concretions surrounding redoximorphic depletions with accessory recent redoximorphic iron and manganese accumulations; electrical conductivity of 11.0 decisiemens per meter; sodium adsorption ratio of 60; moderately alkaline (pH 8.1).

Location of typical pedon: Fresno County, California; about 0.4 mile northwest of the community of Tranquillity; about 345 feet south of Jefferson Avenue, 186 feet west of a canal, and 700 feet east of the intersection of Amador and Jefferson Avenues; about 2,295 feet north and 700 feet east of the southwest corner of sec. 5, T. 15 S., R. 16 E., Mount Diablo Base and Meridian; lat. 36 degrees 39 minutes 12 seconds N. and long. 120 degrees 15 minutes 29 seconds W.; USGS Tranquillity Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 64 to 66 degrees F. The thickness of the mollic epipedon ranges from 10 to 20 inches. The content of organic matter ranges from 1 to 2 percent in the mollic epipedon and decreases regularly to less than 1 percent below a depth of 20 inches. Depth to a calcic horizon ranges from 15 to 26 inches. These soils are saline-sodic below the A horizon, and electrical conductivity and sodium adsorption ratio increase with depth. Gypsum may be present in all horizons, depending on reclamation practices.

The Ap horizon has dry color of 10YR 4/2 or 5Y 4/1, 5/1, 5/2, or 6/2. Moist color is 10YR 3/2 or 5Y 2/1, 3/1, 3/2, or 5/2. Dry color value of 6 and moist color value of 5 are below the mollic epipedon. The content of clay ranges from 27 to 35 percent. The calcium carbonate equivalent ranges from 1 to 5 percent. Electrical conductivity ranges from 2 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 5 to 20. Reaction is slightly alkaline or moderately alkaline.

The Bknzg horizon, which is calcic, has dry color of 5Y 5/2, 6/2, 7/2, or 7/3. Moist color is 5Y 4/2, 4/4, 5/2, 5/3, or 5/6. The content of clay ranges from 27 to 35 percent. The calcium carbonate equivalent ranges from 15 to 30 percent. Electrical conductivity ranges from 4 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 20 to 60. Distinct or prominent redoximorphic features are present. Reaction is moderately alkaline or strongly alkaline.

The 2Bknzg horizon, which is below the calcic horizon, has dry color of 2.5Y 5/3, 6/3, 7/2, or 7/3 or 5Y 5/3, 6/3, 7/2, or 7/3. Moist color is 2.5Y 4/2, 4/4, 5/2, 5/3, or 6/2 or 5Y 4/4, 5/3, or 6/2. Texture is stratified sandy loam, fine sandy loam, loam, or clay loam. The content of clay ranges from 15 to 35 percent. The calcium carbonate equivalent ranges from 5 to 10 percent. Electrical conductivity ranges from 8 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 30 to 80. Distinct or prominent redoximorphic features are present. Reaction is moderately alkaline or strongly alkaline.

Anela Taxadjunct

The Anela taxadjunct consists of deep, well drained soils on flood plains. These soils formed in alluvium derived from sedimentary rocks. Slopes range from 0 to 2 percent.

Taxonomic class: Loamy-skeletal, mixed, superactive, thermic Calcic Haploxerepts

Typical Pedon

Map unit: Anela very gravelly sandy loam, 0 to 2 percent slopes

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate very thick platy structure; slightly hard, very friable, slightly sticky and nonplastic; many very fine roots throughout; few very fine tubular and many very fine interstitial pores; 17 percent gravel; 5 percent cobbles; moderately acid (pH 5.8); abrupt smooth boundary.

A2—2 to 7 inches; pale brown (10YR 6/3) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine roots throughout; common very fine tubular and many very fine interstitial pores; 35 percent gravel; 5 percent cobbles; neutral (pH 7.1); clear smooth boundary.

Bt1—7 to 10 inches; brown (10YR 5/3) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine roots throughout; common very fine tubular and many very fine interstitial pores; few faint clay films on sand and gravel surfaces; 30 percent gravel; 5 percent cobbles; neutral (pH 7.3); clear smooth boundary.

Bt2—10 to 15 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots throughout; common very fine tubular and many very fine interstitial pores; few faint clay bridges between sand grains and few faint clay films on sand and gravel surfaces; 30 percent gravel; 5 percent cobbles; slightly alkaline (pH 7.5); clear smooth boundary.

Btk1—15 to 22 inches; brown (10YR 4/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure parting to weak medium subangular blocky; slightly hard, friable, nonsticky and nonplastic; few very fine roots throughout; common very fine tubular and many very fine interstitial pores; few faint clay bridges between sand grains and few faint clay films on sand and gravel surfaces; very slightly effervescent; carbonates that are segregated as few fine irregular soft masses; 30 percent gravel; 5 percent cobbles; slightly alkaline (pH 7.6); clear wavy boundary.

2Btk2—22 to 34 inches; brown (10YR 5/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; very few very fine roots throughout; common very fine tubular and many very fine interstitial pores; discontinuous faint clay bridging between sand grains and discontinuous faint clay films on sand and gravel; very slightly effervescent; carbonates that are segregated as few fine irregular soft masses; 50 percent gravel; 5 percent cobbles; slightly alkaline (pH 7.8); gradual wavy boundary.

2Btk3—34 to 49 inches; yellowish brown (10YR 5/4) very gravelly coarse sandy loam, brown (10YR 4/3) moist; single grain; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular and many very fine interstitial pores; discontinuous faint clay bridging between sand grains and discontinuous faint clay films on faces of peds and in pores; slightly effervescent; carbonates that are segregated as common fine irregular soft masses; 50

percent gravel; 5 percent cobbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Bdk—49 to 65 inches; light yellowish brown (2.5Y 6/4) and very pale brown (10YR 8/2) extremely gravelly loamy coarse sand, olive brown (2.5Y 4/4) and pale brown (10YR 6/3) moist; massive; extremely hard discontinuous distinct carbonate coats on lower surfaces of peds or stones; violently effervescent; disseminated carbonates; 60 percent gravel; 10 percent cobbles; strongly alkaline (pH 8.6).

Location of typical pedon: Fresno County, California; about 1 mile northeast of Little Panoche Reservoir Dam and 225 feet north of Little Panoche Road; 1,900 feet south and 825 feet east of the northwest corner of sec. 21, T. 13 S., R. 11 E., Mount Diablo Base and Meridian; lat. 36 degrees 47 minutes 14 seconds N. and long. 120 degrees 46 minutes 45 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 59 to 62 degrees F.

The A horizon has dry color of 10YR 6/3, 5/2, or 5/3. Moist color is 10YR 3/2 or 3/3. The content of organic matter ranges from 0.4 to 2 percent. The content of clay ranges from 5 to 10 percent. The content of gravel ranges from 17 to 45 percent. The content of cobbles ranges from 2 to 10 percent. Reaction ranges from moderately acid to neutral.

The Bt horizon has dry color of 10YR 4/3, 5/3, or 6/3. The content of clay ranges from 5 to 10 percent. The content of gravel ranges from 25 to 45 percent. The content of cobbles ranges from 2 to 10 percent. The content of organic matter ranges from 0.1 to 0.2 percent.

The Btk and 2Btk horizons have a clay content of 5 to 10 percent. The content of gravel ranges from 20 to 55 percent. The content of cobbles ranges from 2 to 35 percent. The content of organic matter ranges from 0 to 0.2 percent. Reaction is slightly alkaline or moderately alkaline.

The 2Bdk horizon has clay content of 4 to 7 percent. The content of gravel ranges from 50 to 70 percent. The content of cobbles ranges from 5 to 15 percent. The content of organic matter ranges from 0 to 0.1 percent. Reaction is moderately alkaline or strongly alkaline.

Additional data from characterization samples for this typical pedon, sample number 87CA019009 (taxadjunct, 1430-1438) and 86CA019032 (taxadjunct, 1167-1172), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

This Anela soil is a taxadjunct to the Anela series. It differs from the Anela series by having an ochric epipedon rather than a mollic epipedon. This difference, however, does not significantly affect use and management.

Arburua Series

The Arburua series consists of moderately deep, well drained soils on hills and mountains. These soils formed in material weathered from marine calcareous sandstone and shale. Slopes range from 2 to 65 percent.

Taxonomic class: Fine-loamy, mixed, superactive, calcareous, thermic Typic Xerorthents

Typical Pedon

Map unit: Arburua loam, in an area of Wisflat-Rock outcrop-Arburua complex, 30 to 50 percent slopes

A1—0 to 4 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many very fine roots; few very fine and fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine soft masses; 2 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—4 to 10 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak moderate subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine and few fine and medium tubular pores; strongly effervescent; carbonates that are segregated as few fine soft masses; 2 percent gravel; slightly alkaline (pH 7.5); clear smooth boundary.

Bk1—10 to 17 inches; pale brown (10YR 6/3) loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, moderately sticky and moderately plastic; few very fine roots; few very fine and fine tubular pores; strongly effervescent carbonates that are disseminated; violently effervescent carbonates that are segregated as common fine and medium soft masses; 4 percent gravel; moderately alkaline (pH 7.9); clear smooth boundary.

Bk2—17 to 27 inches; brown (10YR 5/3) loam, dark yellowish brown (10YR 4/4) moist; soft, very friable, moderately sticky and moderately plastic; few very fine roots; few very fine and fine tubular pores; strongly effervescent carbonates that are disseminated; violently effervescent carbonates that are segregated as common fine and medium soft masses; 4 percent gravel; 4 percent cobbles; moderately alkaline (pH 8.0); abrupt irregular boundary.

Cr—27 to 32 inches; strongly weathered calcareous shale and sandstone.

R—32 to 40 inches; hard, nonfractured calcareous shale and sandstone.

Location of typical pedon: Fresno County, California; about 2 miles northwest of Little Panoche Reservoir; 100 feet west and 2,600 feet south of the northeast corner of sec. 12, T. 13 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 48 minutes 50 seconds N. and long. 120 degrees 49 minutes 16 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact ranges from 20 to 40 inches. Depth to a lithic contact ranges from 24 to 41 inches. The mean annual soil temperature ranges from 59 to 64 degrees F. The content of organic matter is 1 percent or less.

The A horizon has dry color of 10YR 5/3, 6/3, or 6/4 or 2.5Y 6/2 or 6/4. Moist color is 10YR 4/3, 4/4, or 5/4 or 2.5Y 4/4 or 5/4. The content of clay ranges from 18 to 27 percent. The calcium carbonate equivalent ranges from 1 to 4 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 0 to 14 percent. Reaction ranges from neutral to moderately alkaline.

The Bk horizon has dry color of 10YR 5/3, 6/3, or 7/4 or 2.5Y 6/4 or 7/4. Moist color is 10YR 4/3 or 4/4 or 2.5Y 5/4 or 6/4. Texture is loam or clay loam. The content of clay ranges from 18 to 30 percent. The calcium carbonate equivalent ranges from 2 to 5 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 2 to 10 percent. The content of cobbles ranges from 0 to 5 percent.

Armona Series

The Armona series consists of very deep, poorly drained soils on flood plains and basin floors. These soils formed in alluvium derived from igneous rock, sedimentary rock, or both. Slopes are 0 to 1 percent.

Taxonomic class: Fine-loamy, mixed, superactive, calcareous, thermic Fluvaquentic Endoaquolls

Typical Pedon

Map unit: Armona loam, partially drained, 0 to 1 percent slopes

Ap—0 to 14 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; slightly effervescent; disseminated carbonates; electrical conductivity of 3.2 decisiemens per meter; sodium adsorption ratio of 9; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bkg—14 to 22 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; weak medium and coarse prismatic structure; hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few fine tubular pores; slightly effervescent; carbonates that are disseminated and are segregated as few (1 percent) fine threads and few (1 percent) fine irregular soft masses; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 8; few medium distinct black (N 2/0), moist, recent redoximorphic iron depletions; common fine faint light olive brown (2.5Y 5/4), moist, recent redoximorphic iron depletions; moderately alkaline (pH 7.9); abrupt smooth boundary.

Bkng1—22 to 27 inches; gray (10YR 5/1) loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few fine tubular pores; violently effervescent; carbonates that are disseminated and are segregated as common (2 percent) fine and few (1 percent) medium irregular soft masses; electrical conductivity of 1.8 decisiemens per meter; sodium adsorption ratio of 25; common fine faint very dark gray (10YR 3/1), moist, recent redoximorphic iron depletions; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bkng2—27 to 30 inches; gray (5Y 5/1) loam, black (5Y 2/1) moist; moderate coarse prismatic structure parting to moderate medium prismatic; hard, friable, slightly sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; violently effervescent; carbonates that are disseminated and are segregated as common (4 percent) fine and few (1 percent) medium irregular soft masses; electrical conductivity of 1.7 decisiemens per meter; sodium adsorption ratio of 18; common fine prominent yellowish brown (10YR 5/4), moist, recent redoximorphic masses in which iron has accumulated; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bkng3—30 to 34 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; violently effervescent; carbonates that are disseminated and are segregated as common (8 percent) fine and medium irregular soft masses; electrical conductivity of 1.8 decisiemens per meter; sodium adsorption ratio of 22; common medium prominent very dark grayish brown (10YR 3/2), moist, recent redoximorphic masses in which iron has accumulated; moderately alkaline (pH 7.9); abrupt smooth boundary.

Bkng4—34 to 42 inches; gray (10YR 5/1) clay loam, very dark gray (10YR 3/1) moist; moderate coarse prismatic structure parting to moderate fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; very slightly effervescent; carbonates that are disseminated and are segregated as common (2 percent) fine irregular soft masses; electrical conductivity of 1.1 decisiemens per meter; sodium adsorption ratio of 14; common fine prominent brown (7.5YR 5/4), moist, recent redoximorphic masses in which iron has accumulated; slightly alkaline (pH 7.8); abrupt smooth boundary.

B´kg—42 to 60 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; moderate coarse subangular blocky structure parting to moderate fine subangular; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few fine tubular pores; violently effervescent; carbonates that are disseminated and are segregated as common (8 percent) fine and medium irregular soft masses; electrical conductivity of 0.4 decisiemens per meter; sodium adsorption ratio of 4; common fine prominent yellowish red (5YR 5/8), moist, and few fine prominent dark reddish brown (5YR 3/2), moist, recent redoximorphic masses in which iron has accumulated; moderately alkaline (pH 7.9).

Location of typical pedon: Fresno County, California; about 7.2 miles southeast of the community of Dos Palos; 1,630 feet south and 2,390 feet east of the northeast corner of sec. 25, T. 11 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 56 minutes 53 seconds N. and long. 120 degrees 29 minutes 59 seconds W.; USGS Poso Farm Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are considered to be partially drained because of the presence of dams and reservoirs in the Sierra Nevada, the removal of water from the water table by pumping, the use of tile and interceptor drains, and the filling and leveling of sloughs in the vicinity. The mean annual soil temperature ranges from 60 to 62 degrees F. Gypsum is present in some pedons. The presence or absence of gypsum is a function of whether or not gypsum has been added to the soil recently. Redoximorphic concentrations are present throughout the profile or most of the profile.

The A horizon has dry color of 10YR 4/1, 5/1, or 5/2; 2.5Y 5/2; or 5Y 4/1, 5/1, or 5/2. Moist color is 10YR 3/1 or 3/2; 2.5Y 3/1 or 3/2; or 5Y 2/1, 2/2, 3/1, or 3/2. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 18 to 27 percent. Electrical conductivity ranges from 0 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 5 to 20. The calcium carbonate equivalent ranges from 1 to 2 percent. Reaction is slightly alkaline or moderately alkaline.

The B horizon has dry color of 10YR 5/1; 2.5Y 5/2, 6/2, or 7/2; or 5Y 5/1, 5/2, 6/2, 6/3, 7/1, or 7/2. Moist color is 10YR 3/1 or 3/2; 2.5Y 3/2 or 4/2; or 5Y 2/1, 3/1, 4/1, 4/2, 5/1, 5/2, 5/3, 6/1, or 6/2. Lighter colors are commonly associated with more carbonates. The content of organic matter ranges from 0.3 to 1.0 percent and decreases irregularly with increasing depth. Texture is stratified loam or clay loam. The content of clay ranges from 20 to 35 percent. Electrical conductivity ranges from 0 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 40. The calcium carbonate equivalent ranges from 1 to 10 percent. Some pedons contain up to 15 percent carbonate concretions that dissolve in acid and that are at a depth of more than 40 inches.

Atravesada Series

The Atravesada series consists of shallow, well drained soils on mountains. These soils formed in material weathered from serpentinite with a very high content of chrysotile asbestos. Slopes range from 2 to 65 percent.

Taxonomic class: Loamy, magnesic, mesic, shallow Typic Argixerolls

Typical Pedon

Map unit: Atravesada sandy loam, in an area of Atravesada-Pits, asbestos, complex, 30 to 65 percent slopes

Oi—0 to 0.5 inch; slightly decomposed leaves from scrub oak, manzanita, and yerba-santa; abrupt smooth boundary.

A—0.5 to 6 inches; dark grayish brown (10YR 4/2) sandy loam, very dark brown (10YR 2/2) moist; strong fine and medium subangular blocky structure; soft, very friable, slightly sticky and moderately plastic; many very fine and fine and common medium and coarse roots; many very fine, fine, and medium tubular and interstitial pores; 10 percent gravel; 4 percent serpentinite hard channers 3 to 12 inches in size; 7 percent organic matter; neutral (pH 7.2); clear smooth boundary.

Bt—6 to 12 inches; brown (7.5YR 4/2) and strong brown (7.5YR 5/6) sandy clay loam, dark brown (7.5YR 3/2) and dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and moderately plastic; many very fine and fine and common medium and coarse roots; common very fine, fine, and medium tubular and interstitial pores; many thin clay films in pores and bridging sand grains; 10 percent gravel; 4 percent serpentinite hard channers 3 to 12 inches in size; 3 percent organic matter; neutral (pH 7.0); abrupt irregular boundary.

Cr1—12 to 16 inches; soft serpentine with about 30 percent tube-type chrysotile asbestos in the sand fraction.

Cr2—16 to 27 inches; soft serpentine with less than 10 percent tube-type chrysotile asbestos in the sand fraction.

Location of typical pedon: Fresno County, California; about 2,700 feet west of the San Benito County line, 1.14 miles north-northwest of the Atlas Asbestos Mine, 5,000 feet northwest of Spanish Lake, at the intersection of a dirt road and the power lines to the Santa Rita Peak Radio Facility; about 700 feet south and 500 feet east of the northwest corner of sec. 29, T. 18 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 20 minutes 15 seconds N. and long. 120 degrees 35 seconds 12 minutes west; USGS Santa Rita Peak Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with soft serpentine ranges from 10 to 20 inches. In most years, the moisture control section at a depth of 7 to 20 inches is moist from November 15 to June 15 and dry from July 1 to September 15. The soil temperature is more than 47 degrees F from April 15 to November 15. The mean annual soil temperature ranges from 47 to 56 degrees F. The content of gravel and serpentinite channers ranges from 5 to 15 percent. Chrysotile asbestos fibers are in the profile.

The A horizon has dry color of 7.5YR 4/2 or 10YR 3/1, 3/2, 3/3, 4/2, or 5/1. Moist color is 7.5YR 3/2 or 10YR 2/1, 2/2, or 3/2. The content of organic matter ranges from 5 to 8 percent. Texture is sandy loam or loam. The content of clay ranges from 16 to 26 percent. The sand fraction contains chrysotile asbestos. Reaction is neutral or slightly alkaline.

The Bt horizon has dry color of 7.5YR 4/2, 5/2, 5/4, or 5/6; 10YR 3/3 or 5/3; or 2.5Y 5/4. Moist color is 7.5YR 3/2, 3/4, or 4/4; 10YR 2/3 or 3/3; or 2.5Y 4/4. Where the moist value and chroma are 4, those colors are not dominant and the horizon is multicolored. The content of organic matter ranges from 2 to 4 percent. Texture is loam or sandy clay loam. The content of clay ranges from 20 to 34 percent and is at least 1.2 times higher than the content of clay in the A horizon. Reaction is neutral or slightly alkaline.

Additional data for this typical pedon, sample number 84CA019017 (1845-1847), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix.

The Atravesada soil in map unit 761 is a taxadjunct to the series. It differs from the Atravesada series because it has an ochric epipedon, a depth of 20 to 40 inches to serpentine bedrock, a thermic soil temperature regime, and a slope as steep as 70 percent. It classifies as a fine-loamy, magnesic, thermic Typic Haploxeralf. These differences, however, do not significantly affect use and management.

Atravesada Taxadjunct

The Atravesada taxadjunct consists of moderately deep, well drained soils on mountains. These soils formed in mass-movement deposits derived from serpentinite and chrysotile asbestos. Slopes range from 30 to 70 percent.

Taxonomic class: Fine-loamy, magnesic, thermic Typic Haploxeralfs

Typical Pedon

Map unit: Atravesada gravelly sandy loam, 30 to 70 percent slopes

A1—0 to 2 inches; brown (10YR 5/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial pores; 15 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—2 to 7 inches; brown (10YR 5/3) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores; 20 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt—7 to 15 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; common very fine roots; many very fine interstitial pores; few thin clay films on faces of peds; 15 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.

C—15 to 21 inches; pale brown (10YR 6/3) gravelly loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, slightly sticky and moderately plastic; very slightly effervescent; carbonates that are segregated as few fine irregularly shaped soft masses; 15 percent gravel; slightly alkaline (pH 7.4); abrupt wavy boundary.

Cr1—21 to 31 inches; variegated light greenish gray (5G 7/1), dark greenish gray (5G 4/1), white (10YR 8/1), and yellowish red (5YR 5/6) fractured serpentinite and asbestos; violently effervescent; carbonates that are disseminated and are segregated as many medium irregularly shaped soft masses; abrupt smooth boundary.

Cr2—31 to 60 inches; light greenish gray (5G 7/1) fractured serpentinite and asbestos; strongly effervescent; carbonates that are disseminated and are segregated as many medium irregularly shaped soft masses.

Location of typical pedon: Fresno County, California; about 3.7 miles southwest of Cantua Creek and Interstate 5 and 1,000 feet south of Salt Creek; about 1,800 feet north and 2,250 feet west of the southeast corner of sec. 11, T. 18 S., R. 14 E., Mount Diablo Base and Meridian; lat. 36 degrees 22 minutes 31 seconds N. and long. 120 degrees 25 minutes 4 seconds W.; USGS Lillis Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with serpentinite and asbestos ranges from 20 to 40 inches. The mean annual soil temperature ranges from 61 to 63 degrees F.

The A horizon has an organic matter content of 0.5 to 1 percent. The content of clay ranges from 12 to 18 percent. The content of gravel ranges from 15 to 25 percent.

The Bt horizon has an organic matter content of 0.4 to 0.8 percent. The content of clay ranges from 18 to 25 percent. The content of gravel ranges from 15 to 25 percent.

The C horizon has an organic matter content of 0.3 to 0.7 percent. The content of clay ranges from 15 to 22 percent. The content of gravel ranges from 15 to 25 percent.

The Atravesada soil in map unit 761 is a taxadjunct to the series. It differs from the Atravesada series because it has an ochric epipedon, a depth of 20 to 40 inches to serpentine bedrock, a thermic soil temperature regime, and a slope as steep as 70 percent. These differences, however, do not significantly affect use and management.

Ayar Taxadjunct

The Ayar taxadjunct consists of deep, well drained soils on hills. These soils formed in creep deposits derived from marine calcareous shale and sandstone. Slopes range from 5 to 15 percent.

Taxonomic class: Fine, smectitic, thermic Aridic Haploxererts

Typical Pedon

Map unit: Ayar clay, 5 to 8 percent slopes

A—0 to 7 inches; brown (10YR 5/3) clay, brown (10YR 4/3) moist; strong very coarse prismatic structure parting to strong medium and coarse angular blocky; hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots concentrated on faces of peds; common very fine tubular pores; 1- to 4-inch wide cracks; slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bss—7 to 16 inches; brown (10YR 5/3) clay, dark yellowish brown (10YR 4/4) moist; strong coarse prismatic structure parting to moderate medium angular blocky; hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots concentrated on faces of peds; common very fine and few fine tubular pores; 0.5- to 1-inch wide cracks; wedge-shaped aggregates and intersecting slickensides; slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.6); clear wavy boundary.

Bkss1—16 to 23 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; weak coarse prismatic structure parting to weak medium subangular blocky; hard, very friable, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; 2- to 5-millimeter wide cracks; wedge-shaped aggregates and intersecting slickensides; slightly effervescent carbonates that are disseminated; strongly effervescent carbonates that are segregated as common (5 percent) fine threads and seams; slightly alkaline (pH 7.8); abrupt wavy boundary.

Bkss2—23 to 34 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse prismatic structure parting to moderate medium and coarse angular blocky; slightly hard, very friable, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores;

wedge-shaped aggregates and intersecting slickensides; strongly effervescent; carbonates that are disseminated and are segregated as many (30 percent) fine and medium threads and seams; slightly alkaline (pH 7.8); clear smooth boundary.

Bk—34 to 59 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist; weak moderate subangular blocky structure; slightly hard, very friable, sticky and plastic; few very fine tubular pores; slightly effervescent carbonates that are disseminated; strongly effervescent carbonates that are segregated as few (2 percent) fine threads and seams; slightly alkaline (pH 7.6); gradual smooth boundary.

Cr—59 to 72 inches; light yellowish brown (10YR 6/4) strongly weathered calcareous shale and sandstone; very slightly effervescent carbonates that are disseminated; slightly effervescent carbonates that are segregated as few fine threads and seams.

Location of typical pedon: Fresno County, California; about 3.7 miles north of Little Panoche Reservoir; about 250 feet east and 700 feet north of the southwest corner of sec. 32, T. 12 S., R. 11 E., Mount Diablo Base and Meridian; lat. 36 degrees 50 minutes 16 seconds N. and long. 120 degrees 47 minutes 47 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle.

Range in Characteristics

Depth to paralithic contact with marine calcareous sandstone and shale ranges from 40 to 60 inches. The mean annual soil temperature ranges from 59 to 64 degrees F. Vertical cracks, which occur when the soils are dry, extend from the surface to a depth of at least 23 inches. The cracks usually close from December through April for 100 to 150 consecutive days. The content of gravel ranges from 0 to 3 percent. Reaction is slightly alkaline or moderately alkaline.

The A horizon has dry color of 10YR 5/3 or 5/4. Moist color is 10YR 3/3, 3/4, or 4/3. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 40 to 50 percent. The calcium carbonate equivalent ranges from 1 to 4 percent.

The Bss horizon has dry color of 10YR 5/3 or 5/4. Moist color is 10YR 3/3, 3/4, 4/3, or 4/4. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 40 to 50 percent. The calcium carbonate equivalent ranges from 1 to 4 percent.

The Bkss horizon has dry color of 10YR 6/4 or 5/4. Moist color is 10YR 4/3 or 4/4. The content of organic matter ranges from 0.5 to 1.0 percent. Texture is clay loam or clay. The content of clay ranges from 35 to 50 percent. The calcium carbonate equivalent ranges from 4 to 10 percent.

The Bk horizon has dry color of 10YR 6/3, 6/4, or 5/4. Moist color is 10YR 5/3, 5/4, or 4/3. The content of organic matter ranges from 0.2 to 0.8 percent. Texture is clay loam or clay. The content of clay ranges from 35 to 50 percent. The calcium carbonate equivalent ranges from 2 to 10 percent.

The Ayar soil is a taxadjunct to the series. It differs from the Ayar series by having cracks that remain open more than 180 consecutive days. This difference, however does not significantly affect use and management.

Bapos Series

The Bapos series consists of very deep, well drained soils on fan remnants. These soils formed in alluvium derived from mixed rocks. Slopes range from 2 to 8 percent.

Taxonomic class: Fine, mixed, thermic Mollic Palexeralfs

Typical Pedon

Map unit: Bapos clay loam, 2 to 8 percent slopes

A1—0 to 4 inches; light brownish gray (10YR 6/2) clay loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; very slightly effervescent; disseminated carbonates; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 4; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—4 to 8 inches; brown (10YR 5/3) clay loam, dark grayish brown (10YR 4/2) moist; weak medium prismatic structure parting to moderate fine angular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; strongly effervescent; disseminated carbonates; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 4; slightly alkaline (pH 7.6); clear smooth boundary.

Btk1—8 to 15 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure parting to weak medium angular; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine and fine tubular pores; carbonates that are segregated as common (5 percent) soft masses; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 5; moderately alkaline (pH 8.0); clear smooth boundary.

Btk2—15 to 33 inches; brownish yellow (10YR 6/6) clay, yellowish brown (10YR 5/6) moist; weak medium subangular blocky structure; soft, firm, moderately sticky and moderately plastic; few very fine and fine tubular pores; carbonates that are segregated as common (25 percent) medium soft masses and threads; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 5; moderately alkaline (pH 8.4); clear smooth boundary.

2C—33 to 42 inches; strong brown (7.5YR 5/6) clay loam, strong brown (7.5YR 5/6) and gray (7.5YR 5/1) moist; massive; moderately hard, firm, moderately sticky and moderately plastic; few very fine tubular pores; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 12; moderately alkaline (pH 8.4); abrupt smooth boundary.

3Cy—42 to 60 inches; strong brown (7.5YR 5/6) gravelly clay loam, dark grayish brown (2.5Y 4/2) and brown (7.5YR 4/2) moist; massive; moderately hard, firm, moderately sticky and moderately plastic; few very fine tubular pores; common (20 percent) gypsum crystals; electrical conductivity of 4.0 decisiemens per meter; sodium adsorption ratio of 5; slightly alkaline (pH 7.4).

Location of typical pedon: Fresno County, California; about 2 miles northwest of Little Panoche Reservoir; 2,500 feet west and 1,300 feet north of the southeast corner of sec. 12, T. 13 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 48 minutes 57 seconds N. and long. 120 degrees 49 minutes 26 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 63 to 65 degrees F. Depth to an argillic horizon and secondary carbonates ranges from 6 to 15 inches. Depth to a gypsic horizon ranges from 40 to 50 inches.

The A horizon has dry color of 10YR 5/3 or 6/2. Moist color is 10YR 3/2 or 4/2. The upper part of the A horizon has moist color value of 3. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 27 to 35 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 6. The content of gravel ranges from 0 to 15 percent.

The Btk horizon has dry color of 10YR 6/4 or 6/6. Moist color is 10YR 4/4 or 5/6. The content of clay ranges from 42 to 55 percent. The calcium carbonate equivalent ranges from 5 to 15 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 7. The content of gravel ranges from 0 to 15 percent.

The 2C horizon has dry color of 7.5YR 5/4 or 5/6. Moist color is 7.5YR 5/1 or 5/6 or 2.5Y 4/2. The content of clay ranges from 30 to 40 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 3 to 12. The content of gravel ranges from 0 to 15 percent.

The 3Cy horizon has dry color of 7.5YR 5/4 or 5/6. Moist color is 7.5 YR 5/1, 5/6, or 4/2 or 2.5Y 4/2. The content of clay ranges from 30 to 40 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. The content of gypsum ranges from 5 to 20 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 3 to 12. The content of gravel ranges from 15 to 34 percent. Reaction is slightly alkaline or moderately alkaline.

Belgarra Series

The Belgarra series consists of very deep, well drained soils on erosional fan remnants on mountains. These soils formed in material weathered from shale and have high concentrations of gypsum in the subsoil. Slopes range from 8 to 30 percent.

Taxonomic class: Fine, smectitic, thermic Gypsic Haploxerepts

Typical Pedon

Map unit: Belgarra clay, in an area of Belgarra-Wisflat association, 8 to 50 percent slopes

A1—0 to 4 inches; grayish brown (10YR 5/2) clay, dominantly dark grayish brown (2.5Y 4/2) moist and also very dark grayish brown (2.5Y 3/2) moist; strong medium angular blocky structure; hard, very friable, very sticky and very plastic; common very fine roots; few very fine tubular pores; many moderately thick pressure faces; 0.75-inch wide cracks at the surface; 5 percent gypsum; neutral (pH 7.0); abrupt smooth boundary.

A2—4 to 10 inches; grayish brown (10YR 5/2) clay, dark grayish brown (2.5Y 4/2) moist; strong medium angular blocky structure; hard, very friable, very sticky and very plastic; common very fine roots; few very fine tubular pores; many moderately thick pressure faces; 0.5-inch wide cracks; 5 percent gypsum; neutral (pH 7.0); clear smooth boundary.

By1—10 to 21 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; 50 percent of ped faces coated with gypsum; strong coarse angular blocky structure; slightly hard, very friable, very sticky and very plastic; few very fine roots; common very fine tubular pores; many thick pressure faces; 0.1-inch wide cracks; 16 percent gypsum; many large irregular soft masses of gypsum; slightly alkaline (pH 7.4); clear smooth boundary.

By2—21 to 32 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; 30 percent of ped faces coated with gypsum; weak coarse subangular blocky structure; slightly hard, very friable, very sticky and very plastic; few very fine roots; common very fine tubular and vesicular pores; many thick pressure faces; 19 percent gypsum; many large irregular soft masses of gypsum; strongly acid (pH 5.5); clear smooth boundary.

By3—32 to 45 inches; yellowish brown (10YR 5/4) clay, olive brown (2.5Y 4/4) moist; 25 percent of ped faces coated with gypsum; weak coarse subangular blocky structure; slightly hard, very friable, very sticky and very plastic; few very fine roots; common very fine tubular and vesicular pores; common thick pressure faces; 11 percent gypsum; many large irregular soft masses of gypsum; slightly alkaline (pH 7.7); clear wavy boundary.

By4—45 to 72 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, very sticky and very plastic; common very fine vesicular pores; 8 percent gypsum; common medium irregular soft masses of gypsum; strongly acid (pH 5.3)

Location of typical pedon: Fresno County, California; about 50 feet south of a dirt road, 3 miles southeast of the Hudson Road and Interstate 5 overpass; about 1,150 feet east and 300 feet south of the northwest corner of sec. 21, T. 16 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 31 minutes 53 seconds N. and long. 120 degrees 33 minutes 51 seconds W.; USGS Monocline Ridge Topographic Quadrangle, NAD 27.

Range in Characteristics

In most years, the moisture control section at a depth of 7 to 21 inches is moist from January 1 to May 1 and dry from June 1 to October 15. The soil temperature is more than 47 F from February 15 to December 15. The mean annual soil temperature ranges from 59 to 65 F. Cracks are 0.75 inch wide at the surface and taper to 0.1 inch at a depth of 20 inches. In some pedons, carbonates are present throughout.

The A horizon has dry color of 10YR 4/2, 5/1, 5/2, 5/3, or 6/1 or 2.5Y 6/2 or 6/4. Moist color is 10YR 3/2, 4/1, 4/2, or 4/3 or 2.5Y 3/2, 4/2, 4/4, or 6/2. Moist colors with value of 3 are present only as a subordinate color and only in multicolor layers. The content of organic matter ranges from 1 to 3 percent. The content of clay ranges from 45 to 55 percent. The content of gypsum ranges from 1 to 5 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 8.

The B horizon has dry color of 10YR 4/2, 5/2, 5/4, 6/4, or 7/1 or 2.5Y 5/2 or 6/2. Moist color is 10YR 4/3, 4/4, or 5/1 or 2.5Y 4/2 or 4/4. The content of organic matter ranges from 0.3 to 2 percent. The content of clay ranges from 40 to 55 percent. The content of gypsum ranges from 10 to 20 percent. Electrical conductivity ranges from 2 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 12.

The C horizon, where present, has dry color of 10YR 5/4 or 6/4 or 2.5Y 6/4. Moist color is 10YR 3/4 or 4/4 or 2.5Y 4/4. The content of organic matter ranges from 0.3 to 0.6 percent. Texture is clay or silty clay. The content of clay ranges from 40 to 50 percent. The content of gypsum ranges from 5 to 10 percent. Electrical conductivity ranges from 4 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 5 to 12.

Additional data for this typical pedon, sample number 84CA019007 (1848-1852), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix.

Bisgani Series

The Bisgani series consists of very deep, poorly drained soils on bars, flood plains, and basin floors. These soils formed in alluvium derived from igneous rock. Slopes are 0 to 1 percent.

Taxonomic class: Sandy, mixed, thermic Typic Endoaquolls

Typical Pedon

Map unit: Bisgani sandy loam, drained, 0 to 1 percent slopes

Ap—0 to 10 inches; grayish brown (2.5Y 5/2) sandy loam, very dark gray (10YR 3/1) moist; moderate medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine, many fine, and few coarse roots; common very fine and few fine pores; few fine mica flakes; neutral (pH 6.6); clear smooth boundary.

Cg1—10 to 13 inches; white (10YR 8/1) loamy sand, very dark grayish brown (10YR 3/2) moist; few dark sand grains; single grain; loose, nonsticky and nonplastic; few very fine, fine, and medium roots; common (10 percent) irregular fine prominent very dark gray (10YR 3/1), moist, recent iron depletions; few fine mica flakes; neutral (pH 6.6); abrupt smooth boundary.

Cg2—13 to 38 inches; light gray (10YR 7/2) sand, grayish brown (2.5Y 5/2) moist; common multicolored sand grains; single grain; loose, nonsticky and nonplastic; few very fine, fine, and medium roots; few (1 percent) irregular fine prominent strong brown (7.5YR 5/6), moist, recent masses in which iron has accumulated; common fine mica flakes; slightly acid (pH 6.4); gradual smooth boundary.

Cg3—38 to 60 inches; light gray (10YR 7/2) sand, grayish brown (2.5Y 5/2) moist; single grain; loose, nonsticky and nonplastic; common (10 percent) irregular fine prominent strong brown (7.5YR 5/6), moist, recent masses in which iron has accumulated; few (2 percent) irregular fine prominent dark greenish gray (5GY 4/1), moist, recent redoximorphic depletions that change color on exposure to air; neutral (pH 7.0).

Location of typical pedon: Fresno County, California; about 6.8 miles east-southeast of the community of Dos Palos, 210 feet northwest of twin silos; 2,080 feet north and 2,150 feet west of the southeast corner of sec. 13, T. 11 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 58 minutes 24 seconds N. and long. 120 degrees 29 minutes 50 seconds W.; USGS Poso Farm Topographic Quadrangle, NAD 27.

Range in Characteristics

Most areas of these soils are considered to be drained because of the presence of dams and reservoirs in the Sierra Nevada, the removal of water from the water table by pumping, the use of tile and interceptor drains, and the filling and leveling of sloughs in the vicinity. The mean annual soil temperature ranges from 64 to 66 degrees F. The content of clay ranges from 1 to 10 percent. Reaction ranges from slightly acid to slightly alkaline.

The A horizon has dry color of 10YR 4/1, 4/2, 5/1, or 5/2 or 2.5Y 4/2 or 5/2. Moist color is 10YR 3/1, 3/2, or 3/3 or 2.5Y 3/2. In most pedons, the A horizon was originally loamy sand but leveling and plowing of the channels in the landscape changed the texture to sandy loam.

The C horizon has dry color of 10YR 6/2, 6/3, 7/1, 7/2, 7/3, or 8/1 or 2.5Y 6/2, 7/1, or 7/2. Moist color is 10YR 3/2, 4/2, or 4/3 or 2.5Y 4/2, 5/2, 5/4, or 6/2. Texture is loamy sand or sand.

Bolfar Taxadjunct

The Bolfar taxadjunct consists of very deep, poorly drained soils on flood plains and basin floors. These soils formed in mixed alluvium derived dominantly from igneous rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Cumulic Endoaquolls

Typical Pedon

Map unit: Bolfar loam, drained, 0 to 1 percent slopes

Ap1—0 to 11 inches; gray (10YR 5/1) loam, black (10YR 2/1) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky;

hard, friable, slightly sticky and moderately plastic; common very fine and fine roots; common very fine and few fine tubular and many very fine interstitial pores; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 3; neutral (pH 6.8); clear wavy boundary.

Ap2—11 to 20 inches; gray (10YR 5/1) loam, black (10YR 2/1) moist; strong very coarse subangular blocky structure parting to moderate coarse and medium subangular blocky; hard, friable, slightly sticky and moderately plastic; common very fine, fine, and medium roots; common very fine and few fine tubular and many very fine interstitial pores; electrical conductivity of 1.4 decisiemens per meter; sodium adsorption ratio of 3; neutral (pH 6.8); clear wavy boundary.

Ap3—20 to 29 inches; gray (10YR 5/1) loam, black (10YR 2/1) moist; weak coarse subangular blocky structure; hard, very friable, slightly sticky and moderately plastic; common very fine, fine, and medium roots; common very fine and few fine tubular and many very fine interstitial pores; electrical conductivity of 2.3 decisiemens per meter; sodium adsorption ratio of 4; neutral (pH 6.7); gradual wavy boundary.

Bg—29 to 34 inches; light brownish gray (2.5Y 6/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular and interstitial pores; electrical conductivity of 1.2 decisiemens per meter; sodium adsorption ratio of 4; common fine and medium distinct dark greenish gray (5GY 4/1), moist, redoximorphic depletions; masses of redoximorphic depletions are recent redoximorphic features; neutral (pH 7.2); abrupt smooth boundary.

Agb—34 to 39 inches; grayish brown (2.5Y 5/2) loam, very dark grayish brown (2.5Y 3/2) moist; moderate coarse prismatic structure parting to weak medium subangular blocky; hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and common fine tubular and many very fine interstitial pores; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 3; common fine and medium distinct dark greenish gray (5GY 4/1), moist, redoximorphic depletions; masses of redoximorphic depletions are recent redoximorphic features; slightly alkaline (pH 7.5); abrupt smooth boundary.

B´g—39 to 44 inches; light brownish gray (2.5Y 6/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular and interstitial pores; electrical conductivity of 0.7 decisiemens per meter; sodium adsorption ratio of 0.2; common fine and medium distinct dark greenish gray (5GY 4/1), moist, redoximorphic depletions; few fine prominent brown (7.5YR 4/4), moist, masses that have accumulated iron and are oriented horizontally at the bottom of the horizon; masses of redoximorphic depletions and iron accumulation are recent redoximorphic features; neutral (pH 7.3); abrupt smooth boundary.

A´gb1—44 to 55 inches; gray (5Y 6/1) loam, very dark gray (5Y 3/1) moist; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine tubular and many very fine interstitial pores; electrical conductivity of 0.8 decisiemens per meter; sodium adsorption ratio of 2; common fine and medium distinct dark greenish gray (5GY 4/1), moist, redoximorphic depletions; masses of redoximorphic depletions are recent redoximorphic features; moderately alkaline (pH 7.4); clear smooth boundary.

A´gb2—55 to 87 inches; gray (5Y 5/1) sandy clay loam, black (N 2/0) moist; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, very friable, slightly sticky and plastic; many very fine and few fine tubular and many very fine interstitial pores; slightly effervescent; carbonates that are disseminated and are segregated as few fine dendritic concretions; electrical conductivity of 0.8 decisiemens per meter; sodium adsorption ratio of 5; common fine and medium distinct dark greenish gray (5GY 4/1), moist, redoximorphic depletions; few fine prominent yellowish red (5YR 4/6) moist masses that have accumulated iron and are oriented around tubular pores; masses of redoximorphic depletions and iron accumulation are recent redoximorphic features; moderately alkaline (pH 7.4).

Location of typical pedon: Fresno County, California; about 6 miles east of the city of Dos Palos, 70 feet southwest of a concrete lined canal, 0.6 miles west of the San Joaquin River Levee Road; 2,370 feet north and 640 feet west of the southeast corner of sec. 11, T. 11 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 59 minutes 20 seconds N. and long. 120 degrees 30 minutes 37 seconds W.; USGS Oxalis Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are considered to be drained because of the presence of dams and reservoirs in the Sierra Nevada, the removal of water from the water table by pumping, the use of tile and interceptor drains, and the filling and leveling of sloughs in the vicinity. The mean annual soil temperature ranges from 62 to 64 degrees. The thickness of the mollic epipedon ranges from 24 to 29 inches. The content of clay in the 10- to 40-inch control section ranges from 7 to 27 percent and averages 18 to 25 percent.

The Ap horizon has dry color of 10YR 3/1, 4/1, 5/1, or 5/2 or 2.5Y 4/2. Moist color is 10YR 2/1, 3/1, or 3/2 or 2.5Y 3/2. The content of organic matter ranges from 1 to 2 percent.

The Bg and B´g horizons have dry color of 10YR 6/1 or 2.5Y 6/2. Moist colors are 2.5Y 4/2 or 5Y 4/2. Texture is stratified fine sandy loam or loam. Reaction is neutral or slightly alkaline.

The Agb and A´gb horizons have color of 2.5Y 4/2, 5/1, or 5/2 or 5Y 5/1 or 6/1. Moist colors are 2.5Y 3/2 or 4/2; 5Y 3/1; or N 2/0. Texture is sandy loam, loam, or sandy clay loam. Reaction is neutral or slightly alkaline.

Additional characterization data for this typical pedon, sample number 87CA019016 (taxadjunct, 1498-1506), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

The Bolfar soil is a taxadjunct to the series. It differs from the Bolfar series by having an absence of carbonates in the 10- to 20-inch control section. This difference, however, does not significantly affect use and management.

Borreguero Series

The Borreguero series consists of shallow, well drained soils on mountain slopes and on escarpments on mountains. These soils formed in material weathered from marine sandstone. Slopes range from 30 to 65 percent.

Taxonomic class: Loamy, mixed, superactive, thermic, shallow Typic Haploxerepts

Typical Pedon

Map unit: Borreguero sandy loam, in an area of Borreguero-Grazer-Rock outcrop association, 15 to 65 percent slopes

A—0 to 2 inches; brown (10YR 5/3) and light yellowish brown (10YR 6/4) sandy loam, dark brown (10YR 3/3) and dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common medium and many very fine and fine roots; common medium and very fine tubular and many very fine interstitial pores; 18 percent clay; slightly acid (pH 6.5); abrupt smooth boundary.

Bw1—2 to 5 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; few medium and common very fine roots; common very fine tubular and interstitial pores; 20 percent clay; neutral (pH 7.0); abrupt smooth boundary.

Bw2—5 to 11 inches; yellowish brown (10YR 5/4) and brownish yellow (10YR 6/6) sandy clay loam, dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common medium and many very fine and fine roots; common medium, fine, and very fine tubular and many very fine and fine interstitial pores; 21 percent clay; 10 percent pieces of weathered sandstone; neutral (pH 7.0); clear smooth boundary.

Cr—11 to 17 inches; slightly weathered, soft sandstone; 0.5-inch wide cracks that are 6 inches apart.

Location of typical pedon: Fresno County, California; about 900 feet west of Borreguero Springs, 5.75 miles west-northwest of Lillis Ranch; about 2,630 feet west and 400 feet south of the northeast corner of sec. 29, T. 17 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 25 minutes 39 seconds N. and long. 120 degrees 34 minutes 47 seconds W.; USGS Ciervo Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with marine sandstone ranges from 10 to 20 inches. In most years, the moisture control section at a depth of 7 to 20 inches is moist from January 1 to May 1 and dry from June 1 to October 15. The soil temperature is more than 47 degrees F from February 15 to December 15. The mean annual soil temperature ranges from 59 to 64 degrees F.

The A horizon has dry color of 10YR 5/3, 5/4, or 6/4. Moist color is 10YR 3/3, 3/4, or 4/4. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 12 to 20 percent. Reaction is slightly acid or neutral.

The Bw1 horizon has dry color of 10YR 5/2, 5/3, or 5/4. Moist color is 10YR 4/2 or 4/3. The content of organic matter ranges from 1 to 2 percent. Texture is sandy loam, loam, or sandy clay loam. The content of clay ranges from 14 to 25 percent. Reaction is slightly acid or neutral.

The Bw2 horizon has dry color of 10YR 5/4, 6/4, or 6/6. Moist color is 10YR 4/4 or 5/6. The content of organic matter ranges from 0.1 to 0.8 percent. Texture is sandy loam or sandy clay loam. The content of clay ranges from 14 to 23 percent.

Calflax Series

The Calflax series consists of very deep, moderately well drained soils on fan skirts. These soils formed in alluvium derived from calcareous sedimentary rock. Slopes range from 0 to 2 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Sodic Haplocambids

Typical Pedon

Map unit: Calflax clay loam, saline-sodic, 0 to 2 percent slopes

Ap—0 to 8 inches; light yellowish brown (2.5Y 6/4) clay loam, dark grayish brown (2.5Y 4/2) moist; strong coarse subangular blocky structure parting to strong medium subangular blocky; hard, very friable, moderately sticky and moderately plastic; few fine and common medium and fine roots; many very fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; electrical conductivity of 3.6 decisiemens per meter; sodium adsorption ratio of 4; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bw—8 to 26 inches; light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) moist; moderate coarse prismatic and moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; electrical conductivity of 2.8 decisiemens per meter; sodium adsorption ratio of 5; slightly alkaline (pH 7.4); clear smooth boundary.

Bny—26 to 33 inches; light yellowish brown (2.5Y 6/4) loam, olive brown (2.5Y 4/4) moist; moderate coarse subangular blocky structure; slightly hard, very friable, slightly sticky and moderately plastic; common very fine and few fine roots; many very fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; common fine irregularly shaped soft masses of calcium sulfate (gypsum); electrical conductivity of 3.4 decisiemens per meter; sodium adsorption ratio of 14; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bnyz1—33 to 47 inches; pale yellow (2.5Y 7/4) silt loam, light olive brown (2.5Y 5/4) and dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and moderately plastic; few very fine and fine roots; common very fine tubular and interstitial pores; strongly effervescent; disseminated carbonates; many fine irregularly shaped soft masses of calcium sulfate (gypsum); electrical conductivity of 7.0 decisiemens per meter; sodium adsorption ratio of 14; few fine prominent strong brown (7.5YR 5/6) masses of iron and manganese redoximorphic concentrations; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bnyz2—47 to 65 inches; pale yellow (2.5Y 7/4) loam, light yellowish brown (2.5Y 6/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few fine tubular and many very fine interstitial pores; very slightly effervescent; disseminated carbonates; few fine irregularly shaped soft masses of calcium sulfate (gypsum); electrical conductivity of 7.1 decisiemens per meter; sodium adsorption ratio of 16; slightly alkaline (pH 7.6).

Location of typical pedon: Fresno County, California; about 7 miles southeast of the community of Mendota; about 0.2 mile south of the middle of section 4 then about 132 feet west of the road; about 1,900 feet north and 2,500 feet east of the southwest corner of sec. 4, T. 15 S., R. 15 E., Mount Diablo Base and Meridian; lat. 36 degrees 39 minutes 8 seconds N. and long. 120 degrees 20 minutes 33 seconds W.; USGS Tranquillity Topographic Quadrangle, NAD 27.

Range in Characteristics

Unless irrigated, these soils are typically not moist between depths of 4 and 12 inches in some or all parts for as long as 70 to 90 consecutive days. These soils are typically dry from March or April to December or January. The mean annual soil temperature ranges from 62 to 66 degrees F, and the temperature is always above 47 degrees F. The particle-size control section averages 18 to 35 percent clay. The content of organic matter is less than 1 percent below the A horizon and decreases irregularly with increasing depth. These soils are saline-sodic in a horizon at least 10 inches thick within a depth of 40 inches for a period of at least one month each year. Irrigation, drainage, and reclamation practices affect the salinity, sodicity, and content of gypsum in these soils. In some pedons where little gypsum has been applied, these soils have Bn and Bnz horizons instead of Bny and Bnzy horizons.

The A horizon has dry color of 2.5Y 6/2, 6/3, or 6/4. Moist color is 2.5Y 4/2, 4/3, or 4/4. The content of organic matter ranges from 0.5 to 2 percent. The content of clay ranges from 27 to 40 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. The content of gypsum ranges from 0 to 3 percent. Electrical conductivity ranges from 2 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 12. Reaction is slightly alkaline or moderately alkaline.

The Bw horizon has dry color of 2.5Y 6/4 or 5/4. Moist color is 2.5Y 4/3, 4/4, or 5/4. The content of organic matter ranges from 0.3 to 1 percent. The content of clay ranges from 27 to 40 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The content of gypsum ranges from 0 to 3 percent. Electrical conductivity ranges from 2 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 20. Reaction is slightly alkaline or moderately alkaline.

The Bny and Bnyz horizons have dry color of 2.5Y 5/4, 6/4, or 7/4. Moist color is 2.5Y 4/4, 5/4, or 6/4. The content of organic matter ranges from 0.1 to 0.4 percent. Texture is loam, silt loam, or clay loam. The content of clay ranges from 18 to 35 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The content of gypsum ranges from 2 to 5 percent. Most of the gypsum in this soil has been applied during saline-sodic reclamation practices. Gypsum has been translocated in the profile by pedogenic and anthropogenic processes. Electrical conductivity ranges from 2 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 40. Redoximorphic concentrations, where present, have moist color of 7.5YR 5/6, 5/8, or 6/6. Reaction ranges from slightly alkaline to strongly alkaline.

When described in 1982, the typical pedon did not have a high water table within a depth of 6 feet. Subsequently, the area developed a water table within a depth of 4 feet. The water table necessitated a change in the mapping. The typical pedon is in an area that is now mapped as Calflax clay loam, saline-sodic, wet. The pedon described above is typical of the soils in this series before they develop a high water table.

Additional data from characterization samples for other pedons, sample number 87CA019002 (4105-4110), which includes data for selenium content, and 94CA019002 (taxadjunct, 2029-2038), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska.

Carranza Taxadjunct

The Carranza taxadjunct consists of deep, well drained soils on fan remnants. These soils formed in alluvium derived dominantly from sandstone and shale. Slopes range from 2 to 8 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Typic Argixerolls

Typical Pedon

Map unit: Carranza gravelly sandy loam, 2 to 8 percent slopes

A—0 to 7 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine tubular pores; 30 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

ABt—7 to 14 inches; grayish brown (10YR 5/2) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate coarse and weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few medium tubular pores; few thin clay films bridging pores; 25 percent gravel; neutral (pH 6.9); abrupt smooth boundary.

Bt1—14 to 20 inches; light brown (7.5YR 6/4) gravelly sandy clay loam, brown (7.5YR 4/4) moist; moderate coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; few moderately thick clay films on faces of peds and in pores; 20 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

Bt2—20 to 25 inches; light brown (7.5YR 6/4) very gravelly sandy clay loam, brown (7.5YR 4/4) moist; weak fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; few moderately thick clay films on faces of peds and in pores and common thin bridging on mineral grains; 40 percent gravel; neutral (pH 7.4); abrupt smooth boundary.

Bt3—25 to 60 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, light yellowish brown (10YR 6/4) moist; weak fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and fine tubular pores; very few moderately thick clay films on faces of peds and in pores and few bridging mineral grains; 30 percent gravel; neutral (pH 6.8).

Location of typical pedon: Fresno County, California; about 3 miles south-southeast of Ortigalita Peak; about 600 feet east and 900 feet south of the northwest corner of sec. 33, T. 13 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 45 minutes 40 seconds N. and long. 120 degrees 53 minutes 29 seconds W.; USGS Ortigalita Peak Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 63 to 65 degrees F. Between depths of 6 and 18 inches, these soils are moist throughout from about January 1 to May 1 and are dry from July 1 to November 1.

The A horizon has dry color of 10YR 4/2, 5/2, or 5/3 or 7.5YR 4/2. Moist color is 10YR 3/2 or 3/3. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 15 to 20 percent. An ABt horizon is commonly present below the A horizon.

The Bt horizon has dry color of 10YR 5/4 or 6/4 or 7.5YR 4/4, 5/4, or 6/4. Moist color is 10YR 6/4 or 7.5YR 3/2 or 4/4. Texture is very gravelly sandy clay loam or gravelly sandy clay loam. The content of clay ranges from 20 to 35 percent. Reaction is neutral or slightly alkaline.

The Carranza soil is a taxadjunct to the series. It differs from the Carranza series by having a mollic epipedon that is less than 20 inches thick and by having an argillic horizon. These differences, however, do not significantly affect use and management.

Cerini Series

The Cerini series consists of very deep, well drained soils on alluvial fans. These soils formed in alluvium derived dominantly from sedimentary rock. Slopes range from 0 to 5 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Fluventic Haplocambids

Typical Pedon

Map unit: Cerini clay loam, 0 to 2 percent slopes

Ap—0 to 5 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; very hard, firm, slightly sticky and moderately plastic; common very fine and few fine roots; common very fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.7); abrupt smooth boundary.

Bw1—5 to 16 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate coarse prismatic and moderate medium subangular structure; very hard, firm, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; moderately alkaline (pH 7.9); abrupt smooth boundary.

Bw2—16 to 25 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; very hard, friable, slightly sticky and moderately plastic; common very fine and few fine roots; common very fine tubular and interstitial pores; strongly effervescent; disseminated carbonates; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bk1—25 to 35 inches; light gray (2.5Y 7/2) silt loam, light olive brown (2.5Y 5/4) and dark grayish brown (2.5Y 4/2) moist; strong medium platy structure; hard, friable, slightly sticky and moderately plastic; few very fine roots; many very fine tubular and common very fine interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses and threads; slightly alkaline (pH 7.7); abrupt smooth boundary.

Bk2—35 to 47 inches; light gray (2.5Y 7/2) fine sandy loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular and interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses; slightly alkaline (pH 7.7); abrupt smooth boundary.

Bk3—47 to 57 inches; light brownish gray (2.5Y 6/2) sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular and interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped soft masses; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bk4—57 to 62 inches; light brownish gray (2.5Y 6/2) loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, slightly sticky and moderately plastic; few very fine roots; common very fine tubular and interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped soft masses; slightly alkaline (pH 7.6).

Location of typical pedon: Fresno County, California; about 12 miles west of the community of Tranquillity; 1,320 feet north and 600 feet east of the southwest corner of sec. 18, T. 15 S., R. 14 E., Mount Diablo Base and Meridian; lat. 36 degrees 37 minutes 20 seconds N. and long. 120 degrees 29 minutes 37 seconds W.; USGS Levis Topographic Quadrangle, NAD 27.

Range in Characteristics

Unless irrigated, these soils are typically not moist between depths of 4 and 12 inches in some or all parts for as long as 70 to 90 consecutive days. These soils are typically dry from March or April to December or January. The content of organic matter is less than 1 percent and decreases irregularly with increasing depth. Gypsum crystals are present in some pedons. The 10- to 40-inch particle-size control section averages 18 to 34 percent clay.

The A horizon has dry color of 10YR 5/3 or 6/3 or 2.5Y 5/3, 6/2, or 6/4. Moist color is 10YR 3/3 or 4/3 or 2.5Y 4/2, 4/3, or 4/4. Texture is sandy loam or clay loam. The content of clay ranges from 10 to 20 percent where the texture is sandy loam and from 27 to 35 percent where the texture is clay loam. The calcium carbonate equivalent ranges from 1 to 2 percent. The content of gravel ranges from 0 to 3 percent. Reaction ranges from neutral to moderately alkaline.

The Bw horizon has dry color of 10YR 5/3 or 6/3 or 2.5Y 5/4, 6/2, or 6/4. Moist color is 10YR 3/3 or 4/3 or 2.5Y 4/2, 4/3, 4/4, 5/2, or 5/4. Texture is loam or clay loam. The content of clay ranges from 15 to 35 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. The content of gravel ranges from 0 to 3 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has dry color of 10YR 5/4 or 6/4 or 2.5Y 5/3, 6/2, 6/4, or 7/2. Moist color is 10YR 4/3 or 2.5Y 3/2, 4/2, 4/3, 5/2, 4/4, or 5/4. Texture is stratified sandy loam to clay loam. The content of clay ranges from 8 to 35 percent, and the 10- to 40-inch particle-size control section averages 18 to 34 percent. The calcium carbonate equivalent ranges from 1 to 4 percent. The content of gravel ranges from 0 to 13 percent. Reaction is slightly alkaline or moderately alkaline.

Additional characterization data for pedon sample numbers 87CA019010 (1439-1449) and 87CA019012 (1459-1469) are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska. The additional data include measurements of selenium content.

Chaqua Series

The Chaqua series consists of deep, well drained soils on stream terraces. These soils formed in alluvium derived from calcareous sandstone. Slopes range from 2 to 8 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Typic Calcixerepts

Typical Pedon

Map unit: Chaqua loam, 2 to 8 percent slopes

A—0 to 6 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine and few fine tubular pores; strongly effervescent; disseminated carbonates; 2 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bk—6 to 19 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine and fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine threads; 4 percent gravel; slightly alkaline (pH 7.7); clear smooth boundary.

Btk1—19 to 25 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few coarse and fine tubular pores; very few thin clay films bridging mineral grains in pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine threads; 2 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

Btk2—25 to 35 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/6) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few fine tubular pores; few thin clay films bridging mineral grains on faces of peds and in pores; strongly effervescent; carbonates that are disseminated and are segregated as common medium soft masses and threads; 4 percent gravel; moderately alkaline (pH 8.4); abrupt smooth boundary.

Btk3—35 to 47 inches; very pale brown (10YR 7/4) loam, light yellowish brown (10YR 6/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine tubular pores; few moderately thick clay films on faces of peds and in pores; violently effervescent; carbonates that are disseminated and are segregated as many medium soft masses and threads; 2 percent gravel; moderately alkaline (pH 8.4); abrupt smooth boundary.

Cr—47 to 60 inches; light yellowish brown (10YR 6/4), weathered, calcareous sandstone.

Location of typical pedon: Fresno County, California; about 3-1/2 miles west of Little Panoche Reservoir; 2,100 feet west and 1,700 feet north of the southeast corner of sec. 22, T. 13 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 46 minutes 59 seconds N. and long. 120 degrees 51 minutes 59 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with calcareous sandstone ranges from 40 to 60 inches. The mean annual soil temperature ranges from 63 to 64 degrees F. The content of organic matter ranges from 1 to 2 percent in the surface layer and is less than 1 percent in the rest of the profile.

The A horizon has dry color of 10YR 5/4 or 6/4. Moist color is 10YR 4/3 or 5/4. The content of clay ranges from 18 to 25 percent. The calcium carbonate equivalent ranges from 5 to 10 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 4. The content of gravel ranges from 0 to 5 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has dry color of 10YR 5/4 or 6/4. Moist color is 10YR 4/3 or 5/4. The content of clay ranges from 18 to 25 percent. Depth to secondary carbonates ranges from 5 to 8 inches. The calcium carbonate equivalent ranges from 5 to 10 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 0 to 5 percent. Reaction is slightly alkaline or moderately alkaline.

The Btk horizon has dry color of 10YR 5/4, 6/4, or 7/4. Moist color is 10YR 4/4, 5/6, or 6/4. The content of clay ranges from 20 to 27 percent. The calcium carbonate equivalent ranges from 10 to 25 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 6. The content of gravel ranges from 0 to 5 percent. Reaction is slightly alkaline or moderately alkaline.

Chateau Series

The Chateau series consists of very deep, poorly drained, saline-sodic soils that formed in mixed alluvium derived dominantly from sedimentary rock. These soils are on fan skirts. Slopes are 0 to 1 percent.

Taxonomic class: Fine, mixed, superactive, thermic Aquic Haploxerepts

Typical Pedon

Map unit: Chateau clay, partially drained, 0 to 1 percent slopes

Ap—0 to 6 inches; brown (10YR 5/3) clay, very dark grayish brown (10YR 3/2) moist; strong medium and coarse subangular blocky structure; very hard, friable, slightly sticky and moderately plastic; few very fine roots; common very fine tubular and interstitial pores; few fine distinct dark yellowish brown (10YR 4/4), moist, redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.0); abrupt smooth boundary.

Btg1—6 to 14 inches; brown (10YR 5/3) clay, very dark grayish brown (10YR 3/2) moist; strong medium angular blocky structure; very hard, very firm, moderately sticky and very plastic; few very fine roots; few very fine tubular pores; common thin clay films on peds; electrical conductivity of 8 decisiemens per meter; sodium adsorption ratio of 18; common fine distinct dark yellowish brown (10YR 4/4), moist, redoximorphic masses in which iron has accumulated and common fine distinct olive gray (5Y 4/2), moist, redoximorphic masses from which iron has depleted; moderately alkaline (pH 8.2); abrupt wavy boundary.

Btg2—14 to 20 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, firm, moderately sticky and very plastic; few very fine tubular pores; many thin clay films on peds and in pores; few fine gypsum crystals; electrical conductivity of 8 decisiemens per meter; sodium adsorption ratio of 21; few medium distinct dark yellowish brown (10YR 4/4), moist, redoximorphic masses in which iron has accumulated and few medium distinct dark grayish brown (2.5Y 4/2), moist, redoximorphic depletions; strongly alkaline (pH 8.5); clear smooth boundary.

Bt1—20 to 28 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, friable, very sticky and very plastic; few very fine tubular pores; many thin clay films staining colloids; sodium adsorption ratio of 13; many gypsum crystals; few fine distinct dark brown (10YR 3/3), moist, and few fine distinct olive brown (2.5Y 4/4), moist, redoximorphic masses in which iron has accumulated; strongly alkaline (pH 8.5); gradual smooth boundary.

Bt2—28 to 43 inches; light yellowish brown (10YR 6/4) silty clay loam, light olive brown (2.5Y 5/4) moist; weak medium subangular blocky structure; hard, friable, moderately sticky and very plastic; few very fine tubular pores; few thin clay films staining colloids; sodium adsorption ratio of 13; few gypsum crystals; slightly effervescent; disseminated carbonates; electrical conductivity of 9 decisiemens per meter; sodium adsorption ratio of 13; few medium distinct dark yellowish brown (10YR 4/4), moist, redoximorphic masses in which iron has accumulated; strongly alkaline (pH 8.5); gradual smooth boundary.

C—43 to 60 inches; light yellowish brown (10YR 6/4) silty clay, light olive brown (2.5Y 5/4) moist; massive; hard, friable, moderately sticky and very plastic; few very fine tubular pores; few medium distinct dark yellowish brown (10YR 4/4), moist, redoximorphic masses in which iron has accumulated; slightly effervescent; disseminated carbonates; few medium distinct dark yellowish brown (10YR 4/4), moist, redoximorphic masses in which iron has accumulated; strongly alkaline (pH 8.5).

Location of typical pedon: Fresno County, California; about 2.9 miles south-southwest of the community of Dos Palos; 950 feet south and 200 feet east of the northwest corner of sec. 4, T. 12 S., R. 12 E., Mount Diablo Base and Meridian; lat. 36 degrees 55 minutes 17 seconds N. and long. 120 degrees 40 minutes 15 seconds W.; USGS Dos Palos Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are saturated with stagnant water for at least a few days each year. The mean annual soil temperature ranges from 64 to 66 degrees F. The content of organic matter is less than 1 percent in the upper 15 inches of the profile and decreases regularly with depth. The sodium adsorption ratio ranges from 13 to 30. Recent redoximorphic masses in which iron has accumulated occur throughout the profile. Moist chroma ranges from 2 to 6. Moist chroma of 2 or less on faces of peds or in the matrix does not occur below the epipedon within a depth of 20 inches of the surface.

The A horizon has dry color of 10YR 4/3, 5/2, 5/3, or 5/4. Moist color is 10YR 3/2, 3/3, 4/2, 4/3, or 5/3. The content of clay ranges from 40 to 60 percent. Electrical conductivity ranges from 4 to 16 decisiemens per meter. Reaction ranges from slightly alkaline to strongly alkaline.

The Bt horizon has dry color of 10YR 5/3, 5/4, or 6/4. Moist color is 10YR 3/2, 3/3, 3/4, 4/3, or 4/4 or 2.5Y 4/4 or 5/4. The content of clay ranges from 35 to 60 percent. Texture is silty clay loam, clay loam, silty clay, or clay. Gypsum crystals are not present in all pedons. Electrical conductivity ranges from 8 to 16 decisiemens per meter.

The C horizon has dry color of 10YR 5/4, 6/3, or 6/4. Moist color is 10YR 3/3, 4/2, 4/3, 4/4, or 5/4 or 2.5Y 4/4 or 5/4. Texture is silty clay or clay. The content of clay ranges from 40 to 50 percent. Electrical conductivity ranges from 8 to 16 decisiemens per meter.

Ciervo Series

The Ciervo series consists of very deep, moderately well drained soils on fan skirts. These soils formed in alluvium derived dominantly from sedimentary rock. Slopes range from 0 to 2 percent.

Taxonomic class: Fine, smectitic, thermic Vertic Haplocambids

Typical Pedon

Map unit: Ciervo clay, saline-sodic, in an area of Ciervo, wet-Ciervo complex, saline-sodic, 0 to 1 percent slopes

Ap1—0 to 7 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate medium and coarse subangular blocky structure; hard, firm, very sticky and very plastic; few very fine, fine, and medium roots; common very fine tubular pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 3 percent; electrical conductivity of 1.2 decisiemens per meter; sodium adsorption ratio of 3; moderately alkaline (pH 8.1); abrupt smooth boundary.

Ap2—7 to 17 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate coarse subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common very fine tubular pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 3 percent; electrical conductivity of 1.2 decisiemens per meter; sodium adsorption ratio of 6; moderately alkaline (pH 8.3); abrupt smooth boundary.

Bw—17 to 27 inches; light gray (2.5Y 7/2) clay, light olive brown (2.5Y 5/4) moist; weak medium subangular blocky structure; extremely hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common very fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped threads; calcium carbonate equivalent of 4 percent; electrical conductivity of 1.5 decisiemens per meter; sodium adsorption ratio of 12; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bknyz—27 to 41 inches; light gray (2.5Y 7/2) silty clay, light olive brown (2.5Y 5/4) and dark grayish brown (2.5Y 4/2) moist; weak medium platy structure; hard, very friable, moderately sticky and moderately plastic; few very fine and fine roots; many very fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped threads; calcium carbonate equivalent of 3 percent; common fine irregularly shaped soft masses of gypsum crystals (5 percent calcium sulfate); electrical conductivity of 9.5 decisiemens per meter; sodium adsorption ratio of 21; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bknz—41 to 60 inches; light gray (2.5Y 7/2) clay loam, light olive brown (2.5Y 5/4) moist; massive; hard, very friable, slightly sticky and moderately plastic; few very fine roots; common very fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped threads;

calcium carbonate equivalent of 3 percent; electrical conductivity of 12.4 decisiemens per meter; sodium adsorption ratio of 29; moderately alkaline (pH 8.2).

Location of typical pedon: Fresno County, California; about 3.1 miles east of the California Aqueduct and 8 miles southwest of the community of Mendota; about 1,300 feet north and 2,400 feet east of the southwest corner of sec. 9, T. 15 S., R. 14 E., Mount Diablo Base and Meridian; lat. 36 degrees 38 minutes 12 seconds N. and long. 120 degrees 27 minutes 4 seconds W.; USGS Tranquillity Topographic Quadrangle, NAD 27.

Range in Characteristics

Unless these soils are irrigated, between depths of 4 and 12 inches they are dry in all parts from April 1 to December 1 and are moist in some or all parts for only 70 to 90 consecutive days from December through March. The soil temperature is always more than 47 degrees F. The mean annual soil temperature ranges from 63 to 65 degrees F. The content of organic matter is less than 1 percent and decreases regularly with depth. The content of clay ranges from 20 to 55 percent, but averages 35 to 50 percent in the 10- to 40-inch control section. The content of clay typically decreases with depth. Carbonates are commonly disseminated in the A horizon and segregated below the A horizon as soft masses or threads. The calcium carbonate equivalent ranges from 1 to 5 percent. The content of gypsum ranges from 0 to 5 percent. The content of gypsum is variable due to additions of gypsum as a soil amendment. Gypsum crystals are present in some part of most pedons. Salinity is 0 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 50. Some areas are nonsaline-nonsodic. Reaction is moderately alkaline or strongly alkaline. Nonsaline-nonsodic phases are moderately alkaline.

The A horizon has dry color of 2.5Y 5/2, 6/2, 6/4, or 7/2. Moist color is 2.5Y 4/2, 4/3, 4/4, or 5/4. Texture is clay loam or clay. Linear extensibility ranges from 6 to 9 percent.

The Bw horizon has dry color of 2.5Y 5/2, 5/4, 6/2, 6/4, 7/2, or 7/4. Moist color is 2.5Y 4/2, 4/4, 5/2, or 5/4. Texture is clay loam, clay, or silty clay. Linear extensibility ranges from 6 to 9 percent.

The Bknz horizon and the Bknyz horizon, where present, have dry color of 2.5Y 5/2, 5/4, 6/2, 6/4, 7/2, or 7/4. Moist color is 2.5Y 4/2, 4/4, 5/2, or 5/4. Texture is loam, clay loam, or silty clay loam. Linear extensibility ranges from 6 to 9 percent in the Bknyz horizon and from 3 to 6 percent in the Bknz horizon.

Additional characterization data for this typical pedon, sample number 85CA019005 (5375-5379) and sample numbers 85CA019004 (5369-5374) and 86CA019012 (3158-3162), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

Climara Series

The Climara series consists of moderately deep, well drained soils on mountains and on slides on mountains. These soils formed in mass-movement colluvial deposits derived from Franciscan melange graywacke, chert, serpentinite, gabbro, and blue schist. Slopes range from 15 to 50 percent.

Taxonomic class: Fine, magnesic, thermic Aridic Haploxererts

Typical Pedon

Map unit: Climara clay, 15 to 50 percent slopes

A1—0 to 3 inches; gray (10YR 5/1) clay, very dark gray (10YR 3/1) moist; strong fine and medium subangular blocky structure parting to strong fine and medium granular; very hard, very firm, very sticky and very plastic; many very fine and fine roots between faces of peds; common fine tubular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—3 to 15 inches; gray (N 5/0) clay, very dark gray (N 3/0) moist; strong medium subangular blocky structure parting to strong medium granular; very hard, very firm, very sticky and very plastic; many very fine and fine roots between faces of peds; common very fine tubular pores; slightly alkaline (pH 7.7); abrupt wavy boundary.

A3—15 to 26 inches; gray (N 5/0) clay, very dark gray (N 3/0) moist; strong very coarse prismatic structure parting to strong coarse prismatic; very hard, very firm, very sticky and very plastic; many very fine and fine roots between faces of peds; common fine tubular pores; moderately alkaline (pH 8.1); gradual wavy boundary.

Bss—26 to 36 inches; very dark gray (10YR 3/1) clay, very dark gray (10YR 3/1) moist; strong coarse and very coarse prismatic structure; very hard, very firm, very sticky and very plastic; common very fine roots between faces of peds; common very fine tubular pores; slightly effervescent throughout; disseminated carbonates; moderately alkaline (pH 8.3); clear wavy boundary.

Bkss—36 to 39 inches; dark gray (10YR 4/1) clay, very dark gray (10YR 3/1) moist; strong very coarse prismatic structure; very hard, very firm, very sticky and very plastic; common fine roots between faces of peds; common very fine and fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine seams and soft masses and are on faces of peds and in pores; moderately alkaline (pH 8.3); abrupt smooth boundary.

R—39 inches; hard, fractured chert and serpentinite.

Location of typical pedon: Fresno County, California; about 55 yards north of a large blue oak tree on the east edge of the map unit; 650 feet west and 2,000 feet north of the southeast corner of sec. 23, T. 23 S., R. 15 E., Mount Diablo Base and Meridian; lat. 35 degrees 54 minutes 38 seconds N. and long. 120 degrees 19 minutes 0 seconds W.; USGS The Dark Hole Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with hard bedrock ranges from 30 to 40 inches. Cracks as wide as 1.25 inches extend from the surface to a depth of 26 inches or more. Cracks are open from about May until December and remain closed the rest of the year. Intersecting slickensides occur between depths of 26 and 39 inches.

The A horizon has dry color of 10YR 5/1 or 5/2; 2.5Y 4/1 or 4/2; or N 4/0 or 5/0. Moist color is 10YR 3/1 or 3/2; 2.5Y 2/1, 3/1, or 3/2; or N 3/0. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 40 to 55 percent. The calcium carbonate equivalent is 0 to 1 percent. The content of gravel ranges from 2 to 15 percent. The content of cobbles ranges from 0 to 3 percent. Reaction is slightly alkaline or moderately alkaline. Alkalinity generally increases with depth.

The Bss horizon has dry color of 10YR 3/1 or 3/2. Moist color is 10YR 2/1 or 3/1. The content of clay ranges from 45 to 60 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. The content of gravel ranges from 2 to 10 percent. The content of cobbles ranges from 0 to 3 percent.

The Bkss horizon has dry color of 10YR 4/1 or 4/2. Moist color is 10YR 2/2 or 3/1. The content of clay ranges from 45 to 60 percent. The calcium carbonate equivalent ranges from 2 to 5 percent. The content of gravel ranges from 2 to 10 percent. The content of cobbles ranges from 0 to 3 percent.

Conosta Series

The Conosta series consists of moderately deep, well drained soils on strath terraces on hills. These soils formed in alluvium derived from conglomerate. Slopes range from 2 to 8 percent.

Taxonomic class: Fine, mixed, superactive, thermic Mollic Haploxeralfs

Typical Pedon

Map unit: Conosta clay loam, 2 to 8 percent slopes

A—0 to 5 inches; brown (7.5YR 4/4) clay loam, dark brown (7.5YR 3/4) moist; moderate medium and fine subangular blocky structure; very hard, friable, slightly sticky and moderately plastic; common very fine roots; few very fine tubular pores; 10 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

Bt1—5 to 14 inches; dark brown (7.5YR 3/4) clay, dark brown (7.5YR 3/4) moist; moderate medium subangular blocky and prismatic structure; very hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine and few fine tubular pores; common moderately thick clay films on faces of peds and in pores; 5 percent gravel; slightly alkaline (pH 7.8); abrupt wavy boundary.

Bt2—14 to 19 inches; brown (7.5YR 4/4) gravelly clay, reddish brown (5YR 4/4) moist; moderate medium subangular blocky and weak coarse prismatic structure; very hard, firm, moderately sticky and plastic; few very fine roots; common very fine tubular pores; many moderately thick clay films on faces of peds and in pores; 20 percent gravel; slightly alkaline (pH 7.7); abrupt wavy boundary.

Btk1—19 to 27 inches; reddish brown (5YR 5/4) gravelly clay, reddish brown (5YR 4/4) moist; moderate medium angular blocky structure; very hard, firm, moderately sticky and plastic; few very fine tubular pores; common moderately thick clay films on faces of peds and in pores; slightly effervescent carbonates that are disseminated; strongly effervescent carbonates that are segregated as common fine masses and threads; 20 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Btk2—27 to 32 inches; yellowish red (5YR 5/6) very gravelly clay loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and plastic; few very fine tubular pores; common moderately thick clay films on faces of peds and in pores; slightly effervescent carbonates that are disseminated; strongly effervescent carbonates that are segregated as common fine masses and threads; 35 percent gravel; 10 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

Cr—32 to 40 inches; yellowish red (5YR 5/6), strongly weathered conglomerate with carbonate pendants.

Location of typical pedon: Fresno County, California; about 3 miles southeast of Ortigalita peak; 300 feet west and 1,700 feet south of the northeast corner of sec. 28, T. 13 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 46 minutes 26 seconds N. and long. 120 degrees 52 minutes 35 seconds W.; USGS Ortigalita Peak Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with strongly weathered conglomerate ranges from 20 to 40 inches. The mean annual soil temperature ranges from 63 to 65 degrees F. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5.

The A horizon has dry color of 7.5YR 4/4 or 5/4. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 27 to 35 percent. The content of gravel ranges from 3 to 14 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has dry color of 7.5YR 3/4 or 4/4. Moist color is 7.5YR 3/4 or 4/4 or 5YR 4/4. The content of organic matter ranges from 1 to 2 percent in the upper part of the Bt horizon and is less than 1 percent in the lower part. The content of clay ranges from 40 to 45 percent. The content of gravel is 5 to 14 percent in the upper part of the Bt horizon and 15 to 35 percent in the lower part.

The Btk horizon has dry color of 5YR 5/4 or 5/6. Moist color is 5YR 4/4 or 4/6. The content of organic matter is less than 1 percent. Texture is very gravelly clay loam or gravelly clay. The content of clay ranges from 35 to 45 percent. The calcium carbonate equivalent ranges from 1 to 6 percent. The content of gravel is 15 to 35 percent in the upper part of the Btk horizon and 30 to 40 percent in the lower part. The content of cobbles in the lower part of the Btk horizon ranges from 5 to 15 percent. Reaction is slightly alkaline or moderately alkaline.

Currymountain Series

The Currymountain series consists of moderately deep, well drained soils on mountains. These soils formed in material weathered from marine sandstone and shale. Slopes range from 30 to 50 percent.

Taxonomic class: Fine-loamy, mixed, superactive, mesic Typic Argixerolls

Typical Pedon

Map unit: Currymountain loam, in an area of Currymountain-Wisflat-Borreguero association, 30 to 75 percent slopes

A—0 to 3 inches; brown (10YR 5/3) loam, dark brown (10YR3/3) moist; moderate medium and fine subangular blocky structure; hard, very friable, slightly sticky and moderately plastic; few very fine and fine roots; many very fine tubular pores; slightly acid (pH 6.5); abrupt smooth boundary.

Bt1—3 to 7 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; very few fine and very fine roots; many very fine tubular pores; very few moderately thick clay films on faces of peds and bridging mineral grains; slightly acid (pH 6.5); abrupt wavy boundary.

Bt2—7 to 13 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; very few very fine and fine and few medium roots; many very fine tubular pores; few moderately thick clay films on faces of peds and bridging mineral grains; neutral (pH 6.6); clear wavy boundary.

C1—13 to 18 inches; yellowish brown (10YR 5/4) clay loam, brown (10YR 4/3) moist; massive; hard, friable, moderately sticky and moderately plastic; very few fine and few medium and coarse roots; many very fine tubular pores; neutral (pH 6.6); clear smooth boundary.

C2—18 to 24 inches; yellowish brown (10YR 5/4) clay loam, brown (10YR 4/3) moist; massive; hard, very friable, moderately sticky and moderately plastic; very few fine and few medium and coarse roots; many very fine tubular pores; neutral (pH 6.7); abrupt smooth boundary.

Cr—24 to 30 inches; highly fractured, weathered shale.

Location of typical pedon: Fresno County, California; about 5 miles southwest of the community of Coalinga on the southeastern flank of Curry Mountain; about 2,560 feet south and 380 feet west of the northeast corner of sec. 27, T. 21 S., R. 14 E., Mount Diablo Base and Meridian; lat. 36 degrees 4 minutes 29 seconds N. and long. 120 degrees 26 minutes 24 seconds W.; USGS Curry Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with marine sandstone and shale ranges from 20 to 40 inches. In most years, the moisture control section between the depths of 4 and 12 inches is moist in some or all parts from December 1 to June 1 and dry from July 1 to October 15. The soil temperature is more than 47 degrees F from April 15 to November 15. The mean annual soil temperature ranges from 56 to 58 degrees F. Some pedons have an A2 horizon. It is 6 to 10 inches thick. Some pedons do not have a C horizon.

The A horizon has dry color of 7.5YR 4/3; 10YR 4/2, 4/3, 4/4, 5/2, 5/3, 5/4, or 6/3; or 2.5Y 4/2. Moist color is 7.5YR 3/3; 10YR 2/1, 3/1, 3/2, or 3/3; or 2.5Y 3/2. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 15 to 27 percent. The content of gravel ranges from 0 to 14 percent. Reaction is slightly acid or neutral.

The Bt horizon has dry color of 7.5YR 3/4, 4/3, 4/4, 5/3, or 6/4; 10YR 4/2, 4/3, 4/4, 5/2, 5/3, 5/4, 6/3, or 6/4; or 2.5Y 5/4. Moist color is 5YR 3/4; 7.5YR 3/2, 3/3, 3/4, 4/3, or 4/4; 10YR 2/2, 3/2, 3/3, 3/4, 4/2, 4/3, or 4/4; or 2.5Y 4/4. Dry value of 6 and moist chroma of 4 occur only below the mollic epipedon. The content of organic matter ranges from 1 to 2 percent. Texture is loam or clay loam. The content of clay ranges from 18 to 35 percent. The content of gravel ranges from 0 to 14 percent. The content of cobbles ranges from 0 to 10 percent. Reaction is slightly acid or neutral.

The C horizon has dry color of 7.5YR 3/4 or 4/4 or 10YR 5/4 or 6/3. Moist color is 7.5YR 3/4 or 10YR 3/3, 4/3, or 4/4. The content of organic matter ranges from 0.1 to 0.5 percent. Texture is loam or clay loam. The content of clay ranges from 18 to 35 percent. The content of gravel ranges from 0 to 14 percent. The content of cobbles ranges from 0 to 10 percent. Reaction is slightly acid or neutral.

The Currymountain soil in map unit 713 is a taxadjunct to the series. It differs from the Currymountain series by the presence of a conglomerate rather than highly fractured shale at a depth of 20 to 40 inches, by having more than 35 percent coarse fragments in the B horizon, and by having a slope of 50 to 75 percent. It classifies as a loamy-skeletal, mixed, superactive, mesic Typic Argixeroll. These differences, however, do not significantly affect use and management.

Currymountain Taxadjunct

The Currymountain taxadjunct consists of moderately deep, well drained soils on mountains. These soils formed in material weathered from conglomerate. Slopes range from 50 to 75 percent.

Taxonomic class: Loamy-skeletal, mixed, superactive, mesic Typic Argixerolls

Typical Pedon

Map unit: Currymountain loam in an area of Currymountain-Rock outcrop-Quinto association, 50 to 75 percent slopes

A—0 to 2 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular and interstitial pores; 10 percent subrounded gravel; 2 percent rounded conglomerate cobbles; slightly acid (pH 6.2); abrupt smooth boundary.

Bt1—2 to 5 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; common fine and medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and coarse roots; few very fine tubular and interstitial pores; common thin clay films bridging sand grains; 10 percent subrounded gravel; 2 percent rounded conglomerate cobbles; slightly acid (pH 6.2); clear wavy boundary.

Bt2—5 to 13 inches; brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; common fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few coarse roots; few very fine tubular and interstitial pores; common thin clay films bridging sand grains; 20 percent subrounded gravel and 20 percent rounded conglomerate cobbles; slightly acid (pH 6.2); clear wavy boundary.

Bt3—13 to 21 inches; dark yellowish brown (10YR 4/4) very cobbly loam, very dark grayish brown (10YR 3/2) moist; common fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and common medium roots; few very fine tubular and interstitial pores; many thin clay films bridging sand grains and common thin clay films on faces of peds; 20 percent subrounded gravel; 20 percent rounded conglomerate cobbles; 5 percent rounded conglomerate stones; slightly acid (pH 6.2); abrupt smooth boundary.

Cr—21 to 60 inches; weathered conglomerate.

Location of typical pedon: Fresno County, California; about 1,200 feet northeast of Bald Mountain and the boundary between Monterey County and Fresno County; about 475 feet south and 2,200 feet east of the northwest corner of sec. 12, T. 20 S., R. 12 E., Mount Diablo Base and Meridian; lat. 36 degrees 30 minutes 11 seconds N. and long. 120 degrees 37 minutes 39 seconds W.; USGS Priest Valley Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with weathered conglomerate ranges from 20 to 40 inches. The mean annual soil temperature ranges from 56 to 58 degrees F.

The A horizon has an organic matter content of 1 to 2 percent. The content of clay ranges from 10 to 20 percent. The content of gravel ranges from 8 to 12 percent. The content of cobbles ranges from 0 to 3 percent. Reaction is slightly acid or neutral.

The Bt horizon has an organic matter content of 1 to 2 percent in the upper part and 0.3 to 0.7 percent in the lower part. The content of clay ranges from 12 to 27 percent. The content of gravel ranges from 8 to 30 percent. The content of cobbles ranges from 0 to 30 percent. The content of stones ranges from 0 to 10 percent. Reaction is slightly acid or neutral.

The Currymountain soil in map unit 713 is a taxadjunct to the series. It differs from the Currymountain series by the presence of a conglomerate at a depth of 20 to 40 inches, by having more than 35 percent coarse fragments in part of the B horizon, and by having a slope of 50 to 75 percent. These differences, however, do not significantly affect use and management.

Cyvar Series

The Cyvar series consists of shallow, moderately well drained soils on erosional fan remnants on mountains. These soils formed in material weathered from calcareous sandstone and shale. Slopes range from 5 to 15 percent.

Taxonomic class: Loamy, mixed, superactive, thermic, shallow Typic Durixeralfs

Typical Pedon

Map unit: Cyvar loam, in an area of Cyvar-Nodhill complex, 5 to 15 percent slopes

A—0 to 2 inches; light yellowish brown (10YR 6/4) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular and interstitial pores; strongly effervescent carbonates that are disseminated; violently effervescent carbonates that are segregated as 5 percent common fine concretions; calcium carbonate equivalent of 10 percent; electrical conductivity of 5.1 decisiemens per meter; sodium adsorption ratio of 5; 2 percent gravel; 10 percent gravel-sized duripan fragments on surface; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bt—2 to 7 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; moderate very coarse subangular blocky structure parting to moderate coarse subangular blocky; slightly hard, very friable, moderately sticky and moderately plastic; common very fine roots; common very fine and few fine tubular and common very fine interstitial pores; few thin clay films lining pores, on faces of peds, and bridging mineral grains; strongly effervescent carbonates that are disseminated; violently effervescent carbonates that are segregated as 5 percent fine concretions; calcium carbonate equivalent of 16 percent; electrical conductivity of 0.5 decisiemens per meter; sodium adsorption ratio of 4; 2 percent gravel; slightly alkaline (pH 7.7); abrupt wavy boundary.

Btk1—7 to 13 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/6) moist; moderate coarse subangular blocky structure paring to weak medium subangular blocky; slightly hard, very friable, moderately sticky and moderately plastic; few very fine and very few fine roots; common very fine and few fine tubular and common very fine interstitial pores; few thin clay films lining pores, on faces of peds, and bridging mineral grains and very few moderately thick clay films lining pores and on faces of peds; strongly effervescent carbonates that are disseminated; violently effervescent carbonates that are segregated as 15 percent fine and medium concretions, threads, and soft masses; calcium carbonate equivalent of 20 percent; electrical conductivity of 0.4 decisiemens per meter; sodium adsorption ratio of 3; 2 percent gravel; moderately alkaline (pH 7.9); clear wavy boundary.

Btk2—13 to 15 inches; yellowish brown (10YR 5/4) clay loam, brown (7.5YR 4/4) moist; moderate medium subangular blocky; hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine and few fine tubular and common fine interstitial pores; few thin clay films in pores, on faces of peds, and bridging mineral grains and very few moderately thick clay films in pores and on faces of peds; strongly effervescent carbonates that are disseminated; violently effervescent carbonates that are segregated as 25 percent fine and medium concretions, threads, and soft masses; calcium carbonate equivalent of 23 percent; electrical conductivity of 0.4 decisiemens per meter; sodium adsorption ratio of 1; 2 percent gravel; moderately alkaline (7.9); abrupt wavy boundary.

2Bkqm—15 to 34 inches; white (10YR 8/1) indurated duripan with 2-millimeter silica laminar caps spaced 5 inches apart, light yellowish brown (10YR 6/4) moist; massive; very rigid; few very fine, fine, and medium roots oriented laterally on laminar caps; violently effervescent; disseminated carbonates; calcium carbonate equivalent of 56 percent; clear smooth boundary.

2Bkqym—34 to 60 inches; white (10YR 8/1) indurated duripan, light yellowish brown (10YR 6/4) moist; massive; very rigid; few medium roots; violently effervescent; disseminated carbonates; calcium carbonate equivalent of 56 percent; 2 percent gypsum crystals.

Location of typical pedon: Fresno County, California; 0.75 mile southeast of a fork in an access road, 3.3 miles east of Mercey Hot Springs, 100 feet west of the access road; 2,640 feet north and 600 feet east of the southwest corner of sec.

20, T. 14 S., R. 11 E, Mount Diablo Base and Meridian; lat. 36 degrees 41 minutes 46 seconds N. and long. 120 degrees 47 minutes 48 seconds W.; USGS Mercey Hot Springs Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to an indurated duripan layer with a very rigid silica capping ranges from 10 to 20 inches. The coverage of gravel on the surface ranges from 1 to 14 percent. The content of gravel in the profile ranges from 0 to 10 percent, independent of the gravel on the surface.

The A horizon has dry color of 10YR 6/3 or 6/4 or 2.5Y 6/2 or 6/4. Moist color is 10YR 4/3, 4/4, or 5/4 or 2.5Y 5/4. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 15 to 25 percent. The horizon is strongly effervescent or violently effervescent, but some pedons do not have segregated carbonates. The calcium carbonate equivalent ranges from 5 to 15 percent. Electrical conductivity ranges from 2 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 8.

The Bt horizon has dry color of 10YR 4/4, 5/4, 6/3, 6/4, or 7/4 or 2.5Y 6/4 or 7/2. Moist color is 10YR 4/4, 5/4, 5/6, 6/4, 6/6, or 7/4; 2.5Y 4/6, 5/2, or 5/6; or 7.5YR 4/4. The content of organic matter ranges from 0.5 to 1 percent. The content of clay ranges from 20 to 27 percent. The calcium carbonate equivalent ranges from 10 to 20 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 6.

The Btk horizon has dry color of 10YR 4/4, 5/4, 6/3, 6/4, or 7/4 or 2.5Y 6/4 or 7/2. Moist color is 10YR 5/4, 5/6, 6/4, 6/6, or 7/4; 2.5Y 4/6, 5/2, or 5/6; or 7.5YR 4/4. The content of organic matter ranges from 0.2 to 0.6 percent. The content of clay ranges from 27 to 35 percent. The calcium carbonate equivalent ranges from 15 to 35 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 5.

The 2Bkqm and 2Bkqym horizons have a duripan that is 35 to 45 inches thick and is 50 to 90 percent continuous on a flat plane with fractures that are 4 to 6 inches apart.

Deldota Series

The Deldota series consists of very deep, somewhat poorly drained soils that develop wide cracks upon drying. These soils are on fan skirts and formed in alluvium derived dominantly from sedimentary rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine, smectitic, thermic Vertic Haploxerolls

Typical Pedon

Map unit: Deldota clay, partially drained, 0 to 1 percent slopes

Ap1—0 to 6 inches; grayish brown (10YR 5/2) clay, dark brown (10YR 3/3) moist; strong very coarse prismatic structure parting to moderate medium subangular blocky; very hard, friable, moderately sticky and very plastic; common very fine and few fine and medium roots; many very fine and fine tubular and interstitial pores; many thick pressure faces; 46 percent clay; moderately alkaline (pH 8.0); abrupt smooth boundary.

Ap2—6 to 17 inches; grayish brown (2.5Y 5/2) clay, very dark grayish brown (2.5Y 3/2) moist; strong very coarse prismatic structure parting to moderate medium subangular blocky; very hard, friable, moderately sticky and very plastic; many very fine and medium roots; many very fine and fine tubular and interstitial pores; many thick pressure faces; 47 percent clay; electrical conductivity of 1.0

decisiemens per meter; sodium adsorption ratio of 2.0; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bw—17 to 24 inches; yellowish brown (10YR 5/4) clay, brown (10YR 4/3) moist; weak very coarse prismatic structure parting to moderate medium prismatic; hard, firm, moderately sticky and very plastic; few very fine roots; many very fine and fine tubular and interstitial pores; many thin pressure faces; 48 percent clay; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 2.0; slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—24 to 33 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and very plastic; few very fine roots; common very fine and fine tubular pores; common thin pressure faces; 48 percent clay; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 3.0; violently effervescent; carbonates that are disseminated and are segregated as common medium irregularly shaped soft masses; moderately alkaline (pH 8.0); clear wavy boundary.

Bk2—33 to 54 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, firm, moderately sticky and very plastic; few very fine roots; common very fine tubular pores; common thin pressure faces; 44 percent clay; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 3.0; violently effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft threads; moderately alkaline (pH 8.0); clear wavy boundary.

C—54 to 65 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; common thin pressure faces; 37 percent clay; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 3.0; strongly effervescent; disseminated carbonates; recent redoximorphic depletions along root channels; moderately alkaline (pH 8.0).

Location of typical pedon: Fresno County, California; about 6.0 miles south of the city of Dos Palos; 1,000 feet south of a lined irrigation ditch, 1,100 feet east of the main canal; 100 feet south and 1,100 feet east of the northwest corner of sec. 13, T. 12 S., R. 11 E., Mount Diablo Base and Meridian; lat. 36 degrees 53 minutes 37 seconds N. and long. 120 degrees 43 minutes 25 seconds W.; USGS Dos Palos Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 63 to 65 degrees F. Where the soils are not cropped or irrigated, from July 15 to November the cracks are 3 to 5 centimeters wide at the surface and 1 to 2 centimeters wide at a depth of 20 inches 15. The cracks are 10 to 20 inches apart, but there are no wedge-shaped structural aggregates or slickensides. Linear extensibility ranges from 6 to 9 percent. The content of gravel ranges from 0 to 3 percent.

The Ap horizon has dry color of 10YR 4/2, 5/2, or 5/3 or 2.5Y 5/2. Moist color is 10YR 3/2 or 3/3 or 2.5Y 3/2. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 40 to 50 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 7. Reaction is slightly alkaline or moderately alkaline.

The Bw horizon has dry color of 10YR 5/4 or 5/6. Moist color is 10YR 4/3 or 4/4. Texture is clay loam or clay. The content of clay ranges from 35 to 50 percent. The calcium carbonate equivalent ranges from 0 to 5 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 7.

The Bk horizon has dry color of 10YR 4/3, 4/4, 5/4, or 6/4 or 2.5Y 4/4 or 6/4. Moist color is 10YR 4/4 or 5/4. Texture is clay loam or clay. The content of clay ranges from 35 to 50 percent. The calcium carbonate equivalent ranges from 5 to 20 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 7.

The C horizon has dry color of 10YR 5/4, 5/6, or 6/4 or 2.5Y 5/6. Moist color is 10YR 4/2, 4/3, 4/4, 4/6, or 5/4 or 2.5Y 4/4. The content of clay ranges from 30 to 40 percent. The calcium carbonate equivalent ranges from 1 to 16 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 7. In some pedons, the C horizon has few fine prominent 5Y 5/2 recent redoximorphic depletions on peds and 5GY 6/1 recent redoximorphic depletions in root channels.

Delgado Series

The Delgado series consists of shallow, somewhat excessively drained soils on hills. These soils formed in material weathered dominantly from marine sandstone. Slopes range from 5 to 50 percent.

Taxonomic class: Loamy, mixed, superactive, calcareous, thermic Lithic Torriorthents

Typical Pedon

Map unit: Delgado sandy loam, 5 to 15 percent slopes, eroded

A1—0 to 2 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine interstitial pores; 10 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

A2—2 to 5 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; neutral (pH 7.0); abrupt smooth boundary.

C—5 to 15 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; very few fine tubular and many very fine interstitial pores; very slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.4); abrupt wavy boundary.

R—15 inches; white (N 8/0), strongly effervescent, hard, laminar carbonate coating, 1 to 2 millimeters thick, underlain by light gray (N 7/0), relatively unweathered, very slightly effervescent sandstone that does not slake in water.

Location of typical pedon: Fresno County, California; about 5 miles northeast of the community of Coalinga; 80 feet south of a pipe valve, 330 feet west of an electric power pole; 1,600 north and 200 feet west of the southeast corner of sec. 3, T. 20 S., R. 15 E., Mount Diablo Base and Meridian; lat. 36 degrees 12 minutes 50 seconds N. and long. 120 degrees 19 minutes 10 seconds W.; USGS Coalinga Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with hard sandstone ranges from 10 to 20 inches. The mean annual soil temperature ranges from 64 to 71 degrees F. The soil temperature is always more than 47 degrees F. These soils are dry directly above the lithic contact from March through January and are not continuously moist for as long as 60 consecutive days in the winter. The content of gravel ranges from 0 to 14 percent. The content of cobbles ranges from 0 to 3 percent.

The A horizon has dry color of 2.5Y 6/2 or 7/2 or 10YR 6/4 or 6/3. Moist color is 2.5Y 4/2 or 5/2 or 10YR 3/3 or 4/3. The content of clay ranges from 8 to 18 percent. In some pedons, the A horizon has disseminated carbonates. Reaction ranges from neutral to moderately alkaline.

The C horizon has dry color of 2.5Y 7/2, 6/2, or 6/4 or 10YR 6/3 or 6/4. Moist color is 2.5Y 5/2, 4/2, or 4/4 or 10YR 4/2 or 4/3. The content of clay ranges from 5 to 15 percent. Carbonates are disseminated or in seams. The calcium carbonate equivalent ranges from 1 to 3 percent. Reaction is slightly alkaline or moderately alkaline.

Domengine Series

The Domengine series consist of moderately deep, well drained soils on mountains. These soils formed in material weathered from marine calcareous sandstone. Slopes range from 30 to 65 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Calcic Haploxerolls

Typical Pedon

Map unit: Domengine loam, in an area of Domengine-Lilten-Rock outcrop complex, 30 to 65 percent slopes

A1—0 to 6 inches; yellowish brown (10YR 5/4) loam, dark brown (10YR 3/3) moist; moderate medium and coarse angular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine and few fine tubular pores; slightly alkaline (pH 7.5); clear smooth boundary.

A2—6 to 17 inches; yellowish brown (10YR 5/4) clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine, fine, and medium tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.

Bw—17 to 28 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; common very fine, fine, and medium tubular pores; moderately alkaline (pH 8.0); clear wavy boundary.

Bk—28 to 39 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine and few fine and medium tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as many fine soft threads; moderately alkaline (pH 8.2); clear irregular boundary.

Cr—39 to 45 inches; soft, calcareous sandstone.

Location of typical pedon: Fresno County, California; about 3 miles southwest of Lillis Ranch, 0.8 mile south of Cantua Creek; about 1,500 feet west and 150 feet south of the northeast corner of sec. 11, T. 18 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 23 minutes 7 seconds N. and long. 120 degrees 31 minutes 21 seconds W.; USGS Ciervo Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with marine calcareous sandstone ranges from 20 to 40 inches. In most years, the moisture control section at a depth of 6 to 18 inches is moist from January 1 to May 1 and dry from June 1 to October 15. The soil temperature is more than 47 degrees F from February 15 to December 15. The mean annual soil temperature ranges from 59 to 65 degrees F.

The A horizon has dry color of 10YR 5/3 or 5/4. Moist color is 10YR 3/2 or 3/3. The content of organic matter ranges from 1 to 2 percent. Texture is loam or clay loam. The content of clay ranges from 20 to 29 percent. Reaction is neutral or slightly alkaline. In some pedons, the A horizon has slight effervescence.

The Bw horizon has dry color of 10YR 6/2, 6/3, 6/4, or 6/6. Moist color is 10YR 4/2, 4/4, 5/3, or 5/6. The content of organic matter ranges from 0.5 to 1 percent. Texture is loam or clay loam. The content of clay ranges from 20 to 31 percent. In some pedons, the Bw horizon has slight effervescence.

The Bk horizon has dry color of 10YR 6/2, 6/3, 6/4, or 6/6. Moist color is 10YR 4/2, 4/4, 5/3, or 5/6. The content of organic matter ranges from 0.2 to 0.5 percent. Texture is loam or clay loam. The content of clay ranges from 20 to 31 percent. The Bk horizon is strongly effervescent or violently effervescent. It has disseminated carbonates and has segregated carbonates as many fine soft threads. The calcium carbonate equivalent ranges from 5 to 10 percent.

Dospalos Taxadjunct

The Dospalos taxadjunct consists of very deep, poorly drained soils on flood plains and basin floors. These soils formed in alluvium derived dominantly from igneous rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine, smectitic, thermic Xeric Endoaquerts

Typical Pedon

Map unit: Dospalos clay, drained, 0 to 1 percent slopes

Ap1—0 to 6 inches; black (N 2/0) clay, black (N 2/0) moist; strong medium and coarse subangular blocky structure parting to moderate fine subangular blocky; very hard, firm, moderately sticky and very plastic; common very fine, fine, and coarse roots throughout; common very fine and fine tubular pores; very slightly effervescent; disseminated carbonates; neutral (pH 6.9); abrupt smooth boundary.

Ap2—6 to 12 inches; black (N 2/0) clay, black (N 2/0) moist; strong coarse prismatic structure parting to strong medium and coarse subangular blocky; very hard, firm, moderately sticky and very plastic; common very fine and few fine and medium roots throughout; common very fine and fine tubular pores; very slightly effervescent; disseminated carbonates; neutral (pH 6.9); clear wavy boundary.

Ap3—12 to 17 inches; very dark gray (N 3/0) clay, black (N 2/0) moist; strong very coarse prismatic structure parting to moderate medium and coarse subangular blocky; very hard, firm, moderately sticky and very plastic; common very fine and fine tubular pores; patchy prominent pressure faces on faces of peds; very slightly effervescent; disseminated carbonates; neutral (pH 7.1); clear wavy boundary.

A—17 to 25 inches; dark gray (N 4/0) clay, black (N 2/0) moist; weak coarse prismatic structure parting to moderate coarse subangular blocky; very hard, firm, moderately sticky and very plastic; common very fine and few fine to coarse roots throughout; common very fine and fine tubular pores; patchy prominent pressure faces on faces of peds; very slightly effervescent; disseminated carbonates; neutral (pH 7.3); clear wavy boundary.

Bkssg1—25 to 31 inches; dark gray (5Y 4/1) and olive gray (5Y 4/2) clay, dark greenish gray (5GY 4/1), dark olive gray (5Y 3/2), and very dark gray (5Y 3/1) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine and common medium roots throughout; common very fine and fine tubular pores; intersecting slickensides; patchy prominent pressure faces on faces of peds; reduced matrix changes color on exposure to air; violently effervescent; carbonates that are disseminated and are segregated as many fine and medium irregular soft masses and threads; common fine and medium distinct black (N 2/0) recent redoximorphic masses in which manganese has accumulated; moderately alkaline (pH 7.9); clear wavy boundary.

Bkssg2—31 to 43 inches; grayish brown (2.5Y 5/2) and light yellowish brown (2.5Y 6/4) clay, dark greenish gray (5GY 4/1), dark grayish brown (2.5Y 4/2), and olive brown (2.5Y 4/4) moist; weak medium subangular blocky structure; hard, very friable, moderately sticky and moderately plastic; common very fine and fine and common medium roots throughout; common very fine and fine tubular pores; intersecting slickensides; patchy faint pressure faces on faces of peds; reduced matrix changes color on exposure to air; violently effervescent; carbonates that are disseminated and are segregated as many fine and medium irregular soft masses and threads; few fine irregular gypsum crystals as threads; common medium distinct black (N 2/0) recent redoximorphic masses in which manganese has accumulated; moderately alkaline (pH 8.1); gradual wavy boundary.

Bkg1—43 to 54 inches; gray (5Y 5/1) and pale olive (5Y 6/3) clay loam, dark greenish gray (5GY 4/1), dark gray (5Y 4/1), and olive gray (5Y 4/2) moist; massive; hard, very friable, moderately sticky and moderately plastic; common very fine and fine roots throughout; many very fine and fine tubular pores; reduced matrix changes color on exposure to air; strongly effervescent; carbonates that are disseminated and are segregated as common medium rounded nodules and common fine and medium irregular soft masses and threads; few fine distinct black (N 2/0) and few fine prominent dark brown (7.5YR 3/2) recent redoximorphic masses of iron and manganese accumulations; moderately alkaline (pH 8.2); clear smooth boundary.

Bkg2—54 to 65 inches; gray (5Y 6/1) and light olive gray (5Y 6/2) clay loam, dark greenish gray (5GY 4/1), dark gray (5Y 4/1), and olive gray (5Y 4/2) moist; massive; hard, very friable, moderately sticky and slightly plastic; few very fine roots throughout; common very fine tubular and common very fine interstitial pores; matrix changes color on exposure to air; strongly effervescent; carbonates that are disseminated and are segregated as common medium rounded nodules and many irregular soft masses and threads; few fine distinct black (N 2/0) recent redoximorphic masses in which manganese has accumulated; moderately alkaline (pH 8.3); clear smooth boundary.

Bkg3—65 to 73 inches; light olive gray (5Y 6/2) and pale yellow (5Y 7/3) silty clay loam, dark greenish gray (5GY 4/1), olive gray (5Y 5/2), and olive (5Y 5/3) moist; massive; hard, friable, moderately sticky and moderately plastic; common very fine tubular pores; slightly effervescent; carbonates that are disseminated as common fine irregular soft masses and threads; few fine prominent very dark grayish brown (10YR 3/2) recent redoximorphic masses in which manganese has accumulated; moderately alkaline (pH 8.3).

Location of typical pedon: Fresno County, California; about 2 miles south of the city of Dos Palos; 150 feet east of Highway 33, west 99 feet from Folsom Avenue, and 82 feet north of Merrill Avenue; 82 feet north and 490 feet east of the southwest corner of sec. 23, T. 11 S., R. 12 E., Mount Diablo Base and Meridian; lat. 36 degrees 57 minutes 11 seconds N. and long. 120 degrees 37 minutes 34 seconds W.; USGS Dos Palos Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are considered to be drained because of the presence of dams and reservoirs in the Sierra Nevada, the removal of water from the water table by pumping, the use of tile and interceptor drains, and the filling and leveling of sloughs in the vicinity. These soils are protected from major flooding by control levees and reservoirs. The mean annual soil temperature ranges from 64 to 66 degrees F. The content of organic matter ranges from 1 to 3 percent in the A horizon and decreases regularly with depth. Intersecting slickensides are present in these soils. Electrical conductivity ranges from 0 to 4 decisiemens per meter in the upper 43 inches of the profile. The sodium adsorption ratio ranges from 0 to 7 in the upper 43 inches.

The A horizon has dry color of 10YR 2/1, 3/1, 4/1, or 5/3; 2.5Y 4/2; 5Y 3/2, 4/1, 5/1, or 6/1; or N 2/0, 3/0, or 4/0. Moist color is 10YR 2/1, 3/1, 3/2, 4/1, or 5/1; 2.5Y 2/2; 5Y 3/1, 3/2, or 4/1; or N 2/0 or 3/0. Texture is clay loam or clay. The content of clay ranges from 35 to 65 percent. Reaction ranges from neutral to moderately alkaline.

The Bkssg horizon has dry color of 2.5Y 5/2 or 6/4 or 5Y 4/1, 4/2, 5/1, 6/1, 6/2, or 6/3. Moist color is 10YR 4/3 or 5/3; 2.5Y 4/2 or 4/4; 5Y 3/1, 3/2, 4/1, 4/2, 4/3, 5/1, 5/2, or 5/3; or 5GY 3/1 or 4/1. The content of clay ranges from 50 to 60 percent. The Bkssg horizon is calcareous throughout. Carbonates are segregated as soft masses, threads, and nodules. Segregated carbonates have been affected by the quantity and quality of the irrigation water.

The Bkg horizon has dry color of 10YR 5/2 or 5/4; 2.5Y 5/4, 5/6, or 6/4; or 5Y 4/2, 5/1, 5/2, 5/3, 6/1, 6/2, 6/3, or 7/3. Moist color is 2.5Y 4/2 or 5/2; 5Y 3/1, 4/1, 4/2, 5/2, or 5/3; or 5GY 4/1. Texture is clay loam or silty clay loam. The content of clay ranges from 27 to 40 percent. The Bkg horizon is calcareous throughout. Carbonates are segregated as soft masses, threads, and nodules. Segregated carbonates have been affected by the quantity and quality of the irrigation water.

Additional characterization data for this typical pedon, sample number 87CA019015 (taxadjunct, 1489-1497), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

The Dospalos soil is a taxadjunct to the series. It differs from the Dospalos series by having intersecting slickensides in the upper part of the B horizon. This difference, however, does not significantly affect use and management.

Elnido Series

The Elnido series consists of very deep, poorly drained soils in channels and on flood plains and basin floors. These soils formed in mixed alluvium derived dominantly from igneous rock. Slopes are 0 to 1 percent.

Taxonomic class: Coarse-loamy, mixed, superactive, thermic Typic Endoaquolls

Typical Pedon

Map unit: Elnido sandy loam, drained, 0 to 1 percent slopes

Ap1—0 to 7 inches; gray (10YR 5/1) sandy loam, very dark grayish brown (10YR 3/2) moist; strong medium and coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; few fine, medium, and coarse roots throughout; few very fine tubular pores; electrical conductivity of 1.1 decisiemens per meter; sodium adsorption ratio of 5; slightly acid (pH 6.1); abrupt smooth boundary.

Ap2—7 to 14 inches; gray (10YR 5/1) sandy loam, very dark gray (10YR 3/1) moist; strong very coarse prismatic structure parting to moderate medium angular blocky; very hard, friable, slightly sticky and slightly sticky; few fine and medium and common very fine roots throughout; common very fine tubular pores; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 6; common (2 percent) fine prominent brown (7.5YR 4/4), moist, and common (2 percent) fine prominent strong brown (7.5YR 5/6), moist, recent redoximorphic masses in which iron has accumulated; slightly acid (pH 6.2); abrupt wavy boundary.

Bwg1—14 to 21 inches; grayish brown (2.5Y 5/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots throughout; few very fine tubular pores; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 6; common (10 percent) fine prominent brown (7.5YR 4/4), moist, common (10 percent) fine prominent strong brown (7.5YR 5/6), moist, and few (1 percent) fine prominent olive brown (2.5Y 4/4), moist, recent redoximorphic masses in which iron has accumulated; neutral (pH 6.7); clear smooth boundary.

Bwg2—21 to 32 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; moderate medium angular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots throughout; few very fine tubular pores; electrical conductivity of 1.7 decisiemens per meter; sodium adsorption ratio of 12; common (2 percent) fine prominent brown (7.5YR 4/4), moist, and common (2 percent) fine prominent strong brown (7.5YR 5/6), moist, masses in which iron has accumulated; few (1 percent) fine prominent black (10YR 2/1), moist, masses of manganese accumulation; masses of iron and manganese accumulation are recent redoximorphic features; neutral (pH 7.3); clear smooth boundary.

Bkg—32 to 40 inches; light brownish gray (2.5Y 6/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots throughout; common very fine tubular pores; slightly effervescent; carbonates that are disseminated and strongly effervescent; carbonates that are segregated as few (1 percent) fine threads; electrical conductivity of 3.2 decisiemens per meter; sodium adsorption ratio of 16; common (5 percent) fine prominent brown (7.5YR 4/4), moist, and common (5 percent) fine prominent strong brown (7.5YR 5/6), moist, recent redoximorphic masses in which iron has accumulated; slightly alkaline (pH 7.4); abrupt smooth boundary.

Cg1—40 to 53 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots throughout; few very fine tubular pores; electrical conductivity of 2.0 decisiemens per meter; sodium adsorption ratio of 15; common (10 percent) fine prominent brown (7.5YR 4/4), moist, and common (10 percent) fine prominent strong brown (7.5YR 4/6), moist, recent redoximorphic masses in which iron has accumulated; neutral (pH 7.0); abrupt smooth boundary.

Cg2—53 to 60 inches; light brownish gray (2.5Y 6/2) sand, grayish brown (2.5Y 5/2) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; electrical conductivity of 0.8 decisiemens per meter; sodium adsorption ratio of 10; common (5 percent) fine prominent brown (7.5YR 4/4), moist, and common (5 percent) fine prominent strong brown (7.5YR 4/6), moist, masses in which iron has accumulated; few (1 percent) fine prominent black (10YR 2/1), moist, masses in which manganese has accumulated; masses in which iron and manganese have accumulated are recent redoximorphic features; neutral (pH 7.0).

Location of typical pedon: Fresno County, California; about 100 feet north and 65 feet west of Hudson Avenue and Mint Road sign; 310 feet south and 130 feet west of the northeast corner of sec. 33, T. 10 S., R. 13 E., Mount Diablo Base and Meridian; lat. 37 degrees 1 minute 29 seconds N. and long. 120 degrees 32 minutes 41 seconds W.; USGS Santa Rita Bridge Topographic Quadrangle, NAD 27.

Range in Characteristics

Most areas of these soils are considered to be drained because of the presence of dams and reservoirs in the Sierra Nevada, the removal of water from the water table by pumping, the use of tile and interceptor drains, and the filling and leveling of sloughs in the vicinity. The mean annual soil temperature ranges from 63 to 65 degrees F. The content of organic matter decreases regularly with increasing depth.

The Ap horizon has dry color of 10YR 4/1, 4/2, 4/3, 5/1, 5/2, or 5/3 or 2.5Y 4/2. Moist color is 10YR 3/1 or 3/2 or 2.5 Y 3/2. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 10 to 18 percent. Electrical conductivity ranges from 1 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 10. In some pedons, recent redoximorphic masses in which iron has accumulated are present in the lower part of the Ap horizon. Reaction is slightly acid or neutral.

The Bwg horizon has dry color of 10YR 4/3, 5/1, 5/2, 5/3, or 6/2 or 2.5Y 5/2 or 6/2. Moist color is 10YR 4/2, 2.5Y 4/2, or 5Y 4/1. The content of organic matter ranges from 0.5 to 1.0 percent. Texture is sandy loam or fine sandy loam. The content of clay ranges from 5 to 18 percent. Electrical conductivity ranges from 1 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 3 to 12. Recent distinct or prominent redoximorphic masses in which iron, manganese, or both have accumulated are present. Reaction is neutral or slightly alkaline.

The Bkg horizon has dry color of 2.5Y 6/2. Moist color is 2.5Y 4/2. The content of organic matter ranges from 0.5 to 0.8 percent. Texture is sandy loam or fine sandy loam. The content of clay ranges from 5 to 18 percent. Carbonates are disseminated and segregated as threads. The amount of carbonates is dependent on the quantity and quality of irrigation water. Electrical conductivity ranges from 1 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 5 to 20. Recent distinct or prominent redoximorphic masses in which iron, manganese, or both have accumulated are present.

The Cg horizon has dry color of 2.5Y 5/2 or 6/2 or 10YR 5/3 or 6/3. Moist color is 2.5Y 4/2, 4/4, or 5/2 or 10YR 4/3. The content of organic matter ranges from 0.1 to 0.3 percent. Texture is sand, loamy sand, sandy loam, or fine sandy loam. The content of clay ranges from 1 to 18 percent. Electrical conductivity ranges from 1 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 20. Recent distinct or prominent redoximorphic masses in which iron, manganese, or both have accumulated are present. Reaction is neutral or slightly alkaline.

Excelsior Series

The Excelsior series consists of very deep, well drained soils on alluvial fans. These soils formed in alluvium derived from calcareous sedimentary rock. Slopes range from 0 to 2 percent.

Taxonomic class: Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents

Typical Pedon

Map unit: Excelsior sandy loam, sandy substratum, 0 to 2 percent slopes

Ap—0 to 7 inches; pale brown (10YR 6/3) sandy loam, dark grayish brown (10YR 4/2) moist; moderate coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine tubular and common very fine interstitial pores; very slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.8); abrupt smooth boundary.

A1—7 to 16 inches; pale brown (10YR 6/3) sandy loam, dark grayish brown (10YR 4/2) moist; strong very coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine tubular and common very fine interstitial pores; slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.3); abrupt wavy boundary.

A2—16 to 23 inches; pale brown (10YR 6/3) sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine roots; few very fine tubular and common very fine interstitial pores; slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.4); abrupt smooth boundary.

C1—23 to 28 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate medium angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.3); abrupt smooth boundary.

C2—28 to 30 inches; pale brown (10YR 6/3) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; very slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.2); abrupt smooth boundary.

C3—30 to 34 inches; light yellowish brown (2.5Y 6/4) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate medium angular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular and common very fine interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine threads; moderately alkaline (pH 8.3); abrupt smooth boundary.

C4—34 to 50 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; very slightly effervescent; disseminated carbonates; strongly alkaline (pH 8.4); abrupt smooth boundary.

C5—50 to 53 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; weak medium angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular and interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine threads; moderately alkaline (pH 8.2); abrupt smooth boundary.

C6—53 to 72 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; common very fine interstitial pores; very slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.2).

Location of typical pedon: Fresno County, California; about 3.25 miles south of the community of Huron; 45 feet south of Phelps Avenue and 2,544 feet east of Lassen Avenue; 100 feet south and 2,500 feet east of the northwest corner of sec. 35, T. 20 S., R. 17 E., Mount Diablo Base and Meridian; lat. 36 degrees 9 minutes 8 seconds N. and long. 120 degrees 5 minutes 35 seconds W.; USGS Huron Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are more than 60 inches deep. The content of organic matter is less than 1 percent at the surface and decreases irregularly with increasing depth.

The A horizon has dry color of 10YR 5/2, 6/2, 6/3, or 7/2 or 2.5Y 6/2. Moist color is 10YR 4/2 or 5/2 or 2.5Y 4/2. Texture is loamy sand or sandy loam. The content of clay ranges from 3 to 18 percent. The loamy sand phase is eroded. The calcium carbonate equivalent ranges from 1 to 2 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 10. Reaction is slightly alkaline or moderately alkaline.

The C horizon has dry color of 10YR 6/2, 6/3, or 7/2 or 2.5Y 6/2, 6/4, 7/2, or 7/4. Moist color is 10YR 4/2, 4/3, or 5/2 or 2.5Y 4/2, 5/2, or 5/4. In some pedons, few fine distinct relict redoximorphic masses in which iron has accumulated are present in the lower part of the C horizon. Texture is loamy sand with stratified loamy sand, sandy loam, and silt loam. The content of clay ranges from 2 to 18 percent. The calcium carbonate equivalent ranges from 1 to 5 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 10.

Additional data for pedon sample numbers 86CA019031 (1159-1166) and 87CA019008 (1415-1429) are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska. The additional data include measurements of selenium content.

Exclose Series

The Exclose series consists of very deep, well drained, calcareous soils on mountains. These soils formed in material weathered from marine calcareous shale. Slopes range from 30 to 65 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Calcic Haploxerepts

Typical Pedon

Map unit: Exclose clay loam, in an area of Exclose-Wisflat-Morenogulch association, 30 to 65 percent slopes

A1—0 to 5 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; strong medium and coarse subangular blocky structure; soft, very friable, very sticky and very plastic; common very fine roots; common very fine and few fine tubular pores; strongly effervescent; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

A2—5 to 12 inches; light brownish gray (2.5Y 6/2) sandy clay loam, dark grayish brown (2.5Y 4/2) moist; moderate medium and coarse subangular blocky structure; soft, very friable, very sticky and very plastic; common very fine and few fine roots; common very fine and fine and few coarse tubular pores; strongly effervescent; disseminated carbonates; moderately alkaline (pH 8.0); clear wavy boundary.

AB—12 to 19 inches; light brownish gray (2.5Y 6/2) sandy clay loam, olive brown (2.5Y 4/4) moist; weak coarse angular blocky structure; soft, very friable, moderately sticky and very plastic; few very fine and fine roots; common very fine and fine and few coarse tubular pores; violently effervescent; carbonates that are disseminated and are segregated as common fine soft threads; moderately alkaline (pH 8.0); clear wavy boundary.

Bw—19 to 29 inches; light gray (2.5Y 7/2) sandy clay loam, light olive brown (2.5Y 5/4) moist; weak coarse subangular blocky structure; soft, very friable, moderately sticky and very plastic; few very fine roots; many very fine and common fine tubular pores; violently effervescent; carbonates that are disseminated and are segregated as common fine soft threads; moderately alkaline (pH 8.0); clear wavy boundary.

Bk1—29 to 43 inches; light brownish gray (2.5Y 6/2) sandy clay loam, olive brown (2.5Y 4/4) moist; massive; soft, very friable, moderately sticky and very plastic; few very fine roots; few very fine tubular pores; violently effervescent; carbonates that are disseminated and are segregated as common fine soft threads; moderately alkaline (pH 8.0); clear wavy boundary.

Bk2—43 to 84 inches; light gray (2.5Y 7/2) sandy clay loam, light olive brown (2.5Y 5/4) moist; massive; soft, very friable, moderately sticky and very plastic; few very fine roots; few very fine tubular pores; violently effervescent; carbonates that are disseminated and are segregated as many fine soft masses; moderately alkaline (pH 8.0).

Location of typical pedon: Fresno County, California; about 4.7 miles south of Manning Avenue and Interstate 5 interchange; about 1,500 feet north and 2,000 feet west of the southeast corner of sec. 18, T. 16 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 32 minutes 9 seconds N. and long. 120 degrees 35 minutes 35 seconds W.; USGS Monocline Ridge Topographic Quadrangle, NAD 27.

Range in Characteristics

In most years, the moisture control section at a depth of 6 to 19 inches is moist from January 1 to May 1 and dry from June 1 to October 15. The soil temperature is more than 47 degrees F from February 15 to December 15. The mean annual soil temperature ranges from 60 to 65 degrees F. The increase in the calcium carbonate equivalent is less than 5 percent (absolute) from any overlying horizon to any adjacent underlying horizon.

The A horizon has dry color of 10YR 5/3, 6/2, or 6/3 or 2.5Y 5/2, 6/2, or 6/4. Moist color is 10YR 4/2, 4/3, or 4/4 or 2.5Y 4/2 or 4/4. The content of organic matter ranges from 1 to 3 percent. Texture is loam, sandy clay loam, or clay loam. The content of clay ranges from 25 to 35 percent. The A horizon ranges from slightly effervescent to violently effervescent. The calcium carbonate equivalent ranges from 1 to 3 percent.

The Bw horizon has dry color of 10YR 6/2 or 7/2 or 2.5Y 6/2, 6/4, or 7/2. Moist color is 10YR 4/2, 5/2, or 5/4 or 2.5Y 4/4 or 5/4. Color values are typically 1 unit higher than in the A horizon. The content of organic matter ranges from 0.5 to 1 percent. Texture is loam, sandy clay loam, or clay loam. The content of clay ranges from 25 to 35 percent. The calcium carbonate equivalent ranges from 2 to 7 percent.

The Bk horizon has dry color of 10YR 7/2 or 2.5Y 6/2, 7/0, 7/2, or 7/3. Moist color is 10YR 5/2 or 2.5Y 4/2, 4/4, 5/2, or 5/4. The content of organic matter ranges from 0.1 to 1 percent. Texture is loam, sandy clay loam, or clay loam. The content of clay ranges from 25 to 35 percent. The calcium carbonate equivalent ranges from 5 to 10 percent.

Additional data from characterization samples for other pedons, sample numbers 87CA019028 (taxadjunct 1513-1520) and 86CA019048 (taxadjunct 1219-1220), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska. The additional data include measurements of selenium content.

Fluvaquents

Fluvaquents consist of very deep, poorly drained soils on flood plains. These soils formed in alluvium derived dominantly from sedimentary rock. Slopes are 0 to 1 percent.

Taxonomic class: Mixed, superactive, thermic Fluvaquents

Representative Pedon

Map unit: Fluvaquents, saline-sodic, in an area of Cerini-Anela-Fluvaquents, saline-sodic, association, 0 to 2 percent slopes

Anz—0 to 5 inches; very pale brown (10YR 7/3) loamy fine sand, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine, fine, medium, and coarse roots; many very fine interstitial pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 1 percent; thin salt crust on surface; electrical conductivity of 56.9 decisiemens per meter; sodium adsorption ratio of 58; 3 percent gravel; strongly alkaline (pH 8.7); abrupt smooth boundary.

Bnzg1—5 to 10 inches; variegated light gray (2.5Y 7/2) and gray (5Y 6/1) very fine sandy loam, dark greenish gray (5GY 4/1), dark gray (5Y 4/1), and yellowish red (5YR 4/6) moist; color changes on exposure to air; massive; hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; many very fine interstitial pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 1 percent; electrical conductivity of 37.5 decisiemens per meter; sodium adsorption ratio of 42; 3 percent gravel; strongly alkaline (pH 8.5); abrupt smooth boundary.

Bnzg2—10 to 18 inches; variegated light olive gray (5Y 6/2) and yellowish red (5YR 5/6) loam, dark greenish gray (5GY 4/1), dark gray (5Y 4/1), and yellowish red (5YR 4/6) moist; color changes on exposure to air; massive; hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; many very fine interstitial pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 1 percent; electrical conductivity of 35.0 decisiemens per meter; sodium adsorption ratio of 39; 3 percent gravel; strongly alkaline (pH 8.6); clear smooth boundary.

Bnzg3—18 to 60 inches; variegated light olive gray (5Y 6/2) and yellowish red (5YR 5/6) very gravelly coarse sandy loam, dark greenish gray (5GY 4/1), dark gray (5Y 4/1), and yellowish red (5YR 4/6) moist; color changes on exposure to air; massive; slightly hard, loose, nonsticky and nonplastic; few very fine and medium roots; many very fine interstitial pores; slightly effervescent; disseminated carbonates; calcium carbonate equivalent of 6 percent; electrical conductivity of 21.9 decisiemens per meter; sodium adsorption ratio of 30; 40 percent gravel; free water present below 18 inches; strongly alkaline (pH 8.7).

Location of representative pedon: Fresno County, California; about 2.85 miles southwest of the intersection of Interstate 5 and Panoche Road, 750 feet northwest of Panoche Road; 1,620 feet north and 2,200 feet west of the southeast corner of sec. 16, T. 15 S., R. 12 E., Mount Diablo Base and Meridian; lat. 36 degrees 37 minutes 21 seconds N. and long. 120 degrees 39 minutes 54 seconds W.; USGS Tumey Hills Topographic Quadrangle, NAD 27.

Range in Characteristics

The characteristics of the Fluvaquents are extremely variable. The content of organic matter ranges from 0.1 to 1.0 percent and decreases irregularly with depth. Reaction is moderately alkaline or strongly alkaline.

The Anz horizon is stratified gravelly sand to loam. The content of clay ranges from 2 to 18 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The content of gypsum ranges from 0 to 3 percent. Electrical conductivity ranges from 16 to 60 decisiemens per meter. The sodium adsorption ratio ranges from 30 to 70. The content of gravel ranges from 0 to 35 percent.

The Bnzg horizon is stratified very gravelly sand to loam. The content of clay ranges from 2 to 18 percent. The calcium carbonate equivalent ranges from 1 to 10 percent. The content of gypsum ranges from 0 to 4 percent. Electrical conductivity ranges from 8 to 50 decisiemens per meter. The sodium adsorption ratio ranges from 15 to 60. The content of gravel ranges from 0 to 60 percent.

Additional data for this representative pedon, sample number 86CA019033 (1173-1176), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska. The additional data include measurements of selenium content.

Franciscan Series

The Franciscan series consists of moderately deep, well drained soils on mountains. These soils formed in marine deposits derived from sandstone and shale. Slopes range from 30 to 65 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Typic Argixerolls

Typical Pedon

Map unit: Franciscan gravelly sandy loam, in an area of Hentine-Franciscan-Rock outcrop complex, 30 to 65 percent slopes

A—0 to 5 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine and few medium and coarse roots; common very fine tubular and many fine and medium interstitial pores; 20 percent gravel 2 to 20 millimeters in size; slightly acid (pH 6.5); clear smooth boundary.

ABt—5 to 9 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; strong medium and coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine and few medium and coarse roots; few thin clay films on faces of peds; 20 percent gravel 2 to 20 millimeters in size; 5 percent angular cobbles 3 to 6 inches in size; slightly acid (pH 6.5); clear smooth boundary.

Bt1—9 to 15 inches; brown (7.5YR 5/2) gravelly loam, dark brown (7.5YR 3/2) moist; moderate medium and coarse angular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and fine and common medium and coarse roots; common very fine and fine and few medium tubular and interstitial pores; common moderately thick clay films on faces of peds and in pores; 20 percent gravel 2 to 20 millimeters in size; 5 percent angular cobbles 3 to 6 inches in size; neutral (pH 6.8); clear smooth boundary.

Bt2—15 to 26 inches; brown (7.5YR 5/2) cobbly loam, dark brown (7.5YR 3/2) moist; moderate coarse angular blocky structure; hard, friable, moderately sticky and moderately plastic; few fine, medium, and common coarse roots; few very fine and fine tubular and interstitial pores; common moderately thick clay films on faces of peds and in pores; 19 percent gravel; 15 percent angular cobbles 3 to 8 inches in size; neutral (pH 6.8); abrupt irregular boundary.

R—26 to 31 inches; metamorphosed sandstone and fine-grained sandstone.

Location of typical pedon: Fresno County, California; about 2.3 miles north of the junction of Duckworth Creek and Los Gatos Creek; 100 feet south and 1,050 feet west of the northeast corner of sec. 2, T. 19 S., R. 12 E., Mount Diablo Base and Meridian; lat. 36 degrees 18 minutes 29 seconds N. and long. 120 degrees 38 minutes 16 seconds W.; USGS San Benito Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact ranges from 20 to 40 inches. The mollic epipedon is 8 to 15 inches thick and is always at least one-third as thick as the solum. Reaction is slightly acid or neutral throughout.

The A horizon has dry color of 10YR 5/3 or 7.5YR 5/2. Moist color is 10YR 3/2 or 3/3 or 7.5YR 3/2 or 3/3. The content of organic matter ranges from 2 to 3 percent. The content of clay ranges from 10 to 20 percent. The content of gravel ranges from 15 to 25 percent. The content of cobbles ranges from 0 to 5 percent.

The ABt horizon has dry color of 10YR 5/3 or 7.5YR 5/2. Moist color is 10YR 3/2 or 3/3 or 7.5YR 3/2 or 3/3. The content of organic matter ranges from 2 to 3 percent.

Texture is gravelly sandy loam or gravelly loam. The content of clay ranges from 10 to 20 percent. The content of gravel ranges from 15 to 25 percent. The content of cobbles ranges from 0 to 5 percent.

The Bt horizon has dry color of 7.5YR 5/2 or 5/3. Moist color is 7.5YR 3/2, 3/4, or 4/4. The content of organic matter ranges from 1 to 2 percent in the upper part of the Bt horizon and is 1 percent or less in the lower part. Texture is gravelly loam, cobbly loam, or cobbly clay loam. The content of clay ranges from 20 to 35 percent. The content of gravel ranges from 15 to 25 percent. The content of cobbles ranges from 5 to 20 percent.

Gaviota Series

The Gaviota series consists of shallow, well drained soils on mountains. These soils formed in material weathered dominantly from sandstone. Slopes range from 50 to 75 percent.

Taxonomic class: Loamy, mixed, superactive, nonacid, thermic Lithic Xerorthents

Typical Pedon

Map unit: Gaviota sandy loam, in an area of Sagaser-Gaviota-Borreguero association, 50 to 75 percent slopes

A—0 to 3 inches; light yellowish brown (10YR 6/4) sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine tubular and common very fine interstitial pores; neutral (pH 7.3); abrupt wavy boundary.

C—3 to 10 inches; light yellowish brown (10YR 6/4) sandy loam, dark brown (10YR 3/3) moist; weak medium and fine subangular blocky structure; hard, friable, nonsticky and nonplastic; common medium and few fine roots; few fine tubular and common very fine interstitial pores; neutral (pH 7.3); abrupt wavy boundary.

R—10 to 15 inches; hard sandstone.

Location of typical pedon: Fresno County, California; about 2.7 miles north of Warthan Creek; 2,000 feet south and 650 feet east of the northwest corner of sec. 19, T. 20 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 10 minutes 42 seconds N. and long. 120 degrees 36 minutes 53 seconds W.; USGS Sherman Peak Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with hard sandstone ranges from 10 to 20 inches. The mean annual soil temperature ranges from 59 to 64 degrees F. The content of organic matter is 1 percent or less in the A horizon and then decreases regularly with depth. The content of clay ranges from 10 to 18 percent. The content of gravel ranges from 0 to 10 percent.

The A horizon has dry color of 10YR 5/3, 6/3, or 6/4 or 2.5Y 6/2. Moist color is 10YR 3/3, 4/3, 4/4, 5/4, or 5/6 or 2.5Y 4/4.

The C horizon has dry color of 10YR 5/4 or 6/4. Moist color is 10YR 3/3, 4/3, or 4/4.

Gepford Series

The Gepford series consists of very deep, poorly drained soils on flood plains and basin floors. These soils formed in alluvium derived from igneous rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine, smectitic, thermic Typic Natraquerts

Typical Pedon

Map unit: Gepford clay, 0 to 1 percent slopes

Ap1—0 to 7 inches; dark gray (5Y 4/1) clay, very dark gray (5Y 3/1) moist; strong very coarse prismatic structure parting to strong coarse subangular blocky; very hard, firm, very sticky and very plastic; common very fine and few fine roots throughout; few very fine tubular and many fine interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregular soft masses; electrical conductivity of 3.0 decisiemens per meter; sodium adsorption ratio of 10; few fine distinct olive gray (5Y 4/2), moist, iron depletions; moderately alkaline (pH 8.4); clear smooth boundary.

Ap2—7 to 13 inches; dark gray (5Y 4/1) clay, very dark gray (5Y 3/1) moist; moderate very coarse prismatic structure parting to strong coarse subangular blocky; very hard, firm, very sticky and moderately plastic; common very fine and few fine roots throughout; few very fine tubular and few fine interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine rounded soft masses and common fine irregular threads; electrical conductivity of 3.2 decisiemens per meter; sodium adsorption ratio of 9; many fine and medium distinct olive gray (5Y 4/2), moist, iron depletions; slightly alkaline (pH 7.7); clear smooth boundary.

Bkg1—13 to 20 inches; gray (5Y 5/1) clay, very dark gray (5Y 3/1) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; few very fine and fine roots throughout; few very fine tubular and fine interstitial pores; few pressure faces; slightly effervescent; carbonates that are disseminated and are segregated as few fine rounded soft masses and common fine irregular threads; electrical conductivity of 3.5; sodium adsorption ratio of 14; many fine and medium distinct olive gray (5Y 5/2), moist, iron depletions; moderately alkaline (pH 8.2); clear wavy boundary.

Bkg2—20 to 26 inches; gray (5Y 5/1) clay, dark olive gray (5Y 3/2) moist; moderate medium angular blocky structure; hard, firm, moderately sticky and very plastic; few very fine and fine roots throughout; few very fine tubular and fine interstitial pores; common pressure faces throughout; slightly effervescent; carbonates that are disseminated and are segregated as few fine irregular soft masses, common fine irregular threads, and few medium concretions; electrical conductivity of 3.5; sodium adsorption ratio of 14; many fine distinct greenish gray (5GY 5/1) and few fine distinct black (N 2/0), moist, depletions; moderately alkaline (pH 8.2); gradual wavy boundary.

Bkgy1—26 to 43 inches; olive gray (5Y 5/2) clay, olive (5Y 4/3) moist; moderate coarse angular blocky structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; common very fine roots throughout; few very fine tubular and common very fine and fine interstitial pores; many prominent discontinuous dark greenish gray (5GY 4/1) moist pressure faces throughout; wedge-shaped aggregates; very slightly effervescent; carbonates that are disseminated and are segregated as common fine irregular threads and few medium concretions; common fine soft masses and threads of gypsum; electrical conductivity of 6.9 decisiemens per meter; sodium adsorption ratio of 13.0; common fine distinct black (N 2/0) and common fine distinct dark greenish gray (5GY 4/1), moist, depletions; moderately alkaline (pH 8.4); clear wavy boundary.

Bkgy2—43 to 60 inches; olive (5Y 5/3) clay loam, olive (5Y 4/3) moist; moderate medium prismatic structure; hard, friable, moderately sticky and moderately plastic; common very fine roots throughout; few very fine tubular and common very fine and fine interstitial pores; many pressure faces; wedge-shaped aggregates; very slightly effervescent; carbonates that are disseminated and are segregated as common fine irregular threads and few medium concretions; common fine threads and soft masses of gypsum; electrical conductivity of 5.6 decisiemens per meter; sodium adsorption ratio of 13; common fine distinct dark greenish gray (5GY 4/1), moist, and few fine distinct black (N 2/0), moist, depletions; strongly alkaline (pH 8.5).

Location of typical pedon: Fresno County, California; about 1,400 feet north of Mount Whitney Avenue and 1,600 feet west of Dickenson Avenue; 1,600 feet west and 1,400 feet north of the southeast corner of sec. 23, T. 17 S., R. 18 E., Mount Diablo Base and Meridian; lat. 36 degrees 26 minutes 2 seconds N. and long. 119 degrees 59 minutes 1 second W.; USGS Burrel Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 63 to 65 degrees F. The moisture control section is moist in some part all of the time and is saturated for up to 4 months. The content of organic matter ranges from 1 to 3 percent in the surface horizons and decreases irregularly with increasing depth. The calcium carbonate equivalent ranges from 1 to 3 percent in the surface horizons and from 2 to 5 percent in the lower horizons. Carbonates are disseminated and/or segregated as concretions, soft masses, and threads. Electrical conductivity ranges from 2 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 4 to 20 in the surface layer and from 8 to 50 in the subsoil. The sodium adsorption ratio is always greater than 13 in some part of the subsoil. Reaction ranges from slightly alkaline to strongly alkaline, typically increasing in alkalinity with increasing depth. Reaction is highly variable as a result of additions of gypsum and sulfur. Reaction is lower where significant amounts of gypsum or sulfur have been added. Horizons with segregated gypsum are designated with the “y” suffix.

The A horizon has dry color of 5Y 4/1, 4/2, or 5/1. Moist color is 5Y 3/1 or 3/2. The content of clay ranges from 40 to 60 percent. Redoximorphic features are not present in all A horizons in all pedons.

The B horizon has dry color of 2.5Y 6/2 or 6/4 or 5Y 4/1, 5/1, 5/2, or 5/3. Moist color is 2.5Y 4/4 or 5/4 or 5Y 3/1, 3/2, 4/2, or 4/3. Texture is clay loam, clay, or silty clay. The content of clay ranges from 35 to 60 percent. Few or common pressure faces are present. Wedge-shaped aggregates that are tilted at least 10 degrees are present in all pedons. The redoximorphic features have moist color of N 2/0; 5GY 4/1, 4/2, or 5/1; 5Y 4/1, 5/2, 5/3, 6/2, 6/3, or 6/4; or 5YR 3/2 or 3/3.

Getrail Series

The Getrail series consists of deep, well drained soils on mountains. These soils formed in material weathered from clayey shale. They have wide cracks when dry. Slopes range from 15 to 40 percent.

Taxonomic class: Fine, smectitic, mesic Aridic Haploxererts

Typical Pedon

Map unit: Getrail clay, in an area of Getrail-Vernado-Rock outcrop association, 15 to 65 percent slopes

A—0 to 4 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; strong medium angular blocky structure; very hard, firm, very sticky and very plastic; common very fine roots; few very fine tubular pores; neutral (pH 7.0); clear smooth boundary.

Bss1—4 to 15 inches; dark yellowish brown (10YR 4/4) clay, dark brown (10YR 3/3) moist; strong coarse prismatic structure; very hard, firm, very sticky and very plastic; few very fine, fine, and medium roots; few very fine tubular pores; vertical and intersecting slickensides; neutral (pH 7.0); clear smooth boundary.

Bss2—15 to 24 inches; dark yellowish brown (10YR 4/4) clay, brown (10YR 4/3) moist; weak coarse prismatic structure; very hard, firm, very sticky and very plastic; few very fine, fine, medium, and coarse roots; 59 percent clay; vertical and intersecting slickensides; neutral (pH 7.0); gradual smooth boundary.

Bss3—24 to 36 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) and light olive brown (2.5Y 5/4) moist; moderate medium and coarse angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine, fine, medium, and coarse roots; 60 percent clay; vertical and intersecting slickensides; moderately alkaline (pH 8.0); clear wavy boundary.

C—36 to 43 inches; light yellowish brown (2.5Y 6/4) and yellowish brown (10YR 5/4) clay, light olive brown (2.5Y 5/4) and brown (10YR 4/3) moist; weak medium and coarse angular blocky structure; very hard, firm, very sticky and very plastic; few medium and coarse roots; few very fine tubular pores; moderately alkaline (pH 8.0); clear wavy boundary.

Cr—43 to 48 inches; soft, clayey shale.

Location of typical pedon: Fresno County, California; about 5 miles west-southwest of Lillis Ranch, 900 feet south of Cantua Creek; about 2,550 feet east and 1,950 feet north of the southwest corner of sec. 4, T. 18 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 23 minutes 25 seconds N. and long. 120 degrees 33 minutes 45 seconds W.; USGS Ciervo Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with marine, clayey shale ranges from 40 to 60 inches. In most years, the moisture control section at a depth of 7 to 21 inches is moist from December 1 to June 1 and dry from July 1 to September 15. The soil temperature is more than 47 degrees F from April 15 to October 15. The mean annual soil temperature ranges from 56 to 58 degrees F. When these soils are dry, cracks are 1.5 inches wide at the surface and 0.5 inch wide at a depth of 20 inches. Vertical and intersecting slickensides are present in the B horizon.

The A horizon has dry color of 10YR 4/4, 5/3, or 5/4 or 2.5Y 5/4. Moist color is 10YR 3/2, 3/3, or 4/3 or 2.5Y 4/4. The content of organic matter ranges from 2 to 3 percent. The content of clay ranges from 45 to 60 percent.

The B horizon has dry color of 10YR 4/4, 5/3, or 5/4 or 2.5Y 5/4. Moist color is 10YR 3/2, 3/3, 4/3, or 4/4 or 2.5Y 4/4 or 5/4. The content of organic matter ranges from 0.3 to 2 percent. The content of clay ranges from 45 to 60 percent.

The C horizon has dry color of 10YR 3/4, 4/4, or 5/4 or 2.5Y 6/4. Moist color is 10YR 4/3 or 2.5Y 5/4. The content of organic matter ranges from 0.1 to 0.3 percent. The content of clay ranges from 50 to 55 percent.

Gewter Series

The Gewter series consists of moderately deep, well drained, very strongly acid soils on hills. These soils formed in material weathered from marine mudstone and/or diatomaceous, acid shale. Slopes range from 15 to 30 percent.

Taxonomic class: Very-fine, smectitic, thermic Ultic Haploxeralfs

Typical Pedon

Map unit: Gewter clay, 15 to 30 percent slopes

ABt—0 to 4 inches; brown (10YR 5/3) clay, brown (10YR 4/3) moist; moderate fine granular structure; loose, very friable, sticky and very plastic; common very fine and fine roots; 10 percent of surface covered with angular cobbles; 10 parts per million selenium; 10 percent soft fractured acid shale parachanners; very strongly acid (pH 4.5); clear smooth boundary.

Bt—4 to 13 inches; brown (10YR 5/3) parachannery clay, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; soft, very friable, sticky and very plastic; common very fine, fine, and medium roots; common very fine and fine tubular and interstitial pores; common moderately thick clay films bridging and coating mineral grains; 15 percent soft fractured acid shale parachanners $^1/_8$ to 1 inch in size; 12.5 parts per million selenium; very strongly acid (pH 4.6); clear smooth boundary.

BCt—13 to 23 inches; light yellowish brown (10YR 6/4) and brownish yellow (10YR 6/6) very parachannery clay, dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/6), and yellowish brown (10YR 5/8) moist; massive; slightly hard, friable, sticky and very plastic; few very fine and fine roots; common very fine and fine tubular and interstitial pores; common moderately thick clay films bridging and coating mineral grains; 35 percent soft fractured acid shale parachanners $^1/_8$ to 1 inch in size; 22.7 parts per million selenium; very strongly acid (pH 4.6); clear wavy boundary.

Cr—23 to 30 inches; highly fractured, soft, diatomaceous, acid shale.

Location of typical pedon: Fresno County, California; about 4.5 miles west of Lillis Ranch, 500 feet east of a turn in a dirt road; about 2,400 feet north and 1,600 feet west of the southeast corner of sec. 33, T. 17 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 24 minutes 24 seconds N. and long. 120 degrees 33 minutes 31 seconds W.; USGS Ciervo Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with highly fractured marine mudstone and/or highly fractured, soft, diatomaceous, acid shale ranges from 20 to 30 inches. In most years, the moisture control section at a depth of 7 to 25 inches is moist from January 1 to May 1 and dry from June 1 to October 15. The soil temperature is more than 47 degrees F from February 15 to October 15. The mean annual soil temperature ranges from 61 to 65 degrees F. The base saturation is less than 50 percent. High concentrations of selenium occur throughout the profile. The coverage of angular paracobbles on the surface ranges from 2 to 14 percent.

The ABt horizon has dry color of 10YR 5/2, 5/3, or 6/2. Moist color is 10YR 3/2, 3/4, or 4/3. The content of clay ranges from 55 to 65 percent. The content of parachanners ranges from 7 to 14 percent. Reaction ranges from extremely acid to moderately acid. Typically, the surface layer has lost 25 to 75 percent of its thickness due to erosion.

The Bt horizon has dry color of 10YR 5/3, 6/2, or 7/3. Moist color is 10YR 4/3 or 4/4. The content of clay ranges from 60 to 65 percent. The content of parachanners ranges from 15 to 35 percent. Reaction is extremely acid or very strongly acid.

The BCt horizon has dry color of 10YR 6/4, 6/6, or 7/3. Moist color is 10YR 4/4, 5/6, 5/8, or 7/6. Texture is parachannery clay or very parachannery clay. The content of clay ranges from 60 to 65 percent. The content of parachanners ranges from 15 to 60 percent.

Additional data for this typical pedon, sample number 84CA019017 (1853-1855), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

The Gewter soil in map unit 727 is a taxadjunct to the series. It differs from the Gewter series by having less than 60 percent clay and by having mixed mineralogy. It classifies as a fine, mixed, semiactive, thermic Ultic Haploxeralf. These differences, however, do not significantly affect use and management.

Gewter Taxadjunct

The Gewter taxadjunct consists of moderately deep, well drained, extremely acid or very strongly acid soils on mountains. These soils formed in material weathered from marine, acid shale. Slopes range from 25 to 65 percent.

Taxonomic class: Fine, mixed, semiactive, thermic Ultic Haploxeralfs

Typical Pedon

Map unit: Gewter loam in an area of Reliz-Gewter-Rock outcrop association, 25 to 75 percent slopes

Oi—0 to 1 inch; slightly decomposed plant material; 5 percent angular acid shale channers on the surface; abrupt smooth boundary.

A—1 to 6 inches; brown (7.5YR 5/2) loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few coarse roots; common very fine and few fine tubular pores; 5 percent acid shale channers and 5 percent acid mudstone parachanners; extremely acid (pH 4.4); clear wavy boundary.

Bt1—6 to 13 inches; brown (7.5YR 5/4) channery clay loam, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; common very fine and few fine tubular pores; common thin clay films on faces of peds; 25 percent acid channers and 5 percent acid mudstone parachanners; extremely acid (pH 4.4); gradual smooth boundary.

Bt2—13 to 25 inches; brown (7.5YR 5/4) channery clay, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; few very fine and fine tubular pores; common moderately thick clay films on faces of peds; 29 percent acid channers and 5 percent acid mudstone parachanners; extremely acid (pH 4.4); gradual smooth boundary.

Cr—25 to 30 inches; highly fractured, acidic Monterey Shale.

Location of typical pedon: Fresno County, California; about 3 miles east-southeast of Smith Mountain and the boundary between Monterey County and Fresno County; about 1,700 feet north and 1,900 feet east of the southwest corner of sec. 26, T. 21 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 4 minutes 17 seconds N. and long. 120 degrees 32 minutes 32 seconds W.; USGS Smith Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with highly fractured, marine, acid shale ranges from 20 to 40 inches. The mean annual soil temperature ranges from 59 to 63 degrees F. The base saturation is less than 75 percent. The content of angular, acid channers on the surface ranges from 2 to 10 percent.

The A horizon has an organic matter content of 0.8 to 2.0 percent. The content of clay ranges from 20 to 27 percent. The content of channers ranges from 3 to 15 percent, and the content of parachanners ranges from 2 to 10 percent. Reaction is extremely acid or very strongly acid.

The Bt horizon has an organic matter content of 0.3 to 1.0 percent. The content of clay ranges from 27 to 60 percent. The content of channers ranges from 15 to 35 percent, and the content of parachanners ranges from 2 to 10 percent. Reaction is extremely acid or very strongly acid.

The Gewter soil in map unit 727 is a taxadjunct to the series. It differs from the Gewter series by having a clay content of less than 60 percent and having mixed mineralogy. These differences, however, do not significantly affect use and management.

Grazer Series

The Grazer series consists of deep, well drained soils on hills and mountains. These soils formed in material weathered from marine calcareous shale. Slopes range from 8 to 50 percent.

Taxonomic class: Fine, smectitic, thermic Typic Haploxeralfs

Typical Pedon

Map unit: Grazer silty clay loam, in an area of Grazer-Wisflat-Arburua association, 8 to 50 percent slopes

A—0 to 4 inches; light brownish gray (2.5Y 6/2) silty clay loam, olive brown (2.5Y 4/4) moist; strong medium subangular blocky structure; hard, friable, very sticky and very plastic; common very fine roots; common very fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.2); clear smooth boundary.

BA—4 to 11 inches; grayish brown (2.5Y 5/2) silty clay, dark grayish brown (2.5Y 4/2) moist; strong medium and coarse angular blocky structure; hard, friable, very sticky and very plastic; common very fine roots; common very fine tubular and interstitial pores; few thin pressure faces; strongly effervescent; disseminated carbonates; moderately alkaline (pH 8.2); clear wavy boundary.

Btk1—11 to 23 inches; light brownish gray (2.5Y 6/2) silty clay, dark grayish brown (2.5Y 4/2) moist; strong coarse prismatic structure; very hard, friable, very sticky and very plastic; few very fine and many fine roots; few very fine and common fine tubular pores; many thick pressure faces; strongly effervescent; carbonates that are disseminated and are segregated as few fine soft masses; moderately alkaline (pH 8.2); clear smooth boundary.

Btk2—23 to 34 inches; light yellowish brown (2.5Y 6/4) silty clay, dark grayish brown (2.5Y 4/2) moist; some white lime specks, dry or moist; moderate coarse angular blocky structure; very hard, firm, very sticky and very plastic; few very fine roots; few very fine and fine tubular pores; many thick pressure faces; strongly effervescent; carbonates that are disseminated and are segregated as few fine soft masses; moderately alkaline (pH 8.4); gradual smooth boundary.

BC—34 to 47 inches; light yellowish brown (2.5Y 6/4) silty clay, dark grayish brown (2.5Y 4/2) moist; specks of dark gray (N 4/0) weathered shale fragments; weak coarse angular blocky structure; very hard, firm, very sticky and very plastic; no roots; few very fine and fine tubular pores; many thick pressure faces; strongly effervescent; disseminated carbonates; moderately alkaline (pH 8.2); abrupt wavy boundary.

Cr1—47 to 72 inches; light yellowish brown (2.5Y 6/4), dark grayish brown (2.5Y 4/2), and yellowish brown (10YR 5/6) strongly weathered shale, olive brown (2.5Y 4/4), yellowish red (5YR 5/6), and greenish gray (5GY 5/1) moist; abrupt wavy boundary.

Cr2—72 to 80 inches; weathered shale.

Location of typical pedon: Fresno County, California; about 1.3 miles south-southwest of Ciervo Mountain (peak), 1.8 miles north of Arroyo Hondo; about 100 feet east and 400 feet south of the northwest corner of sec. 17, T. 17 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 27 minutes 24 seconds N. and long. 120 degrees 35 minutes 19 seconds W.; USGS Ciervo Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with marine calcareous shale ranges from 40 to 60 inches. In most years, the moisture control section at a depth of 7 to 21 inches is moist from January 1 to May 1 and dry from June 1 to October 15. The soil temperature is more than 47 degrees F from February 15 to December 15. The mean annual soil temperature ranges from 59 to 65 degrees F.

The A horizon has dry color of 10YR 6/1, 6/2, 6/3, or 6/4 or 2.5Y 6/1 or 6/2. Moist color is 10YR 3/2, 3/3, 4/2, or 4/3 or 2.5Y 4/2, 4/4, or 5/4. The content of organic matter ranges from 0.8 to 2 percent. The content of clay ranges from 30 to 40 percent. Reaction is slightly alkaline or moderately alkaline.

The Btk horizon has dry color of 10YR 5/6, 6/1, 6/2, or 6/4 or 2.5Y 5/2, 6/2, 6/3, 6/4, or 7/2. Moist color is 10YR 4/2, 4/3, 4/4, 5/4, or 6/4 or 2.5Y 4/2. The content of organic matter ranges from 0.7 to 1 percent. Texture is silty clay or clay. The content of clay ranges from 40 to 55 percent, and the horizon contains at least 8 percent more total clay than the A horizon.

Most pedons have BA and BC transitional horizons. These horizons have properties similar to those of the Bt horizon.

The Cr horizon consists of weathered marine calcareous shale.

Additional data for this typical pedon, sample number 84CA019011 (1856-1857), and for pedon sample number 86CA019046 (1216-1217), which includes data for selenium content, are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

Guijarral Series

The Guijarral series consists of very deep, well drained soils on fan remnants. These soils formed in alluvium derived dominantly from calcareous sedimentary rock. Slopes range from 2 to 15 percent.

Taxonomic class: Coarse-loamy, mixed, superactive, thermic Typic Haplocalcids

Typical Pedon

Map unit: Guijarral sandy loam, in an area of Polvadero-Guijarral complex, 5 to 15 percent slopes

Ap1—0 to 3 inches; light gray (2.5Y 7/2) sandy loam, olive brown (2.5Y 4/4) moist; moderate coarse and fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine and few fine roots; few very fine tubular and many very fine interstitial pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 2 percent; 10 percent gravel; moderately alkaline (pH 7.9); abrupt smooth boundary.

Ap2—3 to 6 inches; light brownish gray (2.5Y 6/2) sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and few fine roots; many very fine interstitial pores; strongly effervescent; disseminated carbonates;

calcium carbonate equivalent of 4 percent; 10 percent gravel; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bw—6 to 12 inches; light brownish gray (2.5Y 6/2) sandy loam, olive brown (2.5Y 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and few fine roots; many very fine interstitial pores; violently effervescent; carbonates that are disseminated and are segregated as few fine soft masses; calcium carbonate equivalent of 4 percent; 10 percent gravel; moderately alkaline (pH 8.1); abrupt wavy boundary.

Bk1—12 to 24 inches; light brownish gray (2.5Y 6/2) gravelly sandy loam, light olive brown (2.5Y 5/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, slightly sticky and slightly plastic; common very fine roots oriented between peds; common very fine tubular and interstitial pores; very few thin clay bridges between mineral grains; violently effervescent; carbonates that are disseminated and are segregated as many fine irregular threads, as many thin or moderately thick coatings on faces of peds, and as common thin coatings on coarse fragments; calcium carbonate equivalent of 6 percent; 15 percent gravel; strongly alkaline (pH 8.5); abrupt wavy boundary.

Bk2—24 to 36 inches; light gray (2.5Y 7/2) gravelly sandy loam, light yellowish brown (2.5Y 6/4) moist; massive; hard, firm, nonsticky and slightly plastic; few very fine roots; few very fine tubular and many very fine interstitial pores; violently effervescent; carbonates that are disseminated and are segregated as common fine irregular soft masses and as common thin coatings on coarse fragments; calcium carbonate equivalent of 9 percent; 17 percent gravel; strongly alkaline (pH 8.9); clear smooth boundary.

Bk3—36 to 60 inches; light gray (2.5Y 7/2) gravelly loamy sand, light olive brown (2.5Y 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; violently effervescent; carbonates that are disseminated and are segregated as few fine irregular soft masses; calcium carbonate equivalent of 3 percent; 17 percent gravel; strongly alkaline (pH 9.0).

Location of typical pedon: Fresno County, California; about 6.8 miles northeast of the community of Coalinga, 2,100 feet south of Palmer Avenue and 2.3 miles west of Interstate 5; 2,430 feet west and 2,100 feet south of the northeast corner of sec. 8, T. 20 S., R. 16 E., Mount Diablo Base and Meridian; lat. 36 degrees 12 minutes 15 seconds N. and long. 120 degrees 15 minutes 16 seconds W.; USGS Coalinga Topographic Quadrangle, NAD 27.

Range in Characteristics

Unless these soils are irrigated, between depths of 8 and 24 inches they are dry in all parts from April 1 to January 1 and are moist in some or all parts for 60 days to less than 90 days from January through March. The soil temperature is always more than 47 degrees F. The mean annual soil temperature ranges from 64 to 70 degrees F. The content of organic matter is less than 1 percent. The content of clay ranges from 3 to 15 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter.

The A horizon has dry color of 2.5Y 6/2, 7/2, or 8/2 or 10YR 6/3. Moist color is 2.5Y 4/2, 4/4, or 5/4 or 10YR 4/2, 4/3, 4/4, or 5/3. Texture is sandy loam or fine sandy loam. The horizon is very slightly effervescent to strongly effervescent. The calcium carbonate equivalent ranges from 1 to 4 percent. Carbonates are disseminated. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 0 to 15 percent. Reaction ranges from neutral to moderately alkaline.

The Bw horizon has dry color of 2.5Y 6/2 or 8/2 or 10YR 6/3. Moist color is 2.5Y 4/4 or 5/4 or 10YR 4/3. Texture is sandy loam or fine sandy loam. The horizon is slightly effervescent to violently effervescent. The calcium carbonate equivalent ranges from 1 to 4 percent. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 0 to 15 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has dry color of 2.5Y 6/2, 6/3, 6/4, 7/2, or 8/2. Moist color is 2.5Y 4/4, 5/4, or 6/4. Texture is gravelly loamy sand, gravelly sandy loam, sandy loam, or fine sandy loam. The horizon is strongly effervescent or violently effervescent. The calcium carbonate equivalent ranges from 5 to 10 percent in the upper part and from 1 to 5 percent in the lower part. The sodium adsorption ratio ranges from 1 to 10. The content of gravel ranges from 10 to 30 percent. Reaction is moderately alkaline or strongly alkaline.

Hentine Series

The Hentine series consists of shallow, well drained soils on mountains. These soils formed in material weathered from serpentinite rock. Slopes range from 30 to 65 percent.

Taxonomic class: Loamy-skeletal, magnesic, thermic Lithic Argixerolls

Typical Pedon

Map unit: Hentine very gravelly sandy loam, in an area of Hentine-Franciscan-Rock outcrop complex, 30 to 65 percent slopes

A—0 to 2 inches; brown (7.5YR 4/2) very gravelly sandy loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine interstitial pores; 14 percent clay; 60 percent fragments of serpentine 0.12 to 1.5 inches in size; neutral (pH 7.0); clear smooth boundary.

Bt1—2 to 9 inches; dark brown (7.5YR 3/4) very gravelly clay loam, dark brown (7.5YR 3/2) moist; moderate medium angular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; many very fine, fine, and medium roots; many very fine, fine, and medium tubular and interstitial pores; many moderately thick colloid stains and clay films bridging mineral grains; 27 percent clay; 37 percent fragments of serpentine, mostly 0.12 to 0.75 inch in size with a few 2.5 inch in size; slightly alkaline (pH 7.7); clear smooth boundary.

Bt2—9 to 15 inches; brown (7.5YR 4/4) very gravelly clay loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; few very fine and fine and common coarse roots; common very fine and fine and few coarse tubular and interstitial pores; common thin colloid stains and clay films bridging sand grains; 29 percent clay; 37 percent fragments of serpentine, mostly 0.12 to 0.75 inch in size with a few 2.5 inch in size; slightly alkaline (pH 7.7); abrupt irregular boundary.

Bt3—15 to 18 inches; brown (7.5YR 4/4) very gravelly clay loam, dark brown (7.5YR 3/2) moist; massive; slightly hard, firm, moderately sticky and moderately plastic; few very fine, fine, and coarse roots; few very fine, fine, and coarse tubular and interstitial pores; few thin clay films bridging sand grains; 29 percent clay; 37 percent fragments of serpentine, mostly 0.12 to 0.75 inch in size with a few 2.5 inch in size; slightly alkaline (pH 7.7); 40 percent lateral rock interruption; abrupt broken boundary.

R—18 to 28 inches; hard, fractured, serpentinite rock.

Location of typical pedon: Fresno County, California; 100 feet northwest of the dirt road, 2.2 miles north of the junction of Duckworth and Los Gatos Creeks, 1.5 miles east of the San Benito County line; 1,800 feet west and 1,000 feet south of the northeast corner of sec. 2, T. 19 S., R. 12 E., Mount Diablo Base and Meridian; lat. 36 degrees 18 minutes 29 seconds N. and long. 120 degrees 38 minutes and 24 seconds W.; USGS San Benito Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with hard serpentinite rock ranges from 10 to 20 inches. In most years, the moisture control section at a depth of 12 to 18 inches is moist from December 1 to May 15 and dry from June 1 to September 15. The soil temperature is more than 47 degrees F from February 15 to December 15. The mean annual soil temperature ranges from 59 to 65 degrees F. The content of organic matter ranges from 1 to 3 percent in the A horizon and in the upper Bt horizons.

The A horizon has dry color of 7.5YR 4/2, 4/4, or 5/2 or 10YR 4/2 or 5/2. Moist color is 7.5YR 3/2 or 10YR 2/2. The content of clay ranges from 10 to 20 percent. The content of gravel ranges from 35 to 60 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has dry color of 7.5YR 3/4, 4/4, 5/2, or 6/2 or 10YR 4/3 or 4/4. Moist color is 7.5YR 3/2, 3/4, or 5/2 or 10YR 3/2 or 4/2. Chroma of more than 3, dry and moist, and value of more than 3, moist, are present below a depth of 9 inches. Texture is extremely gravelly clay loam, very gravelly loam, or very gravelly clay loam. The content of clay ranges from 25 to 35 percent. The content of gravel ranges from 35 to 75 percent. Reaction is slightly alkaline or moderately alkaline.

Kettleman Series

The Kettleman series consists of moderately deep, well drained soils on hills. These soils formed in material weathered from sandstone and shale. Slopes range from 5 to 50 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Typic Haplocambids

Typical Pedon

Map unit: Kettleman clay loam, in an area of Kettleman-Delgado-Mercey association, 5 to 15 percent slopes, eroded

A—0 to 8 inches; grayish brown (10YR 5/2) clay loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; hard, firm, moderately sticky and slightly plastic; common very fine roots; many very fine interstitial pores; very slightly effervescent; carbonates that are segregated as few fine irregularly shaped soft masses; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bw—8 to 20 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; strong medium subangular blocky structure; hard, very firm, moderately sticky and slightly plastic; few very fine roots; few very fine tubular and common very fine interstitial pores; very slightly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped soft masses; slightly alkaline (pH 7.7); abrupt wavy boundary.

Bk—20 to 27 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, moderately sticky and slightly plastic; few very fine roots; common very fine interstitial pores; slightly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped soft masses; moderately alkaline (pH 8.3); abrupt wavy boundary.

Cr—27 to 60 inches; light gray (2.5Y 7/2) sandstone; common fine prominent yellowish red (5YR 4/6) mottles; violently effervescent; carbonates that are disseminated and are segregated as irregularly shaped threads and soft masses.

Location of typical pedon: Fresno County, California; about 6 miles northeast of the community of Coalinga; about 150 feet southeast of the southeast corner of a fenced enclosure; 1,250 north and 1,200 feet east of the southwest corner of sec.

35, T. 19 S., R. 15 E., Mount Diablo Base and Meridian; lat. 36 degrees 13 minutes 33 seconds N. and long. 120 degrees 18 minutes 54 seconds W.; USGS Coalinga Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with sandstone or shale ranges from 20 to 40 inches. The mean annual soil temperature ranges from 64 to 68 degrees F. The soil temperature is always more than 47 degrees F. Between depths of 4 and 12 inches, these soils are dry from April to mid-January and are not continuously moist for as long as 90 consecutive days. The content of gravel ranges from 0 to 14 percent. Eroded phases are present in areas where concentrated petroleum extraction activities occur.

The A horizon has dry color of 10YR 5/2 or 6/2 or 2.5Y 5/2 or 6/2. Moist color is 10YR 4/2 or 2.5Y 4/2 or 5/2. The content of clay ranges from 27 to 35 percent. The horizon is noneffervescent to slightly effervescent. Carbonates are disseminated. Reaction ranges from neutral to moderately alkaline.

The Bw horizon has dry color of 10YR 5/2 or 6/2 or 2.5Y 5/2 or 6/2. Moist color is 10YR 4/2 or 2.5Y 4/2 or 5/2. Texture is loam or clay loam. The content of clay ranges from 18 to 35 percent. The horizon is noneffervescent to strongly effervescent. Carbonates are disseminated. In some pedons, carbonates are also segregated. Reaction ranges from neutral to moderately alkaline.

The Bk horizon has dry color of 10YR 6/2 or 7/2 or 2.5Y 6/2 or 7/2. Moist color is 2.5Y 4/2 or 5/2. Texture is loam or clay loam. The content of clay ranges from 18 to 35 percent. The horizon is slightly effervescent to violently effervescent. Carbonates are disseminated and segregated.

Kimberlina Series

The Kimberlina series consists of very deep, well drained soils on alluvial fans. These soils formed in alluvium derived from calcareous sedimentary rock. Slopes range from 0 to 5 percent.

Taxonomic class: Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents

Typical Pedon

Map unit: Kimberlina sandy loam, 0 to 2 percent slopes

Ap1—0 to 8 inches; light yellowish brown (2.5Y 6/4) sandy loam, dark grayish brown (2.5Y 4/2) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; few very fine tubular and many very fine interstitial pores; very slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.4); abrupt smooth boundary.

Ap2—8 to 14 inches; light yellowish brown (2.5Y 6/4) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; very slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.6); abrupt smooth boundary.

C1—14 to 23 inches; light yellowish brown (2.5Y 6/4) sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine and fine tubular and many very fine interstitial pores; very slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.2); clear smooth boundary.

C2—23 to 37 inches; light yellowish brown (2.5Y 6/4) sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; common very fine roots; common very fine tubular and interstitial pores; very slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.2); gradual smooth boundary.

C3—37 to 72 inches; light yellowish brown (2.5Y 6/4) sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine tubular and many very fine interstitial pores; very slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.4).

Location of typical pedon: Fresno County, California; about 6 miles southwest of the community of Huron, 1.2 miles west of Interstate 5; 135 feet south and 2,200 feet west of the northeast corner of sec. 17, T. 21 S., R. 17 E., Mount Diablo Base and Meridian; lat. 36 degrees 6 minutes 31 seconds N. and long. 120 degrees 9 minutes 11 seconds W.; USGS Avenal Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are more than 60 inches deep. The content of organic matter is less than 1 percent and decreases regularly with depth. Carbonates are typically disseminated, but some pedons have a few segregated threads. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The content of gravel ranges from 0 to 10 percent.

The Ap horizon has dry color of 10YR 6/2, 6/3, or 7/2 or 2.5Y 6/4. Moist color is 10YR 4/2, 4/3, or 5/2 or 2.5Y 4/2. The content of clay ranges from 5 to 18 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. The sodium adsorption ratio ranges from 0 to 5. Reaction is slightly alkaline or moderately alkaline.

The C horizon has dry color of 10YR 5/2, 5/3, 6/2, 6/3, 7/2, or 7/3 or 2.5Y 6/2, 6/4, or 7/2. Moist color is 10YR 4/2, 4/3, or 5/2 or 2.5Y 4/2 or 4/4. Texture is sandy loam or fine sandy loam. The content of clay ranges from 5 to 18 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The sodium adsorption ratio ranges from 0 to 8.

Lethent Series

The Lethent series consists of very deep, moderately well drained soils on fan remnants. These soils formed in alluvium derived from calcareous sedimentary rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine, smectitic, thermic Typic Natrargids

Typical Pedon

Map unit: Lethent clay loam, 0 to 1 percent slopes

Ap1—0 to 7 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; strong coarse subangular blocky structure parting to strong medium subangular blocky; very hard, friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine tubular pores; slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.0); abrupt smooth boundary.

Ap2—7 to 16 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate very coarse subangular blocky structure parting to moderate medium subangular blocky; very hard, firm, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine and few fine tubular pores; common pressure faces; slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

Ap3—16 to 25 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; very hard, firm, moderately sticky and very plastic; few very fine and fine roots; common very fine and few fine tubular pores; few pressure faces; slightly effervescent carbonates that are disseminated; strongly effervescent carbonates that are segregated as few fine irregularly shaped soft masses; moderately alkaline (pH 8.4); clear smooth boundary.

Btkn1—25 to 33 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse prismatic structure parting to weak coarse subangular blocky; hard, firm, moderately sticky and very plastic; few very fine and fine roots; common very fine and few fine tubular pores; common thin clay films in pores and few thin clay films on faces of peds; violently effervescent; carbonates that are disseminated and are segregated as common fine and medium irregularly shaped soft masses and threads; strongly alkaline (pH 8.8); abrupt wavy boundary.

Btkn2—33 to 62 inches; light yellowish brown (2.5Y 6/4) clay loam with several thin (1 to 2 centimeters thick) strata of silty clay loam, variegated olive brown (2.5Y 4/4) and dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; many very fine and few fine tubular pores; few thin faint clay films in pores; violently effervescent; carbonates that are disseminated and are segregated as many fine irregularly shaped soft masses and threads; moderately alkaline (pH 7.9); clear smooth boundary.

C—62 to 72 inches; pale yellow (2.5Y 7/4) clay loam, olive brown (2.5Y 4/4) moist; massive; hard, friable, moderately sticky and moderately plastic; few very fine roots; many very fine and fine tubular pores; strongly effervescent; disseminated carbonates; moderately alkaline (pH 7.9).

Location of typical pedon: Fresno County, California; about 12 miles southeast of the community of Five Points, 400 feet south of Stutz Avenue and 400 feet east of Goldenrod Avenue; 400 feet south and 400 feet east of the northwest corner of sec. 17, T. 19 S., R. 18 E., Mount Diablo Base and Meridian; lat. 36 degrees 17 minutes 0 seconds N. and long. 120 degrees 2 minutes 47 seconds W.; USGS Calflax Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are more than 60 inches deep. The calcium carbonate equivalent ranges from 1 to 2 percent.

The Ap horizon has dry color of 10YR 5/3; 2.5Y 5/2 or 6/2; or 5Y 6/1. Moist color is 10YR 4/2; 2.5Y 4/2 or 4/4; or 5Y 3/2. The content of organic matter ranges from 0.7 to 2 percent. The content of clay ranges from 27 to 35 percent. Electrical conductivity ranges from 2 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 20.

The Btkn horizon has dry color of 2.5Y 5/2, 6/2, or 6/4 or 5Y 5/2. Moist color is 2.5Y 4/2 or 4/4 or 5Y 3/2. Texture is clay loam or clay. The content of clay ranges from 33 to 50 percent. By weighted average, the content of clay is more than 35 percent. Electrical conductivity ranges from 1 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 40. Reaction is moderately alkaline or strongly alkaline.

The C horizon has dry color of 2.5Y 5/2, 6/4, or 7/4. Moist color is 2.5Y 4/2 or 4/4. Texture is loam, silt loam, or clay loam. The content of clay ranges from 20 to 40 percent. Electrical conductivity ranges from 4 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 40. Reaction is moderately alkaline or strongly alkaline.

Additional characterization data for this typical pedon, sample number 87CA019006 (4130-4135), and for sample numbers 87CA019001 (taxadjunct, 4099-4104), 87CA019004 (taxadjunct, 4117-4122), and 87CA019005 (taxadjunct, 4123-4129), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

The Lethent soil in map unit 375 is a taxadjunct to the series. It differs from the Lethent series by having relict redoximorphic features and by having a salic horizon in the lower part of the profile. It classifies as a fine, smectitic, thermic Typic Haplosalid. These differences, however, do not significantly affect use and management.

Lethent Taxadjunct

The Lethent taxadjunct consists of very deep, poorly drained soils on fan remnants. These soils formed in alluvium derived from sedimentary rock and igneous rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine, smectitic, thermic Typic Haplosalids

Typical Pedon

Map unit: Lethent silt loam, 0 to 1 percent slopes

A1—0 to 3 inches; white (N 8/0) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common medium roots; many very fine interstitial and common very fine tubular pores; 0.25- to 1-inch wide cracks; electrical conductivity of 1.5 decisiemens per meter; sodium adsorption ratio of 10; slightly alkaline (pH 7.6); abrupt smooth boundary.

A2—3 to 7 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common medium roots; many very fine interstitial and common very fine tubular pores; 0.25- to 1-inch wide cracks; strongly effervescent; carbonates that are disseminated and are segregated as many fine irregularly shaped soft masses; electrical conductivity of 3.8 decisiemens per meter; sodium adsorption ratio of 10; moderately alkaline (pH 7.9); abrupt smooth boundary.

Btnzg—7 to 20 inches; grayish brown (2.5Y 5/2) silty clay, grayish brown (2.5Y 5/2) moist; strong coarse columnar structure; very hard, very friable, moderately sticky and moderately plastic; many very fine and common medium roots on faces of peds; many very fine interstitial and common very fine tubular pores; 0.25- to 1-inch wide cracks; few moderately thick clay films on faces of peds and in pores; very slightly effervescent; disseminated carbonates; electrical conductivity of 23; sodium adsorption ratio of 54; few fine prominent dark reddish brown (5YR 3/4), moist, redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.4); abrupt wavy boundary.

Btknzg1—20 to 29 inches; light brownish gray (2.5Y 6/2) silty clay, grayish brown (2.5Y 5/2) moist; massive; hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine interstitial and few very fine tubular pores; few moderately thick clay films in pores; slightly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped soft masses; electrical conductivity of 45 decisiemens per meter; sodium adsorption ratio of 46; few fine prominent dark reddish brown (5YR 3/2), moist, redoximorphic masses in which iron has accumulated; strongly alkaline (pH 8.6); clear smooth boundary.

Btknzg2—29 to 39 inches; light brownish gray (2.5Y 6/2) silty clay, light brownish gray (2.5Y 6/2) moist; massive; hard, friable, slightly sticky and moderately plastic; common very fine interstitial and few very fine tubular pores; very few moderately thick clay films in pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses; electrical conductivity of 45 decisiemens per meter; sodium adsorption ratio of 55; common fine prominent dark reddish brown (5YR 3/3), moist, redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bknzg—39 to 60 inches; variegated light brownish gray (2.5Y 6/2) and light gray (2.5Y 7/2) silty clay loam, variegated olive gray (5Y 5/2) and yellowish brown (10YR 5/4) moist; massive; hard, friable, moderately sticky and slightly plastic; common very fine tubular and interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as many fine irregularly shaped soft masses; electrical conductivity of 50 decisiemens per meter; sodium adsorption ratio of 49; few fine prominent dark reddish brown (5YR 3/2), moist, redoximorphic masses in which iron has accumulated; strongly alkaline (pH 8.5).

Location of typical pedon: Fresno County, California; about 3.75 miles west of the community of Tranquillity, 400 feet east of the San Luis Drain and 300 feet north of Lincoln Avenue; about 400 feet north and 2,500 feet east of the southwest corner of sec. 3, T. 15 S., R. 15 E., Mount Diablo Base and Meridian; lat. 36 degrees 38 minutes 51 seconds N. and long. 120 degrees 19 minutes 27 seconds W.; USGS Tranquillity Topographic Quadrangle, NAD 27.

Range in Characteristics

The A horizon has dry color of N 8/0; 2.5Y 5/2, 6/1, 6/2, or 7/2; or 5Y 5/1, 5/2, 6/2, 7/1, or 7/2. Moist color is 2.5Y 3/2, 4/2, or 4/4 or 5Y 4/2 or 5/2. The content of organic matter ranges from 0.5 to 0.9 percent. The content of clay ranges from 15 to 27 percent. The calcium carbonate equivalent ranges from 0 to 3 percent. Electrical conductivity ranges from 2 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 20.

The Btnzg and Btknzg horizons have dry color of 2.5Y 4/2, 5/2, 6/2, 6/4, or 7/4 or 5Y 4/1, 5/1, or 7/1. Moist color is 2.5Y 4/2, 4/4, 5/2, or 6/2. Texture is clay loam, silty clay loam, silty clay, or clay. The content of clay ranges from 30 to 55 percent. By weighted average, the content of clay is more than 35 percent. The calcium carbonate equivalent ranges from 1 to 5 percent. Electrical conductivity ranges from 16 to 50 decisiemens per meter. A salic horizon is present in the lower part. The sodium adsorption ratio ranges from 20 to 60. Redoximorphic masses in which iron has accumulated are present throughout. Reaction is moderately alkaline or strongly alkaline.

The Bknzg horizon has dry color of 10YR 6/3 or 6/4; 2.5Y 5/2, 6/2, 6/4, or 7/2; or 5Y 5/2. Moist color is 10YR 4/1, 4/3, or 5/4; 2.5Y 4/2, 4/4, 5/3, or 5/4; 5Y 3/3, 4/1, 4/2, 4/3, 5/1, or 5/2; or 5GY 5/1. Texture is loam, silt loam, clay loam, or silty clay loam. The content of clay ranges from 20 to 35 percent. The calcium carbonate equivalent ranges from 2 to 5 percent. Electrical conductivity ranges from 30 to 60 decisiemens per meter. The horizon is salic throughout. The sodium adsorption ratio ranges from 20 to 60. Redoximorphic masses in which iron has accumulated are present throughout. Reaction is moderately alkaline or strongly alkaline.

The Lethent soil in map unit 375 is a taxadjunct to the series. It differs from the Lethent series by having poor drainage and relict redoximorphic features and by having a salic horizon in the lower part of the profile. These differences, however, do not significantly affect use and management.

Lillis Series

The Lillis series consists of very deep, poorly drained soils on fan skirts. These saline-sodic soils formed in alluvium derived dominantly from igneous rock, sedimentary rock, or both. Slopes are 0 to 1 percent.

Taxonomic class: Very-fine, smectitic, thermic Halic Haploxererts

Typical Pedon

Map unit: Lillis clay, 0 to 1 percent slopes

Ap1—0 to 2 inches; mixed light olive gray (5Y 6/2) and pale olive (5Y 6/3) clay, mixed olive gray (5Y 5/2) and olive (5Y 5/3) moist; strong fine subangular blocky structure parting to strong very fine subangular blocky; very hard, firm, very sticky and very plastic; common very fine roots; common very fine tubular and common fine interstitial pores; 13-millimeter to 4-centimeter wide cracks; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 2 percent; electrical conductivity of 9.7 decisiemens per meter; sodium adsorption ratio of 20; moderately alkaline (pH 8.2); abrupt smooth boundary.

Ap2—2 to 7 inches; mixed light olive gray (5Y 6/2) and light olive brown (2.5Y 5/4) clay, mixed olive gray (5Y 5/2) and olive (5Y 5/3) moist; strong coarse prismatic structure parting to strong medium subangular blocky; extremely hard, firm, very sticky and very plastic; few very fine and few fine roots; common very fine tubular and few medium interstitial pores; 13-millimeter to 4-centimeter wide cracks; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 2 percent; electrical conductivity of 15.8 decisiemens per meter; sodium adsorption ratio of 39; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bnssz—7 to 13 inches; mixed gray (5Y 5/1) and olive brown (2.5Y 4/4) clay, mixed dark gray (5Y 4/1) and olive brown (2.5Y 4/4) moist; strong coarse prismatic structure parting to strong medium angular blocky; extremely hard, very firm, very sticky and very plastic; few very fine roots; common very fine and few fine tubular and common medium interstitial pores; common intersecting slickensides; 1- to 5-millimeter wide cracks; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 1 percent; few fine rounded gypsum crystals; electrical conductivity of 26.5 decisiemens per meter; sodium adsorption ratio of 55; strongly alkaline (pH 8.7); abrupt smooth boundary.

Bnssyz—13 to 21 inches; light yellowish brown (2.5Y 6/4) clay, olive brown (2.5Y 4/4) moist; moderate very coarse prismatic structure parting to weak medium subangular blocky; extremely hard, firm, very sticky and very plastic; few fine interstitial pores; many slickensides; many pressure faces; 1- to 5-millimeter wide cracks; slightly effervescent; disseminated carbonates; calcium carbonate equivalent of 1 percent; common fine rounded gypsum crystals; electrical conductivity of 28.1 decisiemens per meter; sodium adsorption ratio of 59; strongly alkaline (pH 8.7); abrupt smooth boundary.

Bnzg—21 to 28 inches; light olive gray (5Y 6/2) clay, gray (5Y 5/1) moist; color changes slightly on exposure to air; common fine prominent yellowish brown (10YR 5/6), moist, redoximorphic masses in which iron has accumulated; massive; extremely hard, very firm, very sticky and very plastic; few very fine tubular pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 2 percent; electrical conductivity of 30.9 decisiemens per meter; sodium adsorption ratio of 66; strongly alkaline (pH 8.8); clear smooth boundary.

Bknzg1—28 to 39 inches; light olive gray (5Y 6/2) clay, olive gray (5Y 5/2) moist; color changes slightly on exposure to air; massive; extremely hard, very firm, very sticky and very plastic; few very fine tubular pores; common pressure faces;

slightly effervescent; carbonates that are disseminated and are segregated as common fine irregular soft masses; calcium carbonate equivalent of 2 percent; electrical conductivity of 35.0 decisiemens per meter; sodium adsorption ratio of 72; many fine (2- to 5-millimeter) shell fragments; moderately alkaline (pH 8.4); gradual smooth boundary.

Bknzg2—39 to 48 inches; light olive gray (5Y 6/2) clay, variegated olive gray (5Y 4/2) and dark gray (5Y 4/1) moist; color changes slightly on exposure to air; massive; extremely hard, very firm, very sticky and very plastic; few very fine tubular pores; many pressure faces; very slightly effervescent; carbonates that are disseminated and are segregated as fine irregular soft masses; calcium carbonate equivalent of 1 percent; electrical conductivity of 35.5 decisiemens per meter; sodium adsorption ratio of 71; moderately alkaline (pH 8.3); gradual smooth boundary.

Bknzg3—48 to 60 inches; olive gray (5Y 5/2) clay, olive gray (5Y 4/2) moist; color changes slightly on exposure to air; massive; extremely hard, very firm, very sticky and very plastic; few very fine tubular pores; many pressure faces; very slightly effervescent; carbonates that are disseminated and are segregated as common fine irregular soft masses; calcium carbonate equivalent of 1 percent; electrical conductivity of 38.6 decisiemens per meter; sodium adsorption ratio of 66; moderately alkaline (8.1).

Location of typical pedon: Fresno County, California; about 3 miles west-southwest of the community of Tranquillity and 210 feet north of Adams Avenue; 210 feet north and 812 feet west of the southeast corner of sec. 10, T. 15 S., R. 15 E., Mount Diablo Base and Meridian; lat. 36 degrees 37 minutes 58 seconds N. and 120 degrees 19 minutes 9 seconds W.; USGS Tranquillity Topographic Quadrangle, NAD 27.

Range in Characteristics

Unless these soils are irrigated, vertical cracks extend from the surface. The cracks are 0.5 to 2 inches wide at a depth of 20 inches. The cracks usually close from December through April for 100 to 151 consecutive days. Intersecting slickensides occur in some horizon or horizons below a depth of 7 inches. Linear extensibility ranges from 11 to 30 percent. The mean annual soil temperature ranges from 62 to 65 degrees F. The content of organic matter is less than 1 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The profile is saline-sodic throughout. Depth to a salic horizon is 20 to 35 inches. The content of clay ranges from 60 to 70 percent to a depth of 1 meter and from 40 to 70 percent below 1 meter.

The A horizon has dry color of 5Y 5/1, 5/2, 6/2, or 6/3 or 2.5Y 4/4, 5/2, 5/4, or 6/4. Moist color is 5Y 4/1, 4/2, 5/2, or 5/3 or 2/5Y 4/2 or 4/4. Electrical conductivity ranges from 4 to 20 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 60. Gypsum crystals are present in some pedons.

The B horizon has dry color of 5Y 5/1, 5/2, 6/2, 7/2, or 7/1 or 2.5Y 6/2, 6/4, or 4/4. Moist color is 5Y 4/1, 4/2, 5/1, 5/2, 5/3, or 5/4 or 2.5Y 4/2 or 4/4. Moist distinct or prominent redoximorphic features have color of 5GY 5/1; 5Y 3/1, 4/1, 5/3, or 5/4; 2.5Y 4/4, 5/3, 5/6, or 6/6; or 10YR 4/4, 5/4, 5/6, or 6/6. Texture is clay or silty clay. Electrical conductivity ranges from 8 to 50 decisiemens per meter. The sodium adsorption ratio ranges from 40 to 90. Gypsum crystals and shell fragments are present in some pedons.

Additional characterization data for this typical pedon, sample number 85CA019001 (5348-5356), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

Lilten Series

The Lilten series consists of deep, well drained soils on mountains. These soils formed in material weathered from marine calcareous shale. Slopes range from 30 to 65 percent.

Taxonomic class: Fine, smectitic, calcareous, thermic Typic Xerorthents

Typical Pedon

Map unit: Lilten silty clay loam, in an area of Domengine-Lilten-Rock outcrop complex, 30 to 65 percent slopes

A1—0 to 2 inches; light brownish gray (10YR 6/2) silty clay loam, dark yellowish brown (10YR 4/4) moist; strong very thick platy structure; extremely hard, friable, very sticky and very plastic; many very fine and fine roots; many very fine and fine interstitial and common fine tubular pores; 0.25-inch wide cracks; slightly effervescent; disseminated carbonates; neutral (pH 7.1); abrupt smooth boundary.

A2—2 to 8 inches; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; strong medium and coarse angular blocky structure; very hard, very friable, very sticky and very plastic; common very fine and few fine roots; common very fine interstitial, common fine tubular, and few very fine tubular pores; common moderately thick pressure faces; 0.25-inch wide cracks; slightly effervescent; disseminated carbonates; neutral (pH 7.0); clear smooth boundary.

A3—8 to 18 inches; brown (10YR 5/3) silty clay loam, dark yellowish brown (10YR 4/4) moist; strong fine and medium prismatic structure; very hard, very friable, very sticky and very plastic; common fine and few medium roots; many fine interstitial and common very fine and fine tubular pores; common moderately thick pressure faces; 0.12-inch wide cracks; slightly effervescent; disseminated carbonates; neutral (pH 7.0); clear smooth boundary.

C1—18 to 28 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse prismatic structure; very hard, very friable, very sticky and very plastic; few fine, medium, and coarse roots; many very fine interstitial and common very fine, fine, and medium tubular pores; many moderately thick pressure faces; 0.12-inch wide cracks to a depth of 23 inches; slightly effervescent; disseminated carbonates; neutral (pH 6.8); gradual wavy boundary.

C2—28 to 41 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; strong fine and medium prismatic structure; very hard, very friable, very sticky and very plastic; few fine and common medium and coarse roots; many very fine interstitial and common very fine, fine, and medium tubular pores; many moderately thick pressure faces; slightly effervescent; disseminated carbonates; neutral (pH 6.6); abrupt wavy boundary.

Cr—41 to 60 inches; soft, calcareous shale.

Location of typical pedon: Fresno County, California; about 4,420 feet north-northwest of Salt Creek; about 1,100 feet south and 300 feet east of the northwest corner of sec. 12, T. 18 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 22 minutes 55 seconds N. and long. 120 degrees 30 minutes 59 seconds W.; USGS Ciervo Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with soft, marine calcareous shale ranges from 40 to 60 inches. In most years, the moisture control section at a depth of 7 to 20 inches is moist from January 1 to May 1 and dry from June 1 to October 15. The soil temperature is more than 47 degrees F from February 15 to December 15. The mean annual soil temperature ranges from 59 to 65 degrees F. Surface cracks are as wide as 2.5 inches, but narrow to about 0.12 inch at a depth of 20 inches.

The A horizon has dry color of 10YR 5/2, 5/3, 6/2, 6/3, or 6/4 or 2.5Y 6/2. Moist color is 10YR 4/2, 4/3, or 4/4 or 2.5Y 4/2 or 4/4. The content of organic matter ranges from 0.8 to 3 percent. Texture is silty clay loam, silty clay, or clay. The content of clay ranges from 34 to 50 percent. The calcium carbonate equivalent ranges from 0 to 2 percent in the A1 horizon and from 1 to 2 percent in the A2 and A3 horizons. Reaction is neutral or slightly alkaline.

The C horizon has dry color of 10YR 5/3, 5/4, 5/6, or 6/4 or 2.5Y 6/4. Moist color is 10YR 4/3, 4/4, or 5/4 or 2.5Y 4/4. The content of organic matter ranges from 0.4 to 0.7 percent. Texture is silty clay loam, silty clay, or clay. The content of clay ranges from 35 to 50 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. Reaction ranges from slightly acid to moderately alkaline.

Additional characterization data for this typical pedon, sample number 84CA019014 (1858-1862), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix.

Los Banos Series

The Los Banos series consists of very deep, well drained soils on fan remnants. These soils formed in calcareous gravelly alluvium derived from mixed rocks. Slopes range from 0 to 8 percent.

Taxonomic class: Fine, mixed, superactive, thermic Calcic Haploxeralfs

Typical Pedon

Map unit: Los Banos clay loam, in an area of Los Banos-Pleito complex, 2 to 8 percent slopes

Ap—0 to 2 inches; brown (7.5YR 4/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine tubular pores; slightly effervescent; disseminated carbonates; 8 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt1—2 to 7 inches; brown (7.5YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; many very fine and fine tubular pores; very few faint discontinuous clay films on faces of peds; slightly effervescent; disseminated carbonates; 10 percent gravel; slightly alkaline (pH 7.7); abrupt smooth boundary.

Bt2—7 to 13 inches; brown (7.5YR 5/4) clay loam, brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, moderately sticky and moderately plastic; many very fine and few medium roots; common very fine and few fine tubular pores; very few distinct discontinuous clay films on faces of peds and in pores; slightly effervescent; disseminated carbonates; 5 percent gravel; slightly alkaline (pH 7.7); abrupt smooth boundary.

Btk1—13 to 20 inches; brown (7.5YR 5/4) clay loam, brown (7.5YR 4/4) moist; strong coarse prismatic structure parting to strong coarse subangular blocky; hard, very firm, very sticky and very plastic; few medium roots; common very fine and few fine tubular pores; very few distinct continuous clay films on faces of peds and in pores; violently effervescent; carbonates that are segregated as few fine soft masses and threads; 5 percent cobbles; 5 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Btk2—20 to 30 inches; brown (7.5YR 5/4) clay, brown (7.5YR 4/4) moist; strong coarse prismatic structure parting to strong coarse subangular blocky; hard, very firm, very sticky and very plastic; common very fine tubular pores; common distinct continuous yellowish red (5YR 5/6) clay films on faces of peds and in pores; violently effervescent; carbonates that are segregated as few fine and medium soft masses and threads; 5 percent gravel; 5 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

Btk3—30 to 53 inches; reddish brown (5YR 5/4) clay, reddish brown (5YR 4/4) moist; moderate coarse prismatic structure parting to moderate coarse subangular blocky; hard, very firm, very sticky and very plastic; common very fine tubular pores; common distinct continuous yellowish red (5YR 5/6) clay films on faces of peds and in pores; violently effervescent; carbonates that are segregated as few fine and medium soft masses and few fine threads; 5 percent gravel; 5 percent cobbles; moderately alkaline (pH 7.9); clear smooth boundary.

2Bk—53 to 60 inches; yellowish red (5YR 4/6) very gravelly clay loam, reddish brown (5YR 4/4) moist; massive; hard, firm, moderately sticky and moderately plastic; strongly effervescent; carbonates that are segregated as few fine soft masses and threads and as thin coatings and pendants on coarse fragments; 50 percent gravel; 10 percent cobbles; slightly alkaline (pH 7.6).

Location of typical pedon: Fresno County, California; about 12 miles southwest of Dos Palos near Interstate 5 and Nees Avenue; 1,230 feet north and 1,420 feet east of the southwest corner of sec. 33, T. 12 S., R. 11 E., Mount Diablo Base and Meridian; lat. 36 degrees 50 minutes 23 seconds N. and long. 120 degrees 46 minutes 30 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 64 to 66 degrees F. Reaction is slightly alkaline or moderately alkaline.

The A horizon has dry color of 7.5YR 4/4 or 5/4 or 10YR 5/3 or 5/4. Moist color is 7.5YR 4/4 or 10YR 3/3, 3/4, or 4/3. The content of clay ranges from 27 to 35 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The content of gravel ranges from 3 to 14 percent. The content of cobbles ranges from 0 to 5 percent.

The Bt horizon has dry color of 7.5YR 4/4 or 5/4 or 10YR 5/4. Moist color is 7.5YR 4/3 or 4/4 or 10YR 4/3 or 4/4. Texture is clay loam or clay. The content of clay ranges from 27 to 40 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The content of gravel ranges from 3 to 14 percent. The content of cobbles ranges from 0 to 5 percent.

The Btk horizon has dry color of 5YR 4/4, 4/8, 5/4, 5/5, 5/6, or 5/8; 7.5YR 5/4, 5/5, 5/6, or 5/8; or 10YR 5/4. Moist color is 5YR 3/6, 4/4, or 4/6; 7.5YR 4/3, 4/4, 4/5, 4/6, or 5/6; or 10YR 4/4, 5/4 or 8/2. Texture is clay loam or clay. The content of clay ranges from 35 to 55 percent. The calcium carbonate equivalent ranges from 15 to 30 percent. The content of gravel ranges from 3 to 14 percent. The content of cobbles ranges from 2 to 8 percent.

The 2Bk horizon, where present, has dry color of 5YR 4/6 or 5/6; 7.5YR 5/6 or 6/6; or 10YR 6/5 or 8/2. Moist color is 5YR 4/4 or 4/6; 7.5YR 5/4; or 10YR 6/4 or 7/3. Texture is stratified very gravelly clay loam or very gravelly clay. The content of clay ranges from 35 to 50 percent. The calcium carbonate equivalent ranges from 15 to 25 percent. The content of gravel ranges from 35 to 60 percent. The content of cobbles ranges from 0 to 10 percent.

Additional characterization data for pedon sample numbers 87CA019007 (taxadjunct, 1406-1414) and 87CA019011 (taxadjunct, 1450-1458) are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska. This data includes data for selenium content.

Mercey Series

The Mercey series consists of moderately deep, well drained soils on hills. These soils formed in material weathered dominantly from marine shale. Slopes range from 5 to 50 percent.

Taxonomic class: Fine-silty, mixed, superactive, thermic Typic Haplocambids

Typical Pedon

Map unit: Mercey loam, in an area of Mercey-Delgado-Kettleman association, 15 to 30 percent slopes, eroded

A—0 to 3 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and moderately plastic; many very fine roots; few very fine tubular and common very fine interstitial pores; neutral (pH 6.8); abrupt smooth boundary.

Bw—3 to 6 inches; light gray (2.5Y 7/2) loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; many very fine roots; common very fine tubular and interstitial pores; very slightly effervescent; disseminated carbonates; neutral (pH 7.2); abrupt smooth boundary.

Btk—6 to 14 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine tubular and interstitial pores; very few thin clay bridges between mineral grains; strongly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped soft masses; slightly alkaline (pH 7.5); abrupt wavy boundary.

Bk—14 to 21 inches; light brownish gray (2.5Y 6/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; hard, very friable, slightly sticky and moderately plastic; common very fine roots; common very fine interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses; 5 percent shale gravel 2 to 5 millimeters in diameter; slightly alkaline (pH 7.6); clear wavy boundary.

Cr—21 to 30 inches; variegated pale yellow (2.5Y 7/4) and olive yellow (2.5Y 6/6) fractured shale, light olive brown (2.5Y 5/4) and brown (7.5YR 4/4) moist; strongly effervescent; carbonates that are disseminated and are segregated as many fine irregularly shaped soft masses and threads.

Location of typical pedon: Fresno County, California; about 3 miles north-northwest of the junction of Interstate 5 and Highway 145, northeast 185 feet from the entry gate of the Big Blue Hills Waste Treatment Facility; about 175 feet east and 1,700 feet south of the northwest corner of sec. 2, T. 19 S., R. 15 E., Mount Diablo Base and Meridian; lat. 36 degrees 18 minutes 29 seconds N. and long. 120 degrees 19 minutes 5 seconds W.; USGS Domengine Ranch Topographic Quadrangle.

Range in Characteristics

Depth to paralithic contact with marine shale ranges from 20 to 40 inches. The mean annual soil temperature ranges from 64 to 71 degrees F. The soil temperature is always more than 47 degrees F. These soils are dry from March through January and are not continuously dry for as long as 60 consecutive days in the winter. The content of clay ranges from 20 to 27 percent.

The A horizon has moist color of 2.5Y 4/2 or 5/2. The calcium carbonate equivalent is 0 to 1 percent. The content of gravel ranges from 0 to 3 percent. Reaction is neutral or slightly alkaline.

The Bw horizon has texture of loam or silt loam. The content of clay is less than 1.2 times that of the A horizon. Less than 15 percent, by weight, of the particles are fine sand or coarser. The calcium carbonate equivalent ranges from 1 to 2 percent. The content of gravel ranges from 0 to 3 percent. Reaction ranges from neutral to moderately alkaline.

The Btk and Bk horizons are loam or silt loam. The content of clay is less than 1.2 times that of the A horizon. Less than 15 percent, by weight, of the particles are fine sand or coarser. The calcium carbonate equivalent ranges from 2 to 7 percent. The content of gravel ranges from 0 to 5 percent. Reaction is slightly alkaline or moderately alkaline.

Milham Series

The Milham series consists of very deep, well drained soils on fan remnants. These soils formed in alluvium derived from calcareous sedimentary rock. Slopes range from 0 to 9 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Typic Haplargids

Typical Pedon

Map unit: Milham sandy loam, 0 to 2 percent slopes

A1—0 to 1 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; few very fine tubular and common very fine interstitial pores; slightly effervescent; disseminated carbonates; 2 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.

A2—1 to 6 inches; light yellowish brown (10YR 6/4) sandy loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure; hard, very firm, slightly sticky and moderately plastic; common very fine roots; common very fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; 2 percent gravel; slightly alkaline (pH 7.3); abrupt smooth boundary.

Bt1—6 to 11 inches; yellowish brown (10YR 5/6) sandy clay loam, dark yellowish brown (10YR 4/6) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine tubular and interstitial pores; very few moderately thick clay films on faces of peds and very few thin clay bridges between mineral grains; slightly effervescent; disseminated carbonates; 2 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt2—11 to 16 inches; yellowish brown (10YR 5/6) sandy clay loam, dark yellowish brown (10YR 4/6) moist; strong medium prismatic structure parting to strong medium angular blocky; hard, very firm, moderately sticky and moderately plastic; few fine roots; common moderately thick clay films on faces of peds and in pores; slightly effervescent; carbonates that are disseminated and are segregated as few fine soft masses; 2 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.

Btk1—16 to 25 inches; brownish yellow (10YR 6/6) sandy clay loam, yellowish brown (10YR 5/6) moist; strong medium prismatic structure parting to strong medium angular blocky; hard, friable, moderately sticky and moderately plastic; common very fine tubular and interstitial pores; common moderately thick clay films on faces of peds and in pores; violently effervescent; carbonates that are disseminated and are segregated as many fine soft masses and threads and few fine concretions; 2 percent gravel; slightly alkaline (pH 7.6); abrupt wavy boundary.

Btk2—25 to 31 inches; very pale brown (10YR 7/4) sandy clay loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine tubular and interstitial pores; very few moderately thick clay films on faces of peds and in pores; violently effervescent; carbonates that are disseminated and are segregated as many medium soft masses; 2 percent gravel; slightly alkaline (pH 7.7); clear smooth boundary.

Bk1—31 to 50 inches; pale yellow (2.5Y 7/4) sandy loam, olive brown (2.5Y 4/4) moist; massive; hard, friable, nonsticky and nonplastic; few very fine tubular and many very fine interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine soft masses; 2 percent gravel; moderately alkaline (pH 8.1); abrupt smooth boundary.

Bk2—50 to 60 inches; pale yellow (2.5Y 7/4) sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; many very fine interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine soft masses; 2 percent gravel; moderately alkaline (pH 8.0).

Location of typical pedon: Fresno County, California; about 4 miles north of Coalinga on Oil City Road; 35 feet north and 75 feet west of the southeast corner of sec. 5, T. 20 S., R. 15 E., Mount Diablo Base and Meridian; lat. 36 degrees 14 minutes 45 seconds N. and long. 120 degrees 21 minutes 14 seconds W.; USGS Coalinga Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are more than 60 inches deep. The content of organic matter is less than 1 percent and decreases regularly with depth. Milham soils in feedlots have a very high content of organic matter in the surface layer.

The A horizon has dry color of 10YR 6/2, 6/3, or 6/4 or 2.5Y 6/2 or 7/2. Moist color is 10YR 3/3, 4/2, or 4/3 or 2.5Y 4/2. The content of clay ranges from 15 to 20 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 8. The content of gravel ranges from 0 to 2 percent.

The Bt horizon has dry color of 10YR 5/3, 5/4, or 5/6 or 2.5Y 6/4. Moist color is 10YR 4/4, 4/5, or 4/6 or 2.5Y 4/2 or 4/4. The content of clay ranges from 22 to 35 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 8. The content of gravel ranges from 0 to 10 percent.

The Btk horizon has dry color of 10YR 6/6 or 7/4 or 2.5Y 6/4, 6/6, 7/4, or 8/4. Moist color is 10YR 5/4 or 5/6 or 2.5Y 4/4, 5/4, or 6/4. The content of clay ranges from 22 to 35 percent. The calcium carbonate equivalent ranges from 3 to 8 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 12. The content of gravel ranges from 0 to 10 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has dry color of 10YR 6/4 or 2.5Y 6/4, 7/4, or 8/4. Moist color is 10YR 5/3 or 2.5Y 4/4, 5/4, or 6/4. The content of clay ranges from 6 to 15 percent. The calcium carbonate equivalent ranges from 3 to 5 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 8. The content of gravel ranges from 0 to 2 percent.

Additional data for pedon sample number 86CA019051 (1224-1225) are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska. The additional data include measurements of selenium content.

Millsholm Series

The Millsholm series consists of shallow, well drained soils on mountains. These soils formed in material weathered from marine sandstone or shale. Slopes range from 30 to 75 percent.

Taxonomic class: Loamy, mixed, superactive, thermic Lithic Haploxerepts

Typical Pedon

Map unit: Millsholm clay loam, in an area of Lilten-Millsholm association, 30 to 65 percent slopes

A—0 to 7 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, friable, very sticky and moderately plastic; common very fine and fine roots; many very fine and fine tubular and interstitial pores; 31 percent clay; neutral (pH 7.3); clear wavy boundary.

Bt—7 to 12 inches; light yellowish brown (2.5Y 6/4) gravelly clay loam, olive brown (2.5Y 4/4) moist; weak fine subangular blocky structure; hard, friable, very sticky and very plastic; few very fine and fine roots; many very fine and fine interstitial pores; few thin discontinuous clay films on faces of peds and on gravel; 33 percent clay; 30 percent shale gravel 2 to 10 millimeters in size; neutral (pH 7.3); abrupt irregular boundary.

Cr—12 to 16 inches; shattered, soft shale.

R—16 to 19 inches; hard, fractured shale.

Location of typical pedon: Fresno County, California; about 2.85 miles south-southwest of Spanish Lake; 2,200 feet south and 400 feet east of the northwest corner of sec. 9, T. 19 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 17 minutes 27 seconds N. and long. 120 degrees 35 minutes 2 seconds W.; USGS Santa Rita Peak Topographic Quadrangle, NAD 27.

Range in Characteristics

The thickness of the solum and the depth to a lithic contact with hard, marine sandstone or shale range from 10 to 20 inches. Mean annual soil temperature ranges from 59 to 64 degrees F. These soils are moist between depths of 4 and 12 inches in some or all parts between November and May. They are dry the rest of the year. Reaction is neutral or slightly alkaline.

The A horizon has dry color of 10YR 6/2, 6/3, or 6/4. Moist color is 10YR 4/2, 4/3, or 4/4. The content of clay ranges from 27 to 32 percent. The content of gravel ranges from 0 to 15 percent.

The Bt horizon has dry color of 10YR 6/4 or 2.5Y 6/4. Moist color is 10YR 4/3 or 2.5Y 4/4. The content of clay ranges from 30 to 35 percent and is less than 1.2 times that of the A horizon. The content of gravel ranges from 15 to 35 percent.

Monoridge Series

The Monoridge series consists of moderately deep, somewhat excessively drained, sandy soils on escarpments on mountains. These soils formed in colluvial material weathered from marine sandstone. Slopes range from 30 to 65 percent.

Taxonomic class: Mixed, thermic Typic Xeropsamments

Typical Pedon

Map unit: Monoridge fine sand, in an area of Monoridge-Exclose-Badland association, 30 to 65 percent slopes

A—0 to 7 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.7); clear smooth boundary.

Cy1—7 to 14 inches; very pale brown (10YR 7/3) sand, yellowish brown (10YR 5/4) moist; single grain; soft, very friable, nonsticky and nonplastic; common very fine roots; few very fine interstitial pores; strongly effervescent; disseminated carbonates; few soft masses of gypsum; moderately alkaline (pH 8.2); clear wavy boundary.

Cy2—14 to 18 inches; very pale brown (10YR 7/4) sand, yellowish brown (10YR 5/4) moist; few fine distinct strong brown (7.5YR 5/6) relict mottles, strong brown (7.5YR 4/6) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; slightly effervescent; disseminated carbonates; few soft masses of gypsum; slightly alkaline (pH 7.8); clear wavy boundary.

Cy3—18 to 25 inches; light yellowish brown (10YR 6/4) sand, dark yellowish brown (10YR 4/4) moist; few fine distinct strong brown (7.5YR 5/6) relict mottles, strong brown (7.5YR 4/6) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; slightly effervescent; disseminated carbonates; few soft masses of gypsum; slightly alkaline (pH 7.8); clear wavy boundary.

Cr—25 to 29 inches; soft sandstone.

Location of typical pedon: Fresno County, California; about 150 feet north of the bottom of the creek, 2.5 miles southwest of Interstate 5 on Monocline Ridge; 1,800 feet east and 1,800 feet north of the southwest section corner of sec. 16, T. 16 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 32 minutes 13 seconds N. and long. 120 degrees 33 minutes 42 seconds W.; USGS Monocline Ridge Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with soft sandstone ranges from 20 to 40 inches. In most years, the moisture control section at a depth of 14 to 40 inches is moist from February 15 to April 15 and dry from June 1 to October 15. The soil temperature is more than 47 degrees F from January 15 to December 15. The mean annual soil temperature ranges from 63 to 68 degrees F.

The A horizon has dry color of 10YR 6/2, 6/3, or 7/1 or 2.5Y 6/2 or 7/2. Moist color is 10YR 4/2, 4/3, or 5/3 or 2.5Y 4/2 or 4/4. The content of organic matter ranges from 0.3 to 0.5 percent. The content of clay ranges from 2 to 7 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. The content of gypsum ranges from 1 to 3 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 3 percent. Reaction is slightly alkaline or moderately alkaline.

The Cy horizon has dry color of 10YR 6/2, 6/4, 7/3, or 7/4 or 2.5Y 6/4. Moist color is 10YR 4/4, 5/4, or 7/2 or 2.5Y 4/2 or 4/4. Relict mottles are not associated with current wetness. The content of clay ranges from 2 to 10 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. Depth to a gypsic horizon with gypsum content of 5 to 10 percent ranges from 5 to 10 inches. Electrical conductivity ranges from 2 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 3 percent. Reaction is slightly alkaline or moderately alkaline.

Additional characterization data for this typical pedon, sample number 84CA019001 (1227-1228), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix.

Monvero Series

The Monvero series consists of very deep, somewhat excessively drained, sandy soils on dune fields on mountains. These soils formed in eolian deposits derived from calcareous sandstone. Slopes range from 15 to 30 percent.

Taxonomic class: Mixed, thermic Typic Xeropsamments

Typical Pedon

Map unit: Monvero sand, in an area of Monvero-Monoridge association, 15 to 50 percent slopes

A1—0 to 4 inches; brown (10YR 5/3) sand, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common very fine tubular and many very fine interstitial pores; moderately alkaline (pH 8.2); clear smooth boundary.

A2—4 to 15 inches; grayish brown (10YR 5/2) sand, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few very fine tubular and many very fine interstitial pores; slightly effervescent; disseminated carbonates; 1 percent calcareous gravel 2 to 10 millimeters in size; moderately alkaline (pH 8.2); clear wavy boundary.

C1—15 to 23 inches; brown (10YR 5/3) loamy sand, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; few very fine tubular and many very fine interstitial pores; slightly effervescent; disseminated carbonates; 1 percent calcareous gravel 2 to 10 millimeters in size; moderately alkaline (pH 8.4); clear wavy boundary.

C2—23 to 31 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular and many very fine interstitial pores; violently effervescent; disseminated carbonates; 1 percent calcareous gravel 2 to 10 millimeters in size; moderately alkaline (pH 8.0); gradual wavy boundary.

2C3—31 to 42 inches; light brownish gray (10YR 6/2) loamy coarse sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and medium roots; few very fine tubular and many very fine interstitial pores; violently effervescent; disseminated carbonates; 1 percent calcareous gravel and 5 percent angular calcareous sandstone cobbles; moderately alkaline (pH 8.0); gradual irregular boundary.

2C4—42 to 60 inches; gray (10YR 6/1) loamy coarse sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular and many very fine interstitial pores; violently effervescent; disseminated carbonates; 2 percent calcareous gravel, 10 percent angular calcareous sandstone cobbles, and 2 percent angular calcareous stones; slightly alkaline (pH 7.8).

Location of typical pedon: Fresno County, California; about 5,900 feet northeast of Ciervo Mountain, 75 feet east of Bureau of Land Management vegetation enclosure; about 1,800 feet east and 1,250 feet south of the northwest corner of sec. 4, T. 17 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 29 minutes 2 seconds N. and long. 120 degrees 33 minutes 51 seconds W.; USGS Ciervo Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

In most years, the moisture control section at a depth of 14 to 40 inches is moist from February 15 to April 15 and dry from June 1 to October 15. The soil temperature is more than 47 degrees F from January 15 to December 15. The mean annual soil temperature ranges from 63 to 68 degrees F. The increase in calcium carbonate equivalent is less than 5 percent from any overlying horizon to any adjacent underlying horizon. There is some dune micro relief under the shrubs. The content of organic matter is less than 1 percent.

The A horizon has dry color of 10YR 5/2, 5/3, 5/4, or 6/3 or 2.5Y 7/2. Moist color is 10YR 3/2, 3/3, 3/4, or 4/2 or 2.5Y 4/2. Moist color values of less than 4 are typically within a depth of 6 inches. The content of clay ranges from 4 to 7 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. The lower part of the horizon is slightly effervescent to strongly effervescent. The content of gravel ranges from 0 to 3 percent.

The upper part of the C horizon has dry color of 10YR 4/4, 5/2, 5/3, 6/2, or 6/4 or 2.5Y 7/2. Moist color is 10YR 3/2, 3/4, 4/2, 4/3, or 5/4 or 2.5Y 4/4. The content of clay ranges from 4 to 7 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The upper part of the C horizon is slightly effervescent to violently effervescent. The content of gravel ranges from 0 to 3 percent.

The lower part of the C horizon has dry color of 10YR 4/2, 4/4, 4/6, 5/2, 6/1, or 6/2; 2.5Y 7/2; or 5Y 7/2 or 7/4. Moist color is 10YR 3/2, 4/2, or 5/4; 2.5Y 4/4; or 5Y 4/4. The content of clay ranges from 2 to 7 percent. The calcium carbonate equivalent ranges from 2 to 5 percent. Reaction is slightly alkaline or moderately alkaline. The content of gravel ranges from 0 to 5 percent. The content of cobbles ranges from 0 to 7 percent. The content of stones ranges from 0 to 3 percent.

Additional characterization data for this typical pedon, sample number 84CA019012 (1229-1230), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix.

Morenogulch Series

The Morenogulch series consists of very shallow or shallow, somewhat excessively drained soils on mountains. These soils formed in mass-movement deposits with a high content of selenium. The deposits are from marine mudstone and/or diatomaceous, acid shale. Slopes range from 30 to 80 percent.

Taxonomic class: Clayey, smectitic, acid, thermic, shallow Xerertic Torriorthents

Typical Pedon

Map unit: Morenogulch parachannery silty clay, in an area of Arburua-Morenogulch association, 15 to 80 percent slopes

A1—0 to 3 inches; pinkish gray (7.5YR 6/2) parachannery silty clay, brown (7.5YR 4/2) moist; moderate medium subangular blocky structure parting to weak fine subangular blocky and moderate fine granular; loose, slightly hard, very friable, moderately sticky and moderately plastic; many very fine and fine roots; many very fine and fine interstitial pores; 4.7 parts per million total selenium; 25 percent shale fragments 2 to 8 millimeters in size; 4 percent gypsum crystals 1 to 3 centimeters in size; strongly acid (pH 5.4); clear smooth boundary.

A2—3 to 6 inches; pinkish gray (7.5YR 6/2) very parachannery silty clay, brown (7.5YR 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; many very fine and fine and few medium roots; many very fine and fine interstitial pores; 7.3 parts per million total selenium; 40 percent shale fragments 2 to 10 millimeters in size; 8 percent gypsum crystals 3 to 40 millimeters in size in the matrix; strongly acid (pH 5.2); clear wavy boundary.

Cy—6 to 10 inches; pinkish gray (7.5YR 6/2) extremely parachannery silty clay, brown (7.5YR 4/2) moist; massive; friable, moderately sticky and moderately plastic;

common very fine and fine roots concentrated near the top of the horizon; many very fine and fine interstitial pores; 5.9 parts per million total selenium; 65 percent shale fragments 2 to 20 millimeters in size; 4 percent gypsum crystals 3 to 20 millimeters in size in the matrix; extremely acid (pH 4.4); gradual wavy boundary.

Cr1—10 to 15 inches; pinkish gray (7.5YR 6/2), brownish yellow (10YR 6/6), and reddish brown (2.5YR 5/4) mudstone shale, 50 percent brown (7.5YR 4/2), 35 percent yellowish brown (10YR 5/6), and 15 percent reddish brown (2.5YR 4/4) moist; few very fine and fine roots; few fine threads and seams of gypsum between shale layers; extremely acid (pH 4.2); gradual wavy boundary.

Cr2—15 to 26 inches; pinkish gray (7.5YR 6/2), brownish yellow (10YR 6/6), and reddish brown (2.5YR 5/4) mudstone shale with two 2-centimeter thick bands of white (N 8/0) diatomaceous rock, 70 percent brown (7.5YR 4/2), 10 percent yellowish brown (10YR 5/6), 10 percent reddish brown (2.5YR 4/4), and 10 percent white (N 8/0) moist; few very fine and fine roots; very few threads, seams, and channels of gypsum oriented on shale layers, the channels are 1 centimeter thick and 30 to 90 centimeters long; common sulfur deposits on the upper side of the gypsum fragments; extremely acid (pH 4.1); gradual wavy boundary.

Cr3—26 to 33 inches; brown (7.5YR 4/2) and yellowish brown (10YR 5/6) mudstone shale, 80 percent brown (7.5YR 4/2) and 20 percent yellowish brown (10YR 5/6) moist; very few very fine roots; very few threads, seams, and channels of gypsum oriented on shale layers, the channels are 1 centimeter thick and 30 to 90 centimeters long; extremely acid (pH 4.1).

Location of typical pedon: Fresno County, California; about 200 feet west of Panoche Mountain Road; about 1,450 feet west and 225 feet south of the northeast corner of sec. 3, T. 14 S., R. 11 E., Mount Diablo Base and Meridian; lat. 36 degrees 44 minutes 54 seconds N. and long. 120 degrees 45 minutes 5 seconds W.; USGS Mercey Hot Springs Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with marine mudstone and/or diatomaceous, acid shale ranges from 6 to 15 inches. The mean annual soil temperature ranges from 62 to 66 degrees F. Linear extensibility ranges from 6 to 9 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The content of selenium ranges from 4 to 13 parts per million.

The A horizon has dry color of 7/5YR 6/2 or 6/3 or 10YR 5/2, 5/3, or 6/3. Moist color is 7.5Y 4/2 or 4/3 or 10YR 3/2, 4/3, 5/2, or 5/3. The content of organic matter ranges from 0.8 to 2 percent. Texture is very parachannery silty clay loam, very parachannery silty clay, or parachannery silty clay. The content of clay ranges from 35 to 55 percent. The content of gypsum ranges from 0 to 5 percent. Reaction is very strongly acid or strongly acid.

The Cy horizon has dry color of 7/5YR 6/2 or 6/3 or 10YR 5/2, 5/3, 6/3, or 6/4. Moist color is 7.5Y 4/2 or 4/3 or 10YR 4/3, 5/3, or 5/4. The content of organic matter ranges from 0.3 to 0.8 percent. Texture is extremely parachannery silty clay loam, very parachannery silty clay loam, extremely parachannery silty clay, or very parachannery silty clay. The content of clay ranges from 35 to 55 percent. The content of gypsum ranges from 2 to 5 percent. Reaction is extremely acid or very strongly acid.

The Cr horizon is extremely acid or very strongly acid.

Additional characterization data for this typical pedon, sample number 87CA019017 (88P1507-88P1512), and additional lab data for pedon sample numbers 86CA019042 (taxadjunct, 1208) and 86CA019043 (taxadjunct, 1209-1212) are available from the National Soil Survey Laboratory at the National Soil Survey

Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

Mugatu Series

The Mugatu series consists of very deep, well drained soils on stream terraces. These soils formed in alluvium derived dominantly from sandstone and shale. Slopes range from 0 to 30 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Xeric Argigypsids

Typical Pedon

Map unit: Mugatu fine sandy loam, 0 to 5 percent slopes

A1—0 to 2 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular and many very fine interstitial pores; slightly effervescent; disseminated carbonates; calcium carbonate equivalent of 1 percent; electrical conductivity of 2.3 decisiemens per meter; sodium adsorption ratio of 1; 1 percent gravel; slightly alkaline (pH 7.7); abrupt smooth boundary.

A2—2 to 10 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular and many very fine interstitial pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of less than 1 percent; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 1; 3 percent gravel; moderately alkaline (pH 8.1); abrupt smooth boundary.

A3—10 to 24 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular and many very fine interstitial pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 3 percent; electrical conductivity of 1.6 decisiemens per meter; sodium adsorption ratio of 2; 5 percent gravel; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bty—24 to 41 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist; moderate medium angular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; many very fine interstitial pores; few moderately thick clay films on faces of peds; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of less than 1 percent; 19 percent calcium sulfate (gypsum) segregated as many medium irregular threads and soft masses; electrical conductivity of 5.3 decisiemens per meter; sodium adsorption ratio of 8; 6 percent gravel; moderately alkaline (pH 7.9); clear smooth boundary.

2By—41 to 60 inches; very pale brown (10YR 7/3) very gravelly coarse sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 2 percent; 1 percent calcium sulfate (gypsum); electrical conductivity of 5.2 decisiemens per meter; sodium adsorption ratio of 7; 37 percent gravel; 2 percent cobbles; moderately alkaline (pH 7.9).

Location of typical pedon: Fresno County, California; about 2 miles south of the junction of Panoche and Silver Creeks; about 2,000 feet north and 1,600 feet east of the southwest corner of sec. 32, T. 15 S., R. 12 E., Mount Diablo Base and

Meridian; lat. 36 degrees 34 minutes 47 seconds N. and long. 120 degrees 41 minutes 13 seconds W.; USGS Tumey Hills Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are 60 inches or more deep. The mean annual soil temperature ranges from 64 to 67 degrees F. The moisture control section at a depth of 8 to 24 inches becomes moist during the latter part of December and stays moist until about the end of March. These soils are usually dry the rest of the year. The soil temperature is always more than 47 degrees F. The particle-size control section averages 27 to 35 percent clay. Reaction ranges from neutral to moderately alkaline.

The A horizon has dry color of 10YR 5/3, 6/3, 6/4, 7/2, 7/3, or 7/4 or 2.5Y 7/2. Moist color is 10YR 4/2 or 4/3 or 2.5Y 4/2, 5/2, or 5/4. The calcium carbonate equivalent ranges from 1 to 3 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 0 to 10 percent.

The Bty horizon has dry color of 10YR 5/4, 6/3, or 6/4 or 2.5Y 4/2, 5/2, or 5/4. Moist color is 10YR 4/3, 4/4, or 5/4 or 2.5Y 4/2 or 4/3. The calcium carbonate equivalent ranges from 0 to 5 percent. The content of calcium sulfate (gypsum) ranges from 15 to 25 percent. Electrical conductivity ranges from 4 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 5 to 12. The content of gravel ranges from 0 to 10 percent.

The 2By horizon has dry color of 10YR 5/4, 6/3, 6/4, 7/2, 7/3, or 7/4. Moist color is 10YR 4/3, 4/4, 5/3, 5/4, 6/2, 6/3, or 6/4. The calcium carbonate equivalent ranges from 0 to 3 percent. The content of calcium sulfate (gypsum) ranges from 1 to 5 percent. Electrical conductivity ranges from 2 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 5 to 12. The content of gravel ranges from 15 to 50 percent. The content of cobbles ranges from 0 to 3 percent.

Additional data for this typical pedon, sample number 86CA019036 (1196-1200), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

Narbaitz Series

The Narbaitz series consists of very deep, moderately well drained soils on erosional fan remnants that have gilgai microrelief. These soils formed in alluvium from metasedimentary rocks, sedimentary rocks, or both. Slopes range from 5 to 15 percent.

Taxonomic class: Fine, smectitic, thermic Vertic Haploxeralfs

Typical Pedon

Map unit: Narbaitz loam, in an area of Narbaitz-Pleito association, 5 to 30 percent slopes

A1—0 to 3 inches; yellowish brown (10YR 5/4) loam, very dark grayish brown (10YR 3/2) moist; moderate very fine and fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; 14 percent gravel; slightly acid (pH 6.3); abrupt smooth boundary.

A2—3 to 9 inches; yellowish brown (10YR 5/4) sandy clay loam, dark brown (7.5YR 3/3) moist; moderate fine and medium subangular blocky structure; very hard, firm, slightly sticky and moderately plastic; common very fine roots; few very fine tubular pores; 14 percent gravel; neutral (pH 6.9); abrupt smooth boundary.

2Btss1—9 to 15 inches; reddish brown (5YR 4/4) clay, reddish brown (5YR 4/4) moist; weak coarse prismatic and strong fine and medium angular blocky structure;

extremely hard, very firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; intersecting slickensides; many moderately thick clay films on faces of peds and in pores; 8 percent gravel; moderately alkaline (pH 8.1); clear smooth boundary.

2Btss2—15 to 22 inches; reddish brown (5YR 4/4) clay, reddish brown (5YR 4/4) moist; weak coarse prismatic and strong medium and coarse angular blocky structure; extremely hard, very firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; intersecting slickensides; many moderately thick clay films on faces of peds and in pores; 8 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.

3Bdtk—22 to 38 inches; reddish brown (5YR 5/4) extremely gravelly clay, yellowish red (5YR 4/6) moist; massive; hard, firm, very sticky and very plastic; few moderately thick clay films in pores; 70 percent gravel; violently effervescent; carbonates that are disseminated and are segregated as common medium soft masses and few thin soft threads; 70 percent gravel; moderately alkaline (pH 8.0); clear smooth boundary.

3Bk—38 to 60 inches; reddish brown (5YR 5/4) very gravelly sandy clay loam, yellowish red (5YR 4/6) moist; massive; hard, friable, slightly sticky and slightly plastic; violently effervescent; carbonates that are disseminated and are segregated as few thin threads; 55 percent gravel; slightly alkaline (pH 7.4).

Location of typical pedon: Fresno County, California; about 13 miles southwest of Dos Palos and 3.5 miles west of Little Panoche Retention Dam; about 500 feet east and 1,000 feet north of the southwest corner of sec. 27, T. 13 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 45 minutes 59 seconds N. and long. 120 degrees 52 minutes 24 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 62 to 64 degrees F. Between depths of 4 and 12 inches, these soils are moist throughout from about January 1 to April 30 and are dry from July 1 to October 31.

The A horizon has dry color of 10YR 3/2, 4/3, or 5/4 or 7.5YR 5/4. Moist color is 10YR 3/2, 3/3, or 4/3 or 7.5YR 3/3 or 4/4. The content of organic matter ranges from 1 to 2 percent in the A1 horizon and from 0.7 to 1 percent in the A2 horizon. Texture is loam or sandy clay loam. The content of clay ranges from 15 to 27 percent. The content of gravel ranges from 3 to 14 percent. Reaction is slightly acid or neutral.

The 2Btss horizon has dry color of 5YR 4/4 or 5/4. Moist color is 5YR 4/4 or 7.5YR 4/4. The content of clay ranges from 50 to 65 percent. Depth to an argillic horizon and intersecting slickensides ranges from 6 to 12 inches. Linear extensibility ranges from 9 to 12 percent. The content of gravel ranges from 3 to 10 percent. Reaction is slightly alkaline or moderately alkaline.

The 3Bdtk horizon has dry color of 5YR 5/4 or 7.5YR 5/4. Moist color is 5YR 4/4 or 4/6 or 7.5YR 4/4 or 4/6. The content of clay ranges from 35 to 45 percent. Depth to a dense horizon that has secondary segregated carbonates ranges from 18 to 28 inches. The calcium carbonate equivalent ranges from 3 to 10 percent. The content of gravel ranges from 60 to 80 percent. Reaction is slightly alkaline or moderately alkaline.

The 3Bk horizon has dry color of 5YR 5/4 or 7.5YR 5/4. Moist color is 5YR 4/4 or 4/6 or 7.5YR 4/4 or 4/6. The content of clay ranges from 20 to 35 percent. The calcium carbonate equivalent ranges from 2 to 4 percent. The content of gravel ranges from 50 to 60 percent. Reaction is slightly alkaline or moderately alkaline.

Nodhill Series

The Nodhill series consists of well drained, moderately deep soils on erosional fan remnants on mountains. These soils formed in material weathered from calcareous sandstone and shale. Slopes range from 5 to 30 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Typic Haploxeralfs

Typical Pedon

Map unit: Nodhill loam, in an area of Nodhill-Arburua-Wisflat association, 15 to 65 percent slopes

A1—0 to 6 inches; light yellowish brown (10YR 6/4) loam, olive brown (2.5Y 4/4) moist; strong medium and coarse subangular blocky structure; soft, very friable, slightly sticky and moderately plastic; many very fine and few fine and medium roots; many very fine and fine tubular and interstitial pores; violently effervescent; carbonates that are segregated as few fine and medium soft masses and concretions; 2 percent gravel 0.75 to 1.25 inches in size; moderately alkaline (pH 8.0); clear wavy boundary.

A2—6 to 10 inches; light yellowish brown (10YR 6/4) loam, light olive brown (2.5Y 5/4) moist; moderate medium and coarse subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; common very fine and few fine tubular and interstitial pores; few thin clay films staining and bridging mineral grains; violently effervescent; carbonates that are segregated as few fine and medium soft masses and concretions; 2 percent gravel 0.75 to 1.25 inches in size; moderately alkaline (pH 8.2); clear wavy boundary.

Btk—10 to 17 inches; light yellowish brown (2.5Y 6/4) loam, olive brown (2.5Y 4/4) moist; moderate medium subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; few very fine and medium roots; common very fine and fine tubular and interstitial pores; common thin clay films staining and bridging mineral grains; violently effervescent; carbonates that are segregated as common medium seams, soft masses, and concretions; 7 percent gravel 0.5 to 1.5 inches in size; moderately alkaline (pH 8.2); clear smooth boundary.

Bk—17 to 28 inches; light yellowish brown (2.5Y 6/4) gravelly loam, light olive brown (2.5Y 5/4) moist; weak coarse subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine interstitial pores; violently effervescent; carbonates that are segregated as many moderate seams, soft masses, and concretions; 20 percent gravel 0.75 to 2.5 inches in size; moderately alkaline (pH 8.2); abrupt wavy boundary.

2Cr—28 to 38 inches; sediments of dense, unconsolidated, calcareous sandstone and shale gravel with some thin laminar capping.

Location of typical pedon: Fresno County, California; about 3.25 miles east of Mercey Hot Springs, 2.5 miles southwest of Panoche Mountain and 200 feet south of the Bureau of Land Management access road; about 380 feet north and 250 feet west of the southeast corner of sec. 18, T. 14 S., R. 11 E., Mount Diablo Base and Meridian; lat. 36 degrees 42 minutes 17 seconds N. and long. 120 degrees 48 minutes 0 seconds W.; USGS Mercey Hot Springs Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with sediments of dense, unconsolidated, calcareous sandstone and shale gravel ranges from 20 to 40 inches. In most years, the moisture control section at a depth of 7 to 23 inches is moist from January 1 to May 1 and dry from June 1 to October 15. The soil temperature is more than 47 degrees F from February 15 to December 15. The mean annual soil temperature ranges from 62 to 65 degrees F.

The A horizon has dry color of 10YR 6/3 or 6/4 or 2.5Y 5/4 or 6/4. Moist color is 10YR 4/4 or 2.5Y 4/4, 4/6, 5/3, or 5/4. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 18 to 27 percent. The calcium carbonate equivalent ranges from 2 to 5 percent. The horizon is strongly effervescent or violently effervescent. The content of gravel ranges from 0 to 10 percent.

The Btk horizon has dry color of 7.5YR 6/4; 10YR 7/4; or 2.5Y 5/6 or 6/4. Moist color is 7.5YR 4/4; 10YR 5/6; or 2.5Y 4/4, 4/6, or 5/4. The content of organic matter ranges from 0.4 to 0.8 percent. Texture is loam or clay loam. The content of clay ranges from 24 to 35 percent but is always more than 1.2 times greater than that of the A horizon. The calcium carbonate equivalent ranges from 5 to 14 percent. The horizon is violently effervescent, although it does not have concretions in some pedons. The content of gravel ranges from 0 to 10 percent.

The Bk horizon has dry color of 7.5YR 5/4; 10 YR 6/6; or 2.5Y 5/6, 6/4, 7/2, 7/4, or 7/6. Moist color is 7.5YR 4/4; 10YR 5/6; or 2.5Y 5/4, 5/6, or 6/4. The content of organic matter ranges from 0.1 to 0.5 percent. Texture is gravelly loam, loam, or clay loam. The content of clay ranges from 18 to 32 percent. The calcium carbonate equivalent ranges from 5 to 14 percent. The content of gravel ranges from 0 to 30 percent.

Palazzo Series

The Palazzo series consists of very deep, poorly drained soils on flood plains and basin floors. These soils have an abrupt increase in clay content in an unrelated substratum. They formed in alluvium derived dominantly from igneous rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Fluvaquentic Endoaquolls

Typical Pedon

Map unit: Palazzo sandy loam, drained, 0 to 1 percent slopes

Ap1—0 to 4 inches; grayish brown (2.5Y 5/2) sandy loam, very dark grayish brown (2.5Y 3/2) moist; strong very coarse subangular blocky structure parting to moderate medium and coarse subangular blocky; hard, very friable, slightly sticky and slightly plastic; few fine and medium and common very fine roots; few very fine tubular pores; neutral (pH 6.6); abrupt smooth boundary.

Ap2—4 to 10 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; few fine and medium and common very fine roots; few very fine tubular pores; neutral (pH 7.0); abrupt smooth boundary.

Bg1—10 to 17 inches; light brownish gray (2.5Y 6/2) sandy loam, very dark grayish brown (2.5Y 3/2) moist; moderate coarse angular blocky structure; hard, very friable, slightly sticky and slightly plastic; few fine and common very fine roots; common very fine tubular pores; common (3 percent) irregular fine prominent brown (7.5YR 4/4), moist, recent redoximorphic masses in which iron has accumulated; few (1 percent) rounded fine prominent black (N 2/0), moist, recent redoximorphic masses in which manganese has accumulated; slightly alkaline (pH 7.4); clear wavy boundary.

Bg2—17 to 29 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, very friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine tubular pores; common (2 percent) irregular fine prominent brown (7.5YR 4/4), moist, few (1 percent) irregular fine prominent strong brown (7.5YR 5/8), moist, and few (1 percent) irregular fine prominent dark brown (7.5YR 3/2), moist, recent redoximorphic masses in which iron has accumulated; neutral (pH 7.3); clear wavy boundary.

Bg3—29 to 31 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, very friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine tubular pores; common (2 percent) irregular fine prominent brown (7.5YR 5/3), moist, few (1 percent) irregular fine prominent brown (7.5YR 4/4), moist, and few (1 percent) irregular fine prominent dark brown (7.5YR 3/2), moist, recent redoximorphic masses in which iron has accumulated; neutral (pH 7.3); abrupt wavy boundary.

2Bg1—31 to 46 inches; gray (10YR 5/1) clay loam, very dark gray (10YR 3/1) moist; strong medium prismatic structure; hard, friable, moderately sticky and slightly plastic; few very fine roots; few fine and common very fine tubular pores; many (25 percent) irregular medium faint black (5Y 2/2), moist, common (3 percent) irregular fine distinct dark greenish gray (5GY 4/1), moist, and common (2 percent) irregular fine prominent dark olive gray (5Y 3/2), moist, recent redoximorphic depletions; neutral (pH 7.2); clear wavy boundary.

2Bg2—46 to 60 inches; gray (10YR 5/1) clay loam, very dark gray (10YR 3/1) moist; strong coarse prismatic structure parting to moderate medium prismatic; hard, friable, moderately sticky and slightly plastic; few fine and common very fine tubular pores; common (5 percent) irregular fine prominent light olive brown (2.5Y 5/4), moist, and common (2 percent) irregular fine prominent brown (7.5YR 4/4), moist, recent masses in which iron has accumulated; common (20 percent) irregular medium faint black (5Y 2/2), moist, and common (4 percent) irregular fine distinct dark greenish gray (5GY 4/1), moist, recent redoximorphic depletions; neutral (pH 7.3).

Location of typical pedon: Fresno County, California; about 2.2 miles north-northeast of the community of Dos Palos, 70 feet north and 140 feet east of a drainage ditch; about 1,210 feet north and 1,450 feet west of the southeast corner of sec. 28, T. 10 S., R. 13 E., Mount Diablo Base and Meridian; lat. 37 degrees 1 minute 43 seconds N. and long. 120 degrees 32 minutes 57 seconds W.; USGS Santa Rita Bridge Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are considered to be drained because of the presence of dams and reservoirs in the Sierra Nevada, the removal of water from the water table by pumping, the use of tile and interceptor drains, and the filling and leveling of sloughs in the vicinity. The mean annual soil temperature ranges from 64 to 66 degrees F. The thickness of the mollic epipedon ranges from 10 to 15 inches. Recent distinct or prominent redoximorphic features are present below the mollic epipedon. Reaction is neutral or slightly alkaline.

The A horizon has dry color of 10YR 3/1, 3/2, 4/1, 4/2, 5/1, or 5/2 or 2.5Y 3/2, 4/2, or 5/2. Moist color is 10YR 3/1 or 3/2 or 2.5Y 3/2. The content of organic matter ranges from 1 to 2 percent in the A horizon and decreases irregularly with increasing depth. The content of clay ranges from 10 to 18 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 8.

The Bg horizon has dry color of 10YR 5/2, 5/3, 6/2, 6/3, 7/2, or 7/3 or 2.5Y 5/2, 6/2, or 7/2. Moist color is 10YR 4/2, 5/3, 6/1, or 6/3 or 2.5Y 3/2, 4/2, or 5/2. The content of clay ranges from 10 to 18 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 8.

The 2Bg horizon has dry color of 10YR 3/1, 4/1, or 5/1 or 5Y 3/1 or 4/1. Moist color is 10YR 2/1, 3/1, or 4/2; 2.5Y 3/2, 4/2, 5/2, or 5/4; or 5Y 2/1, 3/1, 3/2, 4/1, or 4/3. Texture is clay loam or silt loam. The content of clay ranges from 20 to 35 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 12.

Panoche Series

The Panoche series consists of very deep, well drained soils on alluvial fans. These soils formed in alluvium derived dominantly from sedimentary rock. Slopes range from 0 to 5 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Typic Haplocambids

Typical Pedon

Map unit: Panoche clay loam, subsided, 0 to 5 percent slopes

Ap—0 to 7 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and moderately plastic; common fine and medium roots; many very fine interstitial pores; slightly effervescent; disseminated carbonates; 4 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bw—7 to 16 inches; light brownish gray (2.5Y 6/2) loam, olive brown (2.5Y 4/4) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and moderately plastic; many fine and common medium roots; common very fine and fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; strongly effervescent; carbonates that are segregated as common fine irregularly shaped soft masses; common gypsum crystals; 4 percent gravel; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—16 to 27 inches; light gray (2.5Y 7/2) loam, light olive brown (2.5Y 5/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; many fine and common medium roots; common fine and many very fine tubular pores; slightly effervescent carbonates that are disseminated; strongly effervescent carbonates that are segregated as common fine irregularly shaped soft masses; common gypsum crystals; 2 percent gravel; moderately alkaline (pH 8.0); clear smooth boundary.

Bk2—27 to 43 inches; light gray (2.5Y 7/2) loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, very friable, slightly sticky and moderately plastic; many very fine and common fine roots; common fine tubular and many very fine interstitial pores; slightly effervescent carbonates that are disseminated; strongly effervescent carbonates that are segregated as common fine irregularly shaped soft masses; common gypsum crystals; 2 percent gravel; moderately alkaline (pH 8.0); clear smooth boundary.

Bk3—43 to 57 inches; light brownish gray (2.5Y 6/2) loam, olive brown (2.5Y 4/4) and light olive brown (2.5Y 5/4) moist; massive; hard, friable, slightly sticky and moderately plastic; few very fine and many fine roots; few fine tubular and many very fine interstitial pores; slightly effervescent carbonates that are disseminated; strongly effervescent carbonates that are segregated as common fine irregularly shaped soft masses; common gypsum crystals; 3 percent gravel; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bk4—57 to 72 inches; light brownish gray (2.5Y 6/2) sandy loam, light olive brown (2.5Y 5/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine and many fine roots; few fine tubular and many very fine interstitial pores; slightly effervescent carbonates that are disseminated; strongly effervescent carbonates that are segregated as common fine irregularly shaped soft masses; slightly alkaline (pH 7.8).

Location of typical pedon: Fresno County, California; about 3 miles northwest of the community of Three Rocks, 580 feet north of Kamm Avenue and 2,300 feet east of San Diego Avenue; 580 feet north and 2,300 feet east of the southwest corner of sec. 15, T. 16 S., R. 14 E., Mount Diablo Base and Meridian; lat. 36 degrees 31 minutes 56 seconds N. and long. 120 degrees 26 minutes 4 seconds W.; USGS Levis Topographic Quadrangle, NAD 27.

Range in Characteristics

Between depths of 5 and 15 inches, these soils become moist in some part in the latter part of December and stay moist until about the end of February or March. They are usually dry the rest of the year. These soils are calcareous throughout. The soil temperature is always more than 47 degrees F. The content of organic matter is less than 1 percent and decreases regularly with increasing depth. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 8. The content of gravel ranges from 0 to 7 percent.

The A horizon is sandy loam, loam, or clay loam. The content of clay ranges from 10 to 35 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. Reaction is slightly alkaline or moderately alkaline.

The Bw horizon has moist color of 2.5Y 4/2 or 4/4. Texture is loam or clay loam. The content of clay ranges from 18 to 35 percent. The calcium carbonate equivalent ranges from 1 to 3 percent.

The Bk horizon texture is sandy loam, loam, or clay loam. The content of clay ranges from 10 to 35 percent. The calcium carbonate equivalent ranges from 1 to 4 percent.

Paver Series

The Paver series consists of very deep, well drained soils on inset fans. These soils formed in mixed alluvium derived dominantly from calcareous sedimentary rock. Slopes range from 0 to 2 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Calcic Haploxerepts

Typical Pedon

Map unit: Paver clay loam, 0 to 2 percent slopes

Ap—0 to 6 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; very hard, friable, very sticky and very plastic; common very fine roots; common very fine tubular and interstitial pores; slightly alkaline (pH 7.8); abrupt smooth boundary.

A1—6 to 13 inches; brown (10YR 5/3) clay loam, dark brown (10YR 4/3) moist; strong medium subangular blocky structure; very hard, friable, very sticky and very plastic; common very fine and fine roots; common very fine tubular and interstitial pores; electrical conductivity of 0.5 decisiemens per meter; sodium adsorption ratio of 1; slightly alkaline (pH 7.8); clear smooth boundary.

A2—13 to 19 inches; yellowish brown (10YR 5/4) clay loam, olive brown (2.5Y 4/4) moist; strong medium subangular blocky structure; hard, friable, very sticky and very plastic; common very fine roots; many very fine tubular and interstitial pores; slightly alkaline (pH 7.8); clear smooth boundary.

Bw—19 to 26 inches; light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; few very fine roots; many very fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped soft masses; electrical conductivity of 0.5 decisiemens per meter; sodium adsorption ratio of 1; slightly alkaline (pH 7.8); clear smooth boundary.

Bk1—26 to 38 inches; light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; few very fine roots; many very fine tubular pores; electrical conductivity of 2.0 decisiemens per meter; sodium adsorption ratio of 3; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses; electrical conductivity of 2 decisiemens per meter; sodium adsorption ratio of 3; slightly alkaline (pH 7.8); diffuse wavy boundary.

Bk2—38 to 48 inches; olive yellow (2.5Y 6/6) clay loam, light olive brown (2.5Y 5/6) moist; weak medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as common irregularly shaped soft masses; 10 percent krotovinas; slightly alkaline (pH 7.8); clear smooth boundary.

Bk3—48 to 60 inches; light yellowish brown (2.5Y 6/4) loam, light olive brown (2.5Y 5/6) moist; massive; slightly hard, very friable, moderately sticky and moderately plastic; few very fine tubular pores; slightly effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped soft masses; 10 percent krotovinas; slightly alkaline (pH 7.5).

Location of typical pedon: Fresno County, California; about 15 miles south-southeast of the community of Los Banos, 1,500 feet south of Pole Line Road, 3,100 feet southeast of the Merced County line; about 2,500 feet north and 1,050 feet east of the southwest corner of sec. 27, T. 12 S., R. 11 E., Mount Diablo Base and Meridian; lat. 36 degrees 51 minutes 26 seconds N. and long. 120 degrees 45 minutes 31 seconds W.; USGS Laguna Seca Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 64 to 66 degrees F.

The A horizon has dry color of 10YR 4/3, 5/2, 5/3, 5/4, or 6/3 or 2.5Y 5/4. Moist color is 10YR 3/3, 4/3, or 5/3 or 2.5Y 4/4. The content of organic matter ranges from 0.5 to 0.8 percent. The content of clay ranges from 27 to 35 percent clay. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 6.

The Bw and Bk horizons have color of 10YR 5/3, 5/4, 6/3, 6/4, or 6/6 or 2.5Y 5/4, 6/4, 6/6, or 7/6. Moist color is 10YR 3/3, 4/3, 4/4, 5/3, 5/4, or 5/6 or 2.5Y 4/4, 5/6, or 6/6. The content of organic matter ranges from 0.1 to 0.5 percent. Texture is loam or clay loam. The content of clay ranges from 23 to 35 percent. The calcium carbonate equivalent ranges from 2 to 10 percent in the Bk horizons. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 7. Reaction is slightly alkaline or moderately alkaline.

Pedcat Series

The Pedcat series consists of very deep, poorly drained soils on fan remnants. These soils formed in alluvium derived from sandstone and shale. Slopes range from 0 to 2 percent.

Taxonomic class: Fine, mixed, superactive, thermic Aquic Natrixeralfs

Typical Pedon

Map unit: Pedcat loam, 0 to 2 percent slopes, eroded

A—0 to 2 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; moderate very thick platy structure; soft, friable, slightly sticky and nonplastic; common very fine roots; common very fine tubular pores; neutral (pH 7.2); abrupt smooth boundary.

E—2 to 5 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; strong coarse prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, medium, and coarse roots on faces of peds; many very fine and fine tubular pores; slightly alkaline (pH 7.8); abrupt smooth boundary.

Btn1—5 to 13 inches; pale brown (10YR 6/3) clay loam, dark yellowish brown (10YR 4/4) moist; strong coarse prismatic structure parting to moderate medium angular blocky; very hard, firm, slightly sticky and slightly plastic; few very fine roots; many very fine and fine tubular pores; few thin clay films on faces of peds and lining pores; very strongly alkaline (pH 9.2); abrupt wavy boundary.

Btn2—13 to 28 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores; few thin clay films lining pores; very strongly alkaline (pH 9.8); abrupt wavy boundary.

Btkn1—28 to 50 inches; light yellowish brown (10YR 6/4) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; few very fine tubular pores; few thin clay films lining pores and bridging sand grains; strongly effervescent; carbonates that are segregated as many medium irregularly shaped soft masses and threads; few fine distinct brown (7.5YR 4/2), moist, redoximorphic masses in which iron has accumulated; very strongly alkaline (pH 9.6); clear smooth boundary.

Btkn2—50 to 60 inches; very pale brown (10YR 7/3) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate fine subangular blocky structure; very hard, very firm, moderately sticky and slightly plastic; few very fine tubular pores; violently effervescent; carbonates that are segregated as many medium irregularly shaped soft masses and threads; very strongly alkaline (pH 9.2).

Location of typical pedon: Fresno County, California; about 2 miles northeast of the intersection of San Benito, Merced, and Fresno Counties; 400 feet south and 2,500 feet east of the northwest corner of sec. 33, T. 13 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 45 minutes 46 seconds N. and long. 120 degrees 53 minutes 8 seconds W.; USGS Ortigalita Peak Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are 60 inches or more deep. The mean annual soil temperature ranges from 59 to 62 degrees F. The content of organic matter is 1 percent or less and decreases with depth.

The A and E horizons have color of 10YR 4/2, 5/2, 5/3, 6/3, or 7/3. Moist color is 10YR 3/2, 3/3, 3/4, 4/2, 4/3, or 5/3. Texture is fine sandy loam or loam. The content of clay ranges from 12 to 20 percent. Electrical conductivity ranges from 1 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 7 to 20. Reaction ranges from slightly acid to slightly alkaline.

The Btn horizon has dry color of 10YR 6/3, 6/4, or 6/6. Moist color is 10YR 4/3 and 4/4. Texture is clay loam or clay. The content of clay ranges from 27 to 50 percent. Electrical conductivity ranges from 1 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 80. Reaction is strongly alkaline or very strongly alkaline.

The Btkn horizon has dry color of 10YR 6/3, 6/4, or 7/3. Moist color is 10YR 4/3 or 5/4. Texture is sandy clay loam, clay loam, or clay. The content of clay ranges from 20 to 50 percent. The calcium carbonate equivalent ranges from 2 to 8 percent. Electrical conductivity ranges from 1 to 16 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 80. Reaction is strongly alkaline or very strongly alkaline.

Pleito Series

The Pleito series consists of very deep, well drained soils on fan remnants. These soils formed in calcareous, gravelly alluvium derived from mixed rocks. Slopes range from 2 to 30 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls

Typical Pedon

Map unit: Pleito gravelly clay loam, 15 to 30 percent slopes

A1—0 to 2 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure parting to weak very fine subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; common very fine and fine roots; common very fine and fine tubular and fine interstitial pores; slightly effervescent; disseminated carbonates; 15 percent gravel; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—2 to 9 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to moderate coarse subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; common very fine roots; common very fine tubular pores; slightly effervescent; disseminated carbonates; 7 percent gravel; common fine distinct strong brown (7.5YR 5/6), moist, relict redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.1); clear smooth boundary.

Bk—9 to 17 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to moderate coarse subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; common very fine roots; common very fine and fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine threads; 3 percent gravel; common fine strong brown (7.5YR 5/6), moist, relict redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.2); clear wavy boundary.

Btk1—17 to 22 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and moderately plastic; common very fine roots; common very fine and few fine tubular pores; very few thin clay films on faces of peds; violently effervescent; carbonates that are disseminated and are segregated as common fine threads; 3 percent gravel; common fine strong brown (7.5YR 5/6), moist, relict redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.1); clear wavy boundary.

Btk2—22 to 27 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores; very few thin clay films on faces of peds; violently effervescent; carbonates that are disseminated and are segregated as many fine threads and few soft masses and as thin coatings and pendants on coarse fragments; 5 percent gravel; moderately alkaline (pH 8.1); abrupt wavy boundary.

2Bk—27 to 60 inches; brown (7.5YR 5/4) gravelly sandy clay loam, brown (7.5YR 4/4) moist; massive; hard, very friable, moderately sticky and slightly plastic; common very fine interstitial pores; slightly effervescent; carbonates that are disseminated and are segregated as thin coatings and pendants on coarse fragments; 30 percent gravel; 5 percent cobbles; moderately alkaline (pH 8.1).

Location of typical pedon: Fresno County, California; about 13 miles southwest of Dos Palos and 3 miles northeast of Little Panoche Retention Dam; 1,950 feet south and 2,260 feet west of the northeast corner of sec. 16, T. 13 S., R. 11 E., Mount Diablo Base and Meridian; lat. 36 degrees 48 minutes 6 seconds N. and long. 120 degrees 46 minutes 19 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 63 to 66 degrees F. The thickness of the mollic epipedon ranges from 20 to 35 inches. These soils are always calcareous below the A horizon and are calcareous to the surface in most pedons. The content of organic matter ranges from 1 to 2 percent to a depth of at least 20 inches.

The A horizon is gravelly clay loam or clay loam. The content of clay ranges from 27 to 35 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 5 to 20 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk and Btk horizons have color of 10YR 5/3 or 5/4 or 7.5YR 5/3 or 5/4. Moist color is 10YR 3/3 or 4/4 or 7.5YR 4/4 or 5/4. Texture is loam, sandy clay loam, or clay loam. The content of clay ranges from 20 to 35 percent. The calcium carbonate equivalent ranges from 1 to 7 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 7. The content of gravel ranges from 0 to 10 percent.

The 2Bk horizon has dry color of 10YR 5/4 or 7.5YR 5/4. Moist color is 10YR 4/4 or 5/4 or 7.5YR 4/4. Texture is gravelly loam, gravelly sandy clay loam, very gravelly clay loam, or gravelly clay loam. The content of clay ranges from 20 to 30 percent. The content of cobbles ranges from 0 to 10 percent. The calcium carbonate equivalent ranges from 2 to 7 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 7. The content of gravel ranges from 20 to 35 percent.

The Pleito soil in map units 853 and 873 is a taxadjunct to the series. It differs from the Pleito series by having a mollic epipedon that extends to a depth of less than 20 inches. It classifies as a fine-loamy, mixed, superactive, thermic Calcic Haploxeroll. This difference, however, does not significantly affect use and management.

Pleito Taxadjunct

The Pleito taxadjunct consists of very deep, well drained soils on fan remnants. These soils formed in calcareous, gravelly alluvium derived from mixed rock. Slopes range from 2 to 30 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Calcic Haploxerolls

Typical Pedon

Map unit: Pleito gravelly clay loam, in an area of Los Banos-Pleito complex, 2 to 8 percent slopes

A1—0 to 2 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure parting to weak very fine subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; common very fine and fine roots; common very fine and fine tubular and fine interstitial pores; slightly effervescent; disseminated carbonates; 15 percent gravel; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—2 to 9 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to moderate coarse subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; common very fine roots; common very fine tubular pores; slightly effervescent; disseminated carbonates; 7 percent gravel; moderately alkaline (pH 8.1); clear smooth boundary.

Bk—9 to 17 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to moderate coarse subangular blocky; slightly hard, very friable, slightly sticky and moderately plastic; common very fine roots; common very fine and fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine threads; 3 percent gravel; moderately alkaline (pH 8.2); clear wavy boundary.

Btk1—17 to 22 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and moderately plastic; common very fine roots; common very fine and few fine tubular pores; very few thin clay films on faces of peds; violently effervescent; carbonates that are disseminated and are segregated as common fine threads; 3 percent gravel; moderately alkaline (pH 8.1); clear wavy boundary.

Btk2—22 to 27 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores; very few thin clay films on faces of peds; violently effervescent; carbonates that are disseminated and are segregated as many fine threads and few soft masses and as thin coatings and pendants on coarse fragments; 5 percent gravel; moderately alkaline (pH 8.1); abrupt wavy boundary.

2Bk—27 to 60 inches; brown (7.5YR 5/4) gravelly sandy clay loam, brown (7.5YR 4/4) moist; massive; hard, very friable, moderately sticky and slightly plastic; common very fine interstitial pores; slightly effervescent; carbonates that are disseminated and are segregated as thin coatings and pendants on coarse fragments; 30 percent gravel; 5 percent cobbles; moderately alkaline (pH 8.1).

Location of typical pedon: Fresno County, California; about 1,000 feet west of the intersection of Interstate 5 and Nees Avenue; about 1,050 feet east and 325 feet south of the northwest corner of sec. 33, T. 12 S., R. 11 E., Mount Diablo Base and Meridian; lat. 36 degrees 50 minutes 58 seconds N. and long. 120 degrees 46 minutes 35 seconds W.; USGS Laguna Seca Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 63 to 66 degrees F. The thickness of the mollic epipedon is less than 20 inches. These soils are always calcareous below the A horizon and are calcareous to the surface in most pedons. The content of organic matter ranges from 1 to 2 percent to a depth of less than 20 inches.

The A horizon is gravelly clay loam or clay loam. The content of clay ranges from 27 to 35 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 5 to 20 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk and Btk horizons have color of 10YR 5/3, 5/4, or 6/3 or 7.5YR 5/3 or 5/4. Moist color is 10YR 3/3, 4/3, or 4/4 or 7.5YR 4/4 or 5/4. Texture is loam, sandy clay loam, or clay loam. The content of clay ranges from 20 to 35 percent. The calcium carbonate equivalent ranges from 1 to 7 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 7. The content of gravel ranges from 0 to 10 percent.

The 2Bk horizon has dry color of 10YR 5/4 or 7.5YR 5/4. Moist color is 10YR 4/4 or 5/4 or 7.5YR 4/4. Texture is gravelly loam, gravelly sandy clay loam, very gravelly clay loam, or gravelly clay loam. The content of clay ranges from 20 to 30 percent. The content of cobbles ranges from 0 to 10 percent. The calcium carbonate equivalent ranges from 2 to 7 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 7. The content of gravel ranges from 20 to 35 percent.

The Pleito soil in map units 853 and 873 is a taxadjunct to the series. It differs from the Pleito series by having a mollic epipedon that is less than 20 inches deep. This difference, however, does not significantly affect use and management.

Polvadero Series

The Polvadero series consists of very deep, well drained, sodic soils on fan remnants. These soils formed in alluvium derived dominantly from calcareous sedimentary rock. Slopes range from 0 to 15 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Typic Natrargids

Typical Pedon

Map unit: Polvadero sandy loam, 0 to 2 percent slopes

Ap—0 to 7 inches; light yellowish brown (10YR 6/4) sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; few very fine tubular and many very fine interstitial pores; strongly effervescent; disseminated carbonates; calcium carbonate equivalent of 5 percent; electrical conductivity of 0.4 decisiemens per meter; sodium adsorption ratio of 0; 4 percent subangular fine and medium gravel; 1 percent subangular cobbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

A—7 to 12 inches; light yellowish brown (10YR 6/4) sandy loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular and many very fine interstitial pores; violently effervescent; disseminated carbonates; calcium carbonate equivalent of 7 percent; electrical conductivity of 0.4 decisiemens per meter; sodium adsorption ratio of 3; 4 percent subangular fine and medium gravel; moderately alkaline (pH 8.4); abrupt wavy boundary.

Btkn1—12 to 30 inches; light yellowish brown (10YR 6/4) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, very friable, slightly sticky and plastic; few very fine roots; many very fine tubular and interstitial pores; few moderately thick clay films on faces of peds and in pores and few thin clay films in bridges; violently effervescent; carbonates that are disseminated and are segregated as many fine and medium irregularly shaped threads, seams, soft masses, and concretions; calcium carbonate equivalent of 28 percent; electrical conductivity of 1.0 decisiemens per meter; sodium adsorption ratio of 16; 3 percent subangular fine and medium gravel; strongly alkaline (pH 8.8); clear wavy boundary.

Btkn2—30 to 52 inches; light yellowish brown (10YR 6/4) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate medium angular blocky structure; hard, friable, slightly sticky and plastic; common very fine tubular and many very fine interstitial pores; very few moderately thick clay films on faces of peds and in pores and very few thin clay films in bridges; violently effervescent; carbonates that are disseminated and are segregated as many medium irregularly shaped threads, seams, soft masses, and concretions; calcium carbonate equivalent of 10 percent; electrical conductivity of 1.5 decisiemens per meter; sodium adsorption ratio of 15; 2 percent subangular fine and medium gravel; strongly alkaline (pH 9.0); abrupt smooth boundary.

C—52 to 60 inches; light yellowish brown (10YR 6/4) sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine tubular and many very fine interstitial pores; very slightly effervescent; carbonates that are disseminated and are segregated as few fine rounded soft masses; calcium carbonate equivalent of 3 percent; electrical conductivity of 1.8 decisiemens per meter; sodium adsorption ratio of 23; 2 percent subangular fine and medium gravel; strongly alkaline (pH 8.5).

Location of typical pedon: Fresno County, California; about 8 miles east of the community of Coalinga, 2.75 miles west of Interstate 5 and 2 miles south of Jayne Avenue; 290 feet east and 135 feet south of the northwest corner of sec. 18, T. 21 S., R. 17 E., Mount Diablo Base and Meridian; lat. 36 degrees 6 minutes 3 seconds N. and long. 120 degrees 10 minutes 50 seconds W.; USGS Avenal Topographic Quadrangle, NAD 27.

Range in Characteristics

Unless these soils are irrigated, between depths of 8 to 16 inches they are dry in all parts from April 1 until January 1 and are moist in some or all parts for only 60 to 90 consecutive days from January through March. The soil temperature is always more than 47 degrees F. The mean annual soil temperature ranges from 64 to 70 degrees F. The content of organic matter is less than 1 percent unless the soils are highly modified by feedlot manure. The content of gravel ranges from 0 to 15 percent. The content of cobbles ranges from 0 to 1 percent. Lithologic discontinuities and buried A and B horizons are present in some pedons.

The A horizon has dry color of 10YR 5/3, 5/4, 6/2, 6/3, or 6/4 or 2.5Y 6/2. Moist color is 10YR 4/2, 4/3, or 5/3 or 2.5Y 4/2. Texture is sandy loam or fine sandy loam. The content of clay ranges from 6 to 18 percent. The calcium carbonate equivalent ranges from 0 to 7 percent. The horizon ranges from noneffervescent to violently effervescent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 8. Reaction is slightly alkaline or moderately alkaline.

The Btkn horizon has dry color of 10YR 5/4, 5/6, 6/3, 6/4, 7/2, 7/3, or 7/4 or 2.5Y 6/2 or 6/4. Moist color is 10YR 3/3, 4/2, 4/3, 4/4, or 5/4 or 2.5Y 4/2, 4/4, or 5/4. Texture is sandy loam, loam, or sandy clay loam. The content of clay ranges from 18 to 30 percent. The calcium carbonate equivalent ranges from 15 to 30 percent in the upper part, which is calcic, and from 5 to 15 percent in the lower part. The horizon is strongly effervescent or violently effervescent. Electrical conductivity ranges from 1 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 50 in this natric horizon. Reaction is moderately alkaline or strongly alkaline.

The C horizon has dry color of 10YR 5/4, 6/2, 6/3, 6/4, or 7/3 or 2.5Y 6/2 or 6/4. Moist color is 10YR 4/2, 4/3, 5/3, or 5/4 or 2.5Y 4/2. Texture is sandy loam, loam, or sandy clay loam. The content of clay ranges from 18 to 30 percent. The calcium carbonate equivalent ranges from 1 to 10 percent. The horizon is very slightly effervescent to violently effervescent. Electrical conductivity ranges from 1 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 8 to 50. Reaction is moderately alkaline or strongly alkaline.

Additional data for this typical pedon, sample number 82CA019001 (837802-837803), and for sample number 86CA019035 (1187-1195) are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

Posochanet Series

The Posochanet series consists of very deep, moderately well drained soils on fan skirts. These soils formed in stratified alluvium derived dominantly from calcareous sedimentary rocks. Slopes range from 0 to 2 percent.

Taxonomic class: Fine-silty, mixed, superactive, thermic Sodic Haplocambids

Typical Pedon

Map unit: Posochanet clay loam, saline-sodic, wet, 0 to 1 percent slopes

Ap1—0 to 7 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; coarse strong subangular blocky structure parting to moderate subangular blocky; very hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine and fine tubular pores; slightly effervescent; disseminated carbonates; electrical conductivity of 1.6 decisiemens per meter; sodium adsorption ratio of 2; moderately alkaline (pH 7.9); abrupt smooth boundary.

Ap2—7 to 15 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; common very fine and fine tubular pores; slightly effervescent; disseminated carbonates; electrical conductivity of 3.6 decisiemens per meter; sodium adsorption ratio of 9; moderately alkaline (pH 8.0); clear smooth boundary.

Bw—15 to 24 inches; light yellowish brown (2.5Y 6/4) clay loam, olive brown (2.5Y 4/4) moist; weak coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine and few fine tubular pores; slightly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped seams and soft masses; electrical conductivity of 10.2 decisiemens per meter; sodium adsorption ratio of 30; moderately alkaline (pH 8.1); clear smooth boundary.

Bknz1—24 to 34 inches; light yellowish brown (2.5Y 6/4) clay loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and few fine tubular pores; slightly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped seams and soft masses; electrical conductivity of 16.7 decisiemens per meter; sodium adsorption ratio of 42; moderately alkaline (pH 8.3); abrupt wavy boundary.

Bknz2—34 to 41 inches; light yellowish brown (2.5Y 6/4) clay loam, olive brown (2.5Y 4/4) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine tubular pores; slightly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped seams and soft masses; electrical conductivity of 17.6 decisiemens per meter; sodium adsorption ratio of 39; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bknz3—41 to 60 inches; pale yellow (2.5Y 7/4) loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, slightly sticky and moderately plastic; few very fine and fine roots; many very fine and few fine tubular pores; slightly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped seams and soft masses; electrical conductivity of 14.5 decisiemens per meter; sodium adsorption ratio of 31; moderately alkaline (pH 8.2).

Location of typical pedon: Fresno County, California; about 150 feet east of Jameson Avenue, 1.5 miles west of Lemoore Naval Air Station; about 2,640 feet south and 150 feet east of the northwest corner of sec. 2, T. 19 S., R. 18 E., Mount Diablo Base and Meridian; lat. 36 degrees 18 minutes 23 seconds N. and long. 119 degrees 59 minutes 35 seconds W.; USGS Vanguard Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 64 to 67 degrees F. The soil temperature is always more than 47 degrees F.

The A horizon has dry color of 2.5Y 6/1 or 6/2. Moist color is 2.5YR 4/1 or 4/2. The content of organic matter ranges from 0.5 to 2 percent. The content of clay ranges from 27 to 35 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. The horizon ranges from noneffervescent to strongly effervescent. The content of gypsum ranges from 0 to 2 percent. The content of carbonates and gypsum has been affected by irrigation. Electrical conductivity ranges from 0 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 13.

The Bw horizon has dry color of 2.5Y 6/2, 6/3, or 6/4. Moist color is 2.5Y 4/2, 4/3, or 4/4. Texture is stratified loam to silty clay loam. The content of clay ranges from 20 to 35 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. The horizon is slightly effervescent to strongly effervescent. The content of gypsum ranges from 0 to 2 percent. The content of carbonates and gypsum has been affected by irrigation. Electrical conductivity ranges from 4.0 to 16.0 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 40.

The Bknz horizon has dry color of 2.5Y 6/2, 6/4, 6/6, 7/2, or 7/4. Moist color is 2.5Y 4/2, 4/4, 5/2, 5/3, or 5/4. Texture is stratified loam to silty clay loam. The content of clay ranges from 20 to 35 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. The horizon is slightly effervescent to strongly effervescent. Carbonates are disseminated and/or segregated as threads, seams, or soft masses. The content of gypsum ranges from 0 to 2 percent. The content of carbonates and gypsum has been affected by irrigation. Electrical conductivity ranges from 4 to 20 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 50. Relict redoximorphic features are present in some pedons.

Additional data for this typical pedon, sample number 87CA019003 (4111-4116), are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. The additional data include measurements of selenium content.

Quinto Series

The Quinto series consists of shallow, somewhat excessively drained soils on mountains. These soils formed in gravelly deposits derived from calcareous conglomerate and/or marine deposits derived from calcareous sandstone. Slopes range from 40 to 75 percent.

Taxonomic class: Loamy, mixed, superactive, thermic Lithic Mollic Haploxeralfs

Typical Pedon

Map unit: Quinto gravelly sandy loam, in an area of Quinto-Millsholm-Rock outcrop complex, 40 to 75 percent slopes

A—0 to 6 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots;

common very fine and few fine tubular pores; slightly effervescent; disseminated carbonates; 16 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt—6 to 11 inches; pale brown (10YR 6/3) gravelly sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and plastic; few very fine and fine roots; many very fine and common fine tubular pores; few thin and very few moderately thick clay films bridging sand grains; strongly effervescent; disseminated carbonates; 16 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Btk—11 to 17 inches; yellowish brown (10YR 5/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; hard, friable, moderately sticky and plastic; few very fine roots; common very fine and few fine and medium tubular pores; common thin clay films bridging sand grains and few moderately thick clay films on faces of peds and interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped threads; 30 percent gravel; slightly alkaline (pH 7.8); abrupt wavy boundary.

Cr—17 to 19 inches; highly fractured, mixed, calcareous sandstone conglomerate; slightly effervescent to strongly effervescent; carbonates that are segregated as common fine irregularly shaped threads; abrupt wavy boundary.

R—19 inches; hard, calcareous, sandstone conglomerate bedrock.

Location of typical pedon: Fresno County, California; about 1 mile east of the intersection of the San Benito, Merced, and Fresno Counties; 2,750 feet south and 2,000 feet west of the northeast corner of sec. 5, T. 14 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 44 minutes 31 seconds N. and long. 120 degrees 54 minutes 3 seconds W.; USGS Cerro Colorado Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 59 to 66 degrees F. Depth to a paralithic contact ranges from 10 to 18 inches. Depth to a lithic contact ranges from 12 to 20 inches.

The A horizon has a clay content of 10 to 20 percent. The content of gravel ranges from 15 to 35 percent. The content of cobbles ranges from 0 to 3 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has a clay content of 20 to 35 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The content of gravel ranges from 15 to 35 percent. The content of cobbles ranges from 0 to 7 percent.

The Btk horizon has a clay content of 20 to 35 percent. The calcium carbonate equivalent ranges from 3 to 5 percent. The content of gravel ranges from 15 to 35 percent. The content of cobbles ranges from 0 to 7 percent.

Reliz Taxadjunct

The Reliz taxadjunct consists of shallow, well drained soils on mountains. These soils formed in material weathered from acid shale. Slopes range from 25 to 65 percent.

Taxonomic class: Loamy-skeletal, mixed, semiactive, mesic, shallow Ultic Haploxeralfs

Typical Pedon

Map unit: Reliz channery loam, in an area of Reliz-Gewter-Rock outcrop association, 25 to 75 percent slopes

A—0 to 3 inches; grayish brown (10YR 5/2) channery loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; moderately hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 20 percent acid channers and 8 percent mudstone parachanners; very strongly acid (pH 5.0); clear wavy boundary.

Bt1—3 to 7 inches; brown (10YR 5/3) very channery clay loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine tubular pores; few patchy distinct clay films on faces of peds; 40 percent acid channers and 8 percent mudstone parachanners; extremely acid (pH 4.1); gradual wavy boundary.

Bt2—7 to 15 inches; pale brown (10YR 6/3) extremely channery clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few fine and coarse roots; common very fine tubular pores; common patchy distinct clay films on faces of peds and rock fragments; 65 percent acid channers and 8 percent mudstone parachanners; extremely acid (pH 4.3); gradual wavy boundary.

Cr—15 to 20 inches; weathered, acid shale.

Location of typical pedon: Fresno County, California; about 3.6 miles southwest of the intersection of Highway 198 and Coalinga Mineral Springs Road; 1,350 feet west and 450 feet south of the northeast corner of sec. 3, T. 22 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 3 minutes 5 seconds N. and long. 120 degrees 33 minutes 12 seconds W.; USGS Smith Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with weathered, acid shale ranges from 10 to 20 inches. The mean annual soil temperature ranges from 55 to 59 degrees F. The content of organic matter is less than one percent.

The A horizon has a clay content ranging from 20 to 27 percent. The content of channers ranges from 15 to 25 percent. The content of parachanners ranges from 5 to 10 percent. Reaction is very strongly acid or strongly acid.

The B horizon has a clay content ranging from 27 to 35 percent. The content of channers ranges from 35 to 70 percent. The content of parachanners ranges from 5 to 10 percent.

The Reliz soil is a taxadjunct to the series. It differs from the Reliz series by having an argillic horizon. This difference, however, does not significantly affect use and management.

Roacha Series

The Roacha series consists of well drained, moderately deep soils on mountains. These soils formed in material weathered from fractured, soft and hard shale. Slopes range from 30 to 65 percent.

Taxonomic class: Fine, smectitic, mesic Typic Argixerolls

Typical Pedon

Map unit: Roacha silty clay loam, in an area of Roacha-Millsholm-Lilten association, 30 to 65 percent slopes

A—0 to 4 inches; brown (10YR 5/3) silty clay loam, dark brown (10YR 3/3) moist; strong medium and coarse subangular blocky structure; slightly hard, friable, very sticky and very plastic; many very fine and fine roots; many very fine and fine tubular and interstitial pores; common moderately thick pressure faces; 5 percent fragments of hard shale 0.25 to 1 inch in size; 1-inch wide cracks at the surface; neutral (pH 7.0); clear smooth boundary.

Bt1—4 to 14 inches; brown (10YR 4/3) silty clay, dark brown (10YR 3/3) moist; strong medium angular blocky structure; slightly hard, friable, very sticky and very plastic; many very fine and fine and common medium roots; many very fine and fine and few medium tubular and interstitial pores; common moderately thick pressure faces; few moderately thick clay films bridging sand grains; 5 percent fragments of hard shale 0.25 to 1 inch in size; neutral (pH 7.0); clear smooth boundary.

Bt2—14 to 22 inches; dark yellowish brown (10YR 4/4) clay, brown (10YR 4/3) moist; strong fine and medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; few very fine and coarse and common fine and medium roots; common very fine, fine, and medium tubular and interstitial pores; common moderately thick pressure faces; 0.25-inch wide cracks; few moderately thick clay films bridging sand grains; 5 percent fragments of hard shale 0.25 to 1 inch in size; neutral (pH 7.2); clear wavy boundary.

C—22 to 28 inches; yellowish brown (10YR 5/4) and light yellowish brown (2.5Y 6/4) gravelly clay, dark yellowish brown (10YR 3/4) and olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, very sticky and very plastic; common medium and coarse roots; common fine and medium tubular pores; common thin pressure faces; slightly effervescent; disseminated carbonates; 20 percent fragments of hard shale 0.12 to 0.75 inch in size; slightly alkaline (pH 7.5).

Cr—28 to 37 inches; highly fractured, soft shale.

Location of typical pedon: Fresno County, California; 0.65 mile southeast of Los Gatos Creek road and Atlas Mine road gate, about 1,800 feet east of Los Gatos Creek; 900 feet south and 2,300 feet east of the northwest corner of sec. 30, T. 19 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 15 minutes 14 seconds N. and long. 120 degrees 36 minutes 31 seconds W.; USGS Santa Rita Peak Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with fractured, soft and hard shale ranges from 20 to 40 inches. In most years, the moisture control section at a depth of 7 to 21 inches is moist from December 1 to June 1 and dry from July 1 to September 15. The soil temperature is more than 47 degrees F from April 15 to November 15. The mean annual soil temperature ranges from 54 to 58 degrees F. The content of clay in the control section ranges from 40 to 55 percent. Cracks are as wide as 1 inch in the surface but diminish to 0.25 inch or less within a depth of 20 inches.

The A horizon has dry color of 10YR 5/2 or 5/3. Moist color is 10YR 3/3 or 3/2. The content of organic matter ranges from 1 to 3 percent. The content of clay ranges from 30 to 40 percent. The content of gravel ranges from 2 to 10 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has dry color of 10YR 4/3, 4/4, 5/3, 5/4, or 6/4 or 2.5Y 6/4. Moist color is 10YR 3/3, 3/4, 4/3, or 4/4 or 2.5Y 4/4. Chroma of more than 3, dry and moist, and value of more than 3, moist, are present in the lower part of the horizon. The content of organic matter ranges from 0.7 to 2 percent. Texture is silty clay or clay. The content of clay ranges from 40 to 55 percent. The content of gravel ranges from 2 to 10 percent. Reaction is neutral or slightly alkaline.

The C horizon has dry color of 10YR 5/4, 6/3, 6/4, or 6/6 or 2.5Y 6/4. Moist color is 10YR 3/4, 4/3, 4/4, 5/3, or 5/4 or 2.5Y 4/4 or 5Y 4/4. The content of organic matter ranges from 0.4 to 0.8 percent. Texture is gravelly clay loam, gravelly silty clay loam, gravelly clay, or gravelly silty clay. The content of clay ranges from 35 to 50 percent.

The content of gravel ranges from 15 to 30 percent. The horizon is slightly effervescent or non-effervescent. Reaction is neutral or slightly alkaline.

The Roacha soil in map units 705 and 712 is a taxadjunct to the series. It differs from the Roacha series by having an ochric epipedon rather than a mollic epipedon and by being slightly acid rather than neutral. It classifies as a fine, smectitic, mesic Typic Haploxeralf. These differences, however, do not significantly affect use and management.

Roacha Taxadjunct

The Roacha taxadjunct consists of well drained, moderately deep soils on mountains. These soils formed in material weathered from fractured, marine shale. Slopes range from 30 to 50 percent.

Taxonomic class: Fine, smectitic, mesic Typic Haploxeralfs

Typical Pedon

Map unit: Roacha silty clay loam, 30 to 50 percent slopes

A—0 to 5 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; strong coarse angular blocky structure; extremely hard, friable, moderately sticky and moderately plastic; common very fine roots; few very fine tubular pores; 5 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

Bt1—5 to 10 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; strong coarse prismatic structure parting to strong coarse subangular blocky; hard, friable, very sticky and moderately plastic; few very fine roots; common very fine tubular and few very fine interstitial pores; few thin clay films in pores; 5 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.

Bt2—10 to 25 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; weak coarse prismatic structure parting to strong coarse angular blocky; very hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine tubular pores; many moderately thick clay films on faces of peds; 10 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.

Bt3—25 to 36 inches; pale brown (10YR 6/3) gravelly clay, brown (10YR 4/3) moist; weak medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine tubular pores; many moderately thick clay films bridging sand grains and common thin clay films in pores; slightly acid (pH 6.5); clear smooth boundary.

Cr—36 to 40 inches; highly fractured shale.

Location of typical pedon: Fresno County, California; about 3,500 feet northwest of the intersection of Monterey, Kings, and Fresno Counties; about 2,200 feet south and 2,000 feet west of the northeast corner of sec. 23, T. 23 S., R. 15 E., Mount Diablo Base and Meridian; lat. 35 degrees 54 minutes 54 seconds N. and long. 120 degrees 19 minutes 17 seconds W.; USGS The Dark Hole Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with fractured marine shale ranges from 20 to 40 inches. In most years, the moisture control section at a depth of 7 to 21 inches is moist from December 1 to June 1 and dry from July 1 to September 15. The soil temperature is more than 47 degrees F from April 15 to November 15. The mean annual soil temperature ranges from 54 to 58 degrees F. The content of clay in the control section ranges from 40 to 55 percent. Cracks are as wide as 1 inch in the surface but diminish to 0.25 inch or less within a depth of 20 inches.

The A horizon has dry color of 10YR 6/2 or 6/3. Moist color is 10YR 4/2 or 4/3. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 30 to 40 percent. The content of gravel ranges from 2 to 10 percent.

The Bt1 and Bt2 horizons have dry color of 10YR 6/3 or 6/4 or 2.5Y 6/4. Moist color is 10YR 4/3 or 4/4 or 2.5Y 4/4. The content of organic matter ranges from 0.5 to 1 percent. Texture is silty clay or clay. The content of clay ranges from 40 to 55 percent. The content of gravel ranges from 2 to 10 percent.

The Bt3 horizon has dry color of 10YR 6/3, 6/4, or 6/6 or 2.5Y 6/4. Moist color is 10YR 4/3, 4/4, 5/3, or 5/4; 2.5Y 4/4; or 5Y 4/4. The content of organic matter ranges from 0.2 to 0.5 percent. Texture is gravelly clay loam, gravelly silty clay loam, gravelly clay, or gravelly silty clay. The content of clay ranges from 35 to 50 percent. The content of gravel ranges from 15 to 30 percent. The horizon is slightly effervescent or non-effervescent. Reaction is slightly acid or neutral.

The Roacha soil in map units 705 and 712 is a taxadjunct to the series. It differs from the Roacha series by having an ochric epipedon rather than a mollic epipedon and by being slightly acid rather than neutral. These differences, however, do not significantly affect use and management.

Sagaser Series

The Sagaser series consists of deep, well drained soils on mountains. These soils formed in material weathered from marine sandstone and shale. Slopes range from 50 to 75 percent.

Taxonomic class: Fine-loamy, mixed, superactive, mesic Typic Argixerolls

Typical Pedon

Map unit: Sagaser loam, 50 to 75 percent slopes

A1—0 to 3 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate very fine subangular blocky; slightly hard, very friable, nonsticky and slightly plastic; many very fine roots; many very fine and fine tubular pores; neutral (pH 7.0); abrupt smooth boundary.

A2—3 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to moderate very fine subangular blocky; slightly hard, very friable, nonsticky and slightly plastic; many very fine roots; many very fine tubular pores; neutral (pH 7.0); abrupt wavy boundary.

Bt1—7 to 17 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; many very fine roots; common fine and many very fine tubular pores; many distinct discontinuous very dark grayish brown (10YR 3/2), moist, clay films on faces of peds and in pores; 2 percent gravel; neutral (pH 7.2); clear wavy boundary.

Bt2—17 to 29 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, very friable, moderately sticky and slightly plastic; many very fine and fine roots; common medium and fine and many very fine tubular pores; many distinct discontinuous very dark grayish brown (10YR 3/2) clay films on faces of peds and in pores; 5 percent gravel; neutral (pH 7.3); clear wavy boundary.

Bt3—29 to 50 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; common very fine roots; many fine and tubular pores; many distinct discontinuous very dark grayish brown (10YR 3/2), moist, clay films in root channels and pores and on faces of peds; 10 percent gravel; neutral (pH 7.3); clear wavy boundary.

Cr—50 to 60 inches; yellowish brown (10YR 5/4) weathered sandstone and shale, dark yellowish brown (10YR 4/4) moist; distinct continuous light gray (2.5Y 7/2) coats on rock fragments; angular shale fragments 20 to 75 millimeters in size; neutral (pH 7.0).

Location of typical pedon: Fresno County, California; about 3.5 miles northeast of the intersection of the Kings, Monterey, and Fresno Counties; 2,380 feet south and 600 feet east of the northwest corner of sec. 8, T. 23 S., R. 16 E., Mount Diablo Base and Meridian; lat. 35 degrees 56 minutes 37 seconds N. and long. 120 degrees 16 minutes 7 seconds W.; USGS The Dark Hole Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact ranges from 40 to 60 inches. The mean annual soil temperature ranges from 55 to 58 degrees F. The content of organic matter ranges from 2 to 3 percent in the A horizon and decreases regularly with depth.

The A horizon has dry color of 10YR 4/3, 5/2, or 5/3. Moist color is 10YR 3/2 or 3/3. The content of clay ranges from 20 to 27 percent. The content of gravel ranges from 0 to 3 percent.

The Bt horizon has dry color of 10YR 5/3 or 5/4. Moist color is 10YR 3/3, 4/4, or 5/4. The content of clay ranges from 27 to 35 percent. The content of gravel ranges from 2 to 15 percent. Reaction is neutral or slightly alkaline.

Some pedons have a C horizon.

Tachi Series

The Tachi series consists of very deep, very poorly drained soils on flood plains on basin floors. These soils formed in alluvium derived from igneous rock, sedimentary rock, or both. Slopes are 0 to 1 percent.

Taxonomic class: Very-fine, smectitic, thermic Typic Natraquerts

Typical Pedon

Map unit: Tachi clay, 0 to 1 percent slopes

Ap1—0 to 5 inches; very dark gray (5Y 3/1) clay, black (5Y 2/1) moist; strong medium subangular blocky structure; very hard, firm, very sticky and very plastic; many very fine and few fine roots; few very fine tubular and common very fine interstitial pores; slightly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses; electrical conductivity of 1.3 decisiemens per meter; sodium adsorption ratio of 4; moderately alkaline (pH 8.0); abrupt smooth boundary.

Ap2—5 to 14 inches; dark gray (5Y 4/1) clay, black (5Y 2/1) moist; strong coarse prismatic structure; very hard, firm, very sticky and very plastic; many very fine and few fine roots; common very fine tubular and interstitial pores; slightly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses; electrical conductivity of 3.7; sodium adsorption ratio of 12; moderately alkaline (pH 7.9); abrupt wavy boundary.

Bknssg1—14 to 22 inches; variegated dark gray (5Y 4/1) and olive gray (5Y 5/2) clay, variegated black (N 2/0) and black (5Y 2/1) moist; strong very coarse prismatic structure; very hard, firm, very sticky and very plastic; common very fine roots; common very fine interstitial pores; common intersecting slickensides; few fine irregularly shaped dark reddish brown (5YR 3/4), moist, concretions; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses; electrical conductivity of 2.4 decisiemens per meter; sodium adsorption ratio of 14; few fine prominent red (2.5YR 4/6), moist, redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bknssg2—22 to 28 inches; variegated dark gray (5Y 4/1) and olive gray (5Y 5/2) clay, variegated black (N 2/0) and very dark gray (5Y 3/1) moist; weak medium prismatic structure; very hard, firm, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; many intersecting slickensides; slightly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses; electrical conductivity of 2.2; sodium adsorption ratio of 13; common fine prominent strong brown (7.5YR 5/6) and black (N 2/0), moist, redoximorphic masses in which iron and manganese have accumulated; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bknssg3—28 to 35 inches; variegated dark gray (5Y 4/1) and light gray (5Y 7/1) clay, gray (5Y 5/1) moist; massive; very hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; common intersecting slickensides; slightly effervescent; carbonates that are segregated as few fine irregularly shaped soft masses; electrical conductivity of 2.0; sodium adsorption ratio of 16; many medium prominent black (N 2/0) and strong brown (7.5YR 5/6), moist, redoximorphic masses in which iron and manganese have accumulated; strongly alkaline (pH 8.9); clear wavy boundary.

Bkng1—35 to 47 inches; gray (5Y 5/1) clay, very dark gray (5Y 3/1) moist; massive; extremely hard, friable, very sticky and very plastic; few very fine tubular pores; many pressure faces; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped masses; electrical conductivity of 2.8 decisiemens per meter; sodium adsorption ratio of 26; common fine prominent olive (5Y 4/4), few fine prominent gray (5Y 6/1), and common fine distinct black (N 2/0), moist, redoximorphic masses in which iron and manganese have accumulated; strongly alkaline (pH 8.6); abrupt wavy boundary.

Bkng2—47 to 63 inches; dark gray (5Y 4/1) clay, variegated dark gray (5Y 4/1) and very dark gray (5Y 3/1) moist; massive; very hard, friable, very sticky and very plastic; few very fine tubular pores; many pressure faces; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses and threads; electrical conductivity of 3.2 decisiemens per meter; sodium adsorption ratio of 34; few fine prominent yellowish red (5YR 4/6), moist, redoximorphic masses in which iron has accumulated; strongly alkaline (pH 9.0); abrupt smooth boundary.

Bkng3—63 to 70 inches; variegated gray (5Y 6/1), dark gray (5Y 4/1), and light olive gray (5Y 6/2) clay, variegated dark gray (5Y 4/1) and very dark gray (5Y 3/1) moist; common fine prominent reddish yellow (7.5YR 6/6) and yellowish red (5YR 4/6), moist, and few fine distinct black (5Y 2/1), moist, mottles; massive; very hard, friable, sticky and very plastic; few very fine tubular pores; many pressure faces; violently effervescent; carbonates that are disseminated and are segregated as common medium irregularly shaped soft masses; electrical conductivity of 4.6 decisiemens per meter; sodium adsorption ratio of 39; common fine prominent reddish yellow (7.5YR 6/6) and yellowish red (5YR 4/6) and few fine distinct black (5Y 2/1), moist, redoximorphic masses in which iron and manganese have accumulated; strongly alkaline (pH 8.8).

Location of typical pedon: Fresno County, California; Mendota Wildlife Management Area; 120 feet north of a road and 180 feet west of a road; about 1,420 feet east and 120 feet north of the southwest corner of sec. 22, T. 14 S., R. 15 E., Mount Diablo Base and Meridian; lat. 36 degrees 41 minutes 25 seconds N. and long.

120 degrees 19 minutes 36 seconds W.; USGS Tranquillity Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are saturated in some or all parts at some time of the year. The mean annual soil temperature ranges from 63 to 65 degrees F. Some part of the profile is typically saline-sodic. When these soils are dry, 1- to 6-inch wide vertical cracks extend from the surface to a depth of 20 to 40 inches.

The Ap horizon has dry color of 5Y 3/1, 4/1, or 5/2. Moist color is 5Y 2/1, 2/2, or 3/1 or N 2/0. The content of organic matter ranges from 1 to 3 percent. The content of clay ranges from 60 to 75 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. Electrical conductivity ranges from 1 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 2 to 20. In some pedons, the lower part of the horizon has redoximorphic features. In pedons where the horizon has chroma of 1.5 or higher, the horizon has distinct or prominent redoximorphic features.

The Bknssg horizon has dry color of 5Y 4/1, 5/1, 5/2, 6/1, 6/2, or 7/1 or 10YR 7/2. Moist color is 5Y 2/1, 3/1, 3/2, 4/1, 4/2, 5/1, 5/2, 5/3, 5/4, or 6/3; 2.5Y 4/2; 10YR 4/2; or N 2/0. The content of organic matter ranges from 0.5 to 1 percent. The content of clay ranges from 60 to 75 percent. The horizon has intersecting slickensides throughout. The calcium carbonate equivalent ranges from 1 to 3 percent. Electrical conductivity ranges from 2 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 25. In pedons where the horizon has chroma of 1.5 or higher, the horizon has distinct or prominent redoximorphic features.

The Bkng horizon has dry color of 5Y 4/1, 5/1, 5/2, 6/1, 6/2, or 7/1 or 10YR 7/2. Moist color is 5Y 2/1, 3/1, 3/2, 4/1, 4/2, 5/1, 5/2, 5/3, 5/4, or 6/3; 2.5Y 4/2; 10YR 4/2; or N 2/0. The content of organic matter ranges from 0.4 to 0.8 percent. Texture is clay or silty clay. The content of clay ranges from 40 to 70 percent. The calcium carbonate equivalent ranges from 1 to 5 percent. Electrical conductivity ranges from 2 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 13 to 50.

Additional data for the Bknssg1, Bknssg2, and Bknssg3 horizons in the typical pedon, sample number 80CA019001 (827419-827421), are available in the Appendix.

Tranquillity Series

The Tranquillity series consists of very deep, somewhat poorly drained soils on fan skirts. These soils formed in alluvium derived dominantly from calcareous sedimentary rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine, smectitic, thermic Sodic Haploxererts

Typical Pedon

Map unit: Tranquillity clay, saline-sodic, wet, 0 to 1 percent slopes

Ap1—0 to 6 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; strong coarse subangular blocky structure; extremely hard, very firm, very sticky and very plastic; common very fine roots; few very fine tubular pores; violently effervescent; disseminated carbonates; calcium carbonate equivalent of 3 percent; electrical conductivity of 2.6 decisiemens per meter; sodium adsorption ratio of 14; moderately alkaline (pH 8.2); abrupt smooth boundary.

Ap2—6 to 16 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine tubular pores; violently effervescent; carbonates that are disseminated and are segregated as few fine irregularly shaped concentrations; calcium carbonate equivalent of 4 percent;

common fine irregularly shaped gypsum crystals; gypsum content of less than 1 percent; electrical conductivity of 8.7 decisiemens per meter; sodium adsorption ratio of 24; moderately alkaline (pH 8.3); abrupt smooth boundary.

Bknssyz1—16 to 31 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine tubular pores; common intersecting slickensides; strongly effervescent; carbonates that are disseminated and are segregated as common fine threads; calcium carbonate equivalent of 4 percent; common fine irregularly shaped gypsum crystals; gypsum content of 1 percent; electrical conductivity of 10.7 decisiemens per meter; sodium adsorption ratio of 28; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bknssyz2—31 to 48 inches; light yellowish brown (2.5Y 6/4) clay, olive brown (2.5Y 4/4) moist; massive; hard, very firm, very sticky and very plastic; few very fine tubular pores; common intersecting slickensides; strongly effervescent; carbonates that are disseminated and are segregated as common fine threads; calcium carbonate equivalent of 4 percent; common fine irregularly shaped gypsum crystals; gypsum content of 2 percent; electrical conductivity of 10.9 decisiemens per meter; sodium adsorption ratio of 29; few fine prominent recent brown (7.5YR 4/4), moist, irregularly shaped masses in which iron has accumulated; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bknyz—48 to 65 inches; light yellowish brown (2.5Y 6/4) silty clay, olive brown (2.5Y 4/4) moist; massive; hard, firm, sticky and very plastic; few very fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine threads; calcium carbonate equivalent of 4 percent; common fine irregularly shaped gypsum crystals; gypsum content of 6 percent; electrical conductivity of 12.6 decisiemens per meter; sodium adsorption ratio of 33; moderately alkaline (pH 8.2); abrupt smooth boundary.

Location of typical pedon: Fresno County, California; about 3 miles south of the community of Mendota and 142 feet south of Jensen Avenue; about 142 feet south and 1,550 feet west of the northeast corner of sec. 19, T. 14 S., R. 15 E., Mount Diablo Base and Meridian; lat. 36 degrees 42 minutes 16 seconds N. and long. 120 degrees 22 minutes 26 seconds W.; USGS Tranquillity Topographic Quadrangle, NAD 27.

Range in Characteristics

Unless these soils are irrigated, vertical cracks extend from the surface when the soils are dry and range from 0.5 to 2 inches in width at a depth of 20 inches. The cracks usually close from December thru April for 100 to 151 consecutive days. Intersecting slickensides occur in some horizon or horizons below a depth of 16 inches, just below the modified Ap horizons. The mean annual soil temperature ranges from 63 to 66 degrees F.

The Ap horizon has dry color of 5Y 4/1, 5/1, or 5/2 or 2.5Y 5/2, 5/3, 5/4, 6/2, 6/3, or 6/4. Moist color is 5Y 4/1, 4/2, 4/3, or 4/4 or 2.5Y 4/2, 4/3, or 4/4. The content of organic matter ranges from 0.5 to 2 percent. Texture is clay or silty clay. Linear extensibility ranges from 9 to 15 percent. The calcium carbonate equivalent ranges from 1 to 4 percent. The content of gypsum ranges from 0 to 3 percent. Electrical conductivity ranges from 0 to 15 decisiemens per meter. The sodium adsorption ratio ranges from 4 to 25.

The B horizon has dry color of 5Y 5/2, 6/1, or 6/2 or 2.5Y 5/2, 6/2, 6/3, or 6/4. Moist color is 5Y 5/1 or 2.5Y 4/2, 4/3, 4/4, 5/2, or 5/3. The content of organic matter ranges from 0.1 to 1 percent. Texture is clay or silty clay. Linear extensibility ranges from 6 to 15 percent to a depth of at least 50 inches and from 3 to 14 percent below 50 inches. The calcium carbonate equivalent ranges from 2 to 5 percent. The content of gypsum ranges from 0 to 8 percent. Electrical conductivity ranges from 2 to 15 decisiemens per meter. The sodium adsorption ratio ranges from 8 to 50. Most horizons within a depth of 40 inches have a sodium adsorption ratio greater than 13 for 6 or more months in most years. Electrical conductivity, sodium adsorption ratio, and gypsum content are affected by agricultural practices and by the depth to a high water table.

Additional characterization data for this typical pedon, sample number 86CA019001 (3123-3127), and characterization data for sample number 87CA019013 (1470-1477), which is the typical pedon for the Tranquillity clay, saline-sodic component, in map unit 285, are available from the National Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska, and in the Appendix. Other characterization sample numbers include 85CA019002 (5357-5362) and 85CA019003 (taxadjunct, 5363-5368). The additional data include measurements of selenium content.

Vaquero Series

The Vaquero series consists of moderately deep, well drained soils on mountains. These soils formed in mass-movement deposits derived from calcareous shale, sandstone, or both. Slopes range from 15 to 75 percent.

Taxonomic class: Fine, smectitic, thermic Aridic Haploxererts

Typical Pedon

Map unit: Vaquero clay, 30 to 65 percent slopes, in an area of Vaquero-Grazer association, 15 to 65 percent slopes

A—0 to 3 inches; light brownish gray (10YR 6/2) clay, grayish brown (2.5Y 5/2) moist; strong medium platy and subangular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots; many very fine and fine tubular and interstitial pores; 1-inch wide cracks at the surface; neutral (pH 7.2); abrupt smooth boundary.

Bss1—3 to 8 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; strong medium and coarse angular blocky structure; very hard, firm, very sticky and very plastic; common very fine and fine roots; common very fine and fine tubular and interstitial pores; many thick pressure faces; vertical and intersecting slickensides; slightly alkaline (pH 7.5); clear smooth boundary.

Bss2—8 to 17 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; strong medium and very coarse prismatic structure; very hard, firm, very sticky and very plastic; common very fine roots; common very fine and fine tubular and interstitial pores; many thick pressure faces; vertical and intersecting slickensides; slightly alkaline (pH 7.5); clear smooth boundary.

Bssk—17 to 25 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; strong coarse and very coarse prismatic structure; very hard, firm, very sticky and very plastic; few very fine roots; common very fine tubular and interstitial pores; many thick pressure faces; vertical and intersecting slickensides; 0.5-inch wide cracks; slightly effervescent; carbonates that are disseminated and are segregated as few fine threads; slightly alkaline (pH 7.7); clear smooth boundary.

Bk—25 to 36 inches; light yellowish brown (2.5Y 6/4) clay, light olive brown (2.5Y 5/4) moist; moderate medium prismatic and angular blocky structure; very hard, firm, very sticky and very plastic; few very fine tubular and interstitial pores; slightly effervescent; carbonates that are disseminated and are segregated as few fine threads; slightly alkaline (pH 7.7); abrupt irregular boundary.

Cr—36 to 40 inches; soft shale.

Location of typical pedon: Fresno County, California; about 1.35 miles west of Joaquin Rocks, 3.9 miles west-northwest of Black Mountain radio tower; about

2,300 feet north and 2,050 feet east of the southwest corner of sec. 32, T. 18 S., R. 14 E., Mount Diablo Base and Meridian; lat. 36 degrees 19 minutes 7 seconds N. and long. 120 degrees 28 minutes 26 seconds W.; USGS Joaquin Rocks Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with calcareous shale, sandstone, or both ranges from 20 to 40 inches. The mean annual soil temperature ranges from 59 to 64 degrees F. When dry, these soils have cracks that are 1 to 2 inches wide at the surface and narrow to 0.5 to 0.75 inch at a depth of 20 inches. Vertical and intersecting slickensides are present between depths of 3 to 25 inches. The content of clay ranges from 40 to 60 percent. The content of gravel ranges from 0 to 3 percent.

The A horizon has dry color of 10YR 5/3, 5/4, 6/2, or 6/3 or 2.5Y 5/2 or 6/2. Moist color is 10YR 4/2 or 4/3 or 2.5Y 4/2, 4/4, or 5/2. The content of organic matter ranges from 1 to 3 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 8. Reaction is neutral or slightly alkaline.

The Bss horizon has dry color of 10YR 5/3, 5/4, 6/2, or 6/3 or 2.5Y 5/2 or 6/2. Moist color is 10YR 4/3 or 2.5Y 4/2, 4/4, or 5/2. The content of organic matter ranges from 0.8 to 2.0 percent. The calcium carbonate equivalent is 0 to 1 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 12. Reaction is slightly alkaline or moderately alkaline.

The Bssk and Bk horizons have dry color of 10YR 5/3, 6/2, or 6/3 or 2.5Y 5/2, 5/4, or 6/4. Moist color is 10YR 4/3 or 2.5Y 4/2, 4/4, or 5/4. The content of organic matter ranges from 0.3 to 1.0 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. Electrical conductivity ranges from 2 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 4 to 12. Reaction is slightly alkaline or moderately alkaline.

Vernado Series

The Vernado series consists of moderately deep, well drained soils on escarpments on mountain slopes. These soils formed in material weathered from marine sandstone. Slopes range from 40 to 65 percent.

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Pachic Haploxerolls

Typical Pedon

Map unit: Vernado sandy loam, in an area of Getrail-Vernado-Rock outcrop association, 15 to 65 percent slopes

A1—0 to 6 inches; brown (7.5YR 5/4) sandy loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common medium and fine tubular and many very fine and fine interstitial pores; neutral (pH 6.8); clear smooth boundary.

A2—6 to 13 inches; brown (7.5YR 5/4) sandy loam, dark reddish brown (5YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine and common medium and coarse roots; common fine and medium tubular and many very fine and fine interstitial pores; neutral (pH 7.0); clear smooth boundary.

A3—13 to 22 inches; reddish brown (5YR 5/4) sandy loam, dark reddish brown (5YR 3/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and common fine, medium, and coarse roots; few medium and common fine tubular and many very fine interstitial pores; neutral (pH 7.2); clear smooth boundary.

C/R—22 to 29 inches; reddish brown (5YR 5/4) sandy loam, dark reddish brown (5YR 3/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and common fine, medium, coarse, and very coarse roots; roots flattened on top; few medium and common fine tubular and many very fine interstitial pores; 50 percent interlaced sandstone rock; neutral (pH 7.3); abrupt wavy boundary.

R—29 to 32 inches; unweathered sandstone.

Location of typical pedon: Fresno County, California; about 5.25 miles west-southwest of Lillis Ranch, 2,800 feet south of Cantua Creek; about 2,220 feet directly east of the northwest corner of sec. 9, T. 18 S., R. 13 E., Mount Diablo Base and Meridian; lat. 36 degrees 23 minutes 6 seconds N. and long. 120 degrees 33 minutes 47 seconds W.; USGS Ciervo Mountain Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact with sandstone ranges from 25 to 35 inches. In most years, the moisture control section at a depth of 8 to 23 inches is moist from December 1 to June 1 and dry from July 1 to September 15. The soil temperature is more than 47 degrees F from April 15 to October 15. The mean annual soil temperature ranges from 56 to 58 degrees F.

The A horizon has dry color of 5YR 5/4 or 7.5YR 4/2, 5/2, 5/3, or 5/4. Moist color is 5YR 3/3 or 7.5YR 3/2. The content of organic matter ranges from 1 to 3 percent. The content of clay ranges from 14 to 20 percent. The content of gravel ranges from 0 to 3 percent. Reaction ranges from moderately acid to neutral.

The C/R horizon has dry color of 5YR 5/4 or 7.5YR 5/4. Moist color is 5YR 3/3 or 7.5YR 3/2 or 3/4. The content of organic matter ranges from 1 to 2 percent. The content of clay ranges from 15 to 20 percent. The content of gravel ranges from 0 to 3 percent. Reaction ranges from moderately acid to neutral. Reaction becomes less acid with depth.

The R layer has 0.5- to 1.5-inch wide cracks in hard sandstone. The cracks are 10 to 25 inches apart.

Vernalis Series

The Vernalis series consists of very deep, well drained soils on flood plains. These soils formed in alluvium derived from sandstone and shale. Slopes range from 0 to 5 percent.

Taxonomic class: Fine-loamy, mixed, superactive, thermic Calcic Haploxerepts

Typical Pedon

Map unit: Vernalis loam, 2 to 5 percent slopes

A—0 to 7 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and moderately plastic; many very fine and fine roots; few very fine and fine tubular and fine interstitial pores; 3 percent gravel; slightly acid (pH 6.1); clear smooth boundary.

Bt1—7 to 15 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; weak moderate prismatic structure parting to moderate medium subangular blocky; hard, friable, moderately sticky and moderately plastic; many very fine roots;

common very fine and fine tubular pores; very few thin clay films on faces of peds and pores; 3 percent gravel; neutral (pH 6.7); clear wavy boundary.

Bt2—15 to 22 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few coarse and common very fine and fine tubular pores; few thin clay films on faces of peds and lining pores; 8 percent gravel; neutral (pH 6.9); clear irregular boundary.

Bt3—22 to 28 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; few very fine roots; common very fine and fine tubular pores; few thin clay films lining pores; 5 percent gravel; neutral (pH 7.1); clear smooth boundary.

Btk—28 to 50 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine roots; few fine and many very fine tubular pores; few thin clay films lining pores and bridging sand grains; 10 percent gravel; strongly effervescent; carbonates that are disseminated and are segregated as many fine and few medium threads; moderately alkaline (pH 8.1); clear smooth boundary.

C—50 to 60 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, friable, nonsticky and slightly plastic; common very fine tubular pores; slightly effervescent; disseminated carbonates; 12 percent gravel; moderately alkaline (pH 8.4).

Location of typical pedon: Fresno County, California; about 13 miles southwest of Dos Palos and 3 miles northeast of Little Panoche Retention Dam; 1,100 feet east and 1,200 feet south of the northwest corner of sec. 27, T. 13 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 46 minutes 32 seconds N. and long. 120 degrees 52 minutes 17 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

The mean annual soil temperature ranges from 60 to 64 degrees F. These soils are 60 inches or more deep. The content of organic matter ranges from 1 to 2 percent in the A horizon and then decreases regularly with depth. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5.

The A horizon has dry color of 10YR 5/2, 5/3, 5/4, 5/6, 6/2, 6/3, or 6/4. Moist color is 10YR 3/2, 3/3, 3/4, 4/2, or 4/3. The content of clay ranges from 23 to 27 percent. The content of gravel ranges from 0 to 10 percent. Reaction ranges from slightly acid to slightly alkaline.

The Bt horizon has dry color of 10YR 4/3, 5/3, 5/4, 6/3, or 6/4. Moist color is 10YR 3/3, 4/3, 4/4, 5/3, or 5/4. The content of clay ranges from 27 to 32 percent. The horizon has few or common thin clay films in most pedons. The increase in content of clay from the A horizon to the Bt horizon, however, is less than 1.2 times. The calcium carbonate equivalent ranges from 0 to 2 percent. The content of gravel ranges from 0 to 10 percent. Reaction is neutral or slightly alkaline.

The Btk horizon has dry color of 10YR 5/3, 5/4, 6/3, or 6/4. Moist color is 10YR 4/3, 4/4, or 5/4. The content of clay ranges from 27 to 32 percent. The calcium carbonate equivalent ranges from 2 to 5 percent. The content of gravel ranges from 3 to 14 percent.

The C horizon has dry color of 10YR 5/3, 5/4, 6/3, or 6/4. Moist color is 10YR 4/3, 4/4, or 5/4. Texture is loam, sandy clay loam, or clay loam. The content of clay ranges from 18 to 32 percent. The calcium carbonate equivalent ranges from 1 to 3 percent. The content of gravel ranges from 7 to 14 percent.

Wasco Series

The Wasco series consists of very deep, well drained soils on alluvial fans. These soils formed in alluvium derived from sedimentary rock. Slopes range from 0 to 5 percent.

Taxonomic class: Coarse-loamy, mixed, superactive, nonacid, thermic Typic Torriorthents

Typical Pedon

Map unit: Wasco sandy loam, 0 to 2 percent slopes

Ap—0 to 8 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; moderate coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and few fine roots; few very fine tubular and many very fine interstitial pores; neutral (pH 7.2); abrupt smooth boundary.

A—8 to 21 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular and many very fine interstitial pores; neutral (pH 6.8); abrupt smooth boundary.

C1—21 to 30 inches; pale yellow (2.5Y 7/4) sandy loam, olive brown (2.5Y 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine tubular and interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine rounded soft masses; slightly alkaline (pH 7.6); abrupt smooth boundary.

C2—30 to 50 inches; light gray (2.5Y 7/2) sandy loam with thin strata of loamy coarse sand, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; common very fine tubular and many very fine interstitial pores; slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.8); abrupt smooth boundary.

C3—50 to 64 inches; light gray (2.5Y 7/2) coarse sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many very fine tubular and interstitial pores; slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.6); abrupt smooth boundary.

C4—64 to 72 inches; light gray (2.5Y 7/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine tubular and many very fine interstitial pores; slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.8).

Location of typical pedon: Fresno County, California; about 6 miles south of the community of Huron, 1,290 feet east of Lassen Avenue and 135 feet south of Goodrich Avenue; 135 feet south and 1,350 feet west of the northeast corner of sec. 14, T. 21 S., R. 17 E., Mount Diablo Base and Meridian; lat. 36 degrees 6 minutes 31 seconds N. and long. 120 degrees 5 minutes 49 seconds W.; USGS La Cima Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are 60 inches or more in depth. The content of organic matter is less than 1 percent and decreases regularly with depth. Electrical conductivity ranges from 0 to 2 decisiemens per meter.

The A horizon has dry color of 10YR 6/3 or 2.5Y 6/2. Moist color is 10YR 4/2 or 5/2 or 2.5Y 4/2. The content of clay ranges from 8 to 18 percent. The sodium adsorption ratio ranges from 0 to 5.

The C horizon has dry color of 10YR 6/3 or 6/4 or 2.5Y 7/2 or 7/4. Moist color is 10YR 4/2, 4/3, or 4/6 or 2.5Y 4/2, 4/4, 5/2, 5/4, or 6/2. Texture is coarse sandy loam, sandy loam, or fine sandy loam. The content of clay ranges from 5 to 18 percent. The calcium carbonate equivalent ranges from 0 to 2 percent. The sodium adsorption ratio ranges from 0 to 10. Reaction is slightly alkaline or moderately alkaline.

Wekoda Series

The Wekoda series consists of very deep, poorly drained soils on flood plains and basin floors. These soils formed in mixed alluvium derived dominantly from sedimentary rock. Slopes are 0 to 1 percent.

Taxonomic class: Fine, smectitic, thermic Aquic Haploxererts

Typical Pedon

Map unit: Wekoda clay, partially drained, 0 to 1 percent slopes

Ap—0 to 7 inches; gray (5Y 5/1) and dark gray (5Y 4/1) clay, dark olive gray (5Y 3/2) moist; strong coarse and medium angular blocky structure; very hard, firm, moderately sticky and very plastic; many very fine roots; many very fine and few fine tubular pores; common fine prominent yellowish red (5YR 5/6), moist, recent redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.0); abrupt smooth boundary.

A—7 to 12 inches; dark gray (5Y 4/1) clay, dark olive gray (5Y 3/2) moist; strong coarse and medium angular blocky structure; very hard, firm, moderately sticky and very plastic; common very fine roots; common very fine and fine tubular pores; electrical conductivity of 2 decisiemens per meter; sodium adsorption ratio of 2; common fine prominent yellowish red (5YR 5/6), moist, recent redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bss1—12 to 16 inches; olive gray (5Y 4/2) clay, dark olive gray (5Y 3/2) moist; strong coarse and medium angular blocky structure; very hard, firm, moderately sticky and very plastic; many very fine roots; many very fine and few fine tubular pores; intersecting slickensides throughout the horizon; slightly effervescent; disseminated carbonates; many medium distinct olive brown (2.5Y 4/4), moist, recent redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.0); clear wavy boundary.

Bss2—16 to 22 inches; olive (5Y 5/3) clay, olive brown (2.5Y 4/4) moist; strong coarse and medium angular blocky structure; very hard, firm, moderately sticky and very plastic; few very fine roots; common very fine and few fine tubular pores; intersecting slickensides throughout the horizon; electrical conductivity of 4 decisiemens per meter; sodium adsorption ratio of 3; common large distinct olive brown (2.5Y 4/4), moist, recent redoximorphic masses in which iron has accumulated; moderately alkaline (pH 8.0); clear wavy boundary.

Bkyg—22 to 35 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; massive; very hard, firm, moderately sticky and very plastic; very few very fine roots; few very fine tubular pores; many medium irregularly shaped soft masses of gypsum; few pieces of soft clay shale; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped soft masses; common medium distinct dark olive gray (5Y 3/2), moist, recent redoximorphic depletions; moderately alkaline (pH 8.2); diffuse wavy boundary.

Bky—35 to 47 inches; light yellowish brown (2.5Y 6/4) clay, olive brown (2.5Y 4/4) moist; massive; very hard, firm, moderately sticky and very plastic; few very fine tubular pores; common medium irregularly shaped soft masses of gypsum; many pieces of soft shale; electrical conductivity of 4 decisiemens per meter; sodium adsorption ratio of 8; strongly effervescent; carbonates that are disseminated and are segregated as common medium irregularly shaped soft masses; few medium distinct pale olive (5Y 6/4), moist, recent redoximorphic depletions; moderately alkaline (pH 8.2); diffuse wavy boundary.

Bk—47 to 60 inches; light yellowish brown (2.5Y 6/4) clay, light olive brown (2.5Y 5/4) moist; massive; very hard, firm, moderately sticky and very plastic; few very fine tubular and interstitial pores; many pieces of soft shale; strongly effervescent; carbonates that are disseminated and are segregated as common irregularly shaped soft masses; few medium distinct olive gray (5Y 4/2), moist, recent redoximorphic depletions; moderately alkaline (pH 8.2).

Location of typical pedon: Fresno County, California; about 1.25 miles south-southwest of the community of South Dos Palos, 500 feet southeast of the Merced County line; about 1,900 feet north and 2,400 feet east of the southwest corner of sec. 28, T. 11 S., R. 12 E., Mount Diablo Base and Meridian; lat. 36 degrees 56 minutes 37 seconds N. and long. 120 degrees 39 minutes 46 seconds W.; USGS Dos Palos Topographic Quadrangle, NAD 27.

Range in Characteristics

Between depths of 4 and 12 inches, these soils are moist in all parts from January 1 to May 15 and are dry in all parts from July 1 to November 1. Where these soils are not irrigated, they have cracks that range from 2 to 8 centimeters in width at the surface from May 15 to November 15. The cracks are 1 centimeter wide to a depth of 20 to 30 inches. Redoximorphic features are present throughout these soils.

The A horizon has dry color of 2.5Y 5/2 or 5Y 5/1, 4/1, or 4/2. Moist color is 2.5Y 3/2 or 5Y 3/2. The content of clay ranges from 50 to 60 percent. The content of organic matter ranges from 1 to 3 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 8.

The B horizon has dry color of 2.5Y 4/2, 5/4, or 6/4 or 5Y 4/2 or 5/3. Moist color is 2.5Y 3/2, 4/4, or 5/4 or 5Y 3/2 or 4/3. The content of clay ranges from 45 to 60 percent. Intersecting slickensides occur in the upper part of the horizon. The calcium carbonate equivalent in the Bk horizons ranges from 1 to 4 percent. Electrical conductivity ranges from 2 to 8 decisiemens per meter. The sodium adsorption ratio ranges from 1 to 12.

Westhaven Series

The Westhaven series consists of very deep, well drained soils on alluvial fans. These soils formed in alluvium derived dominantly from calcareous sedimentary rock. Slopes range from 0 to 2 percent.

Taxonomic class: Fine-silty, mixed, superactive, thermic Fluventic Haplocambids

Typical Pedon

Map unit: Westhaven loam, 0 to 2 percent slopes

Ap—0 to 7 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; strong coarse subangular blocky structure parting to moderate medium subangular blocky; very hard, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; few very fine tubular and many very fine interstitial pores; very slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bw—7 to 17 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular and many very fine interstitial pores; slightly effervescent; disseminated carbonates; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bk1—17 to 42 inches; light brownish gray (2.5Y 6/2) and pale yellow (2.5Y 7/4) loam with strata of silty clay loam, dark grayish brown (2.5Y 4/2) moist; strong thick and very thick platy and weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine and few fine tubular and many very fine interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped threads and soft masses; moderately alkaline (pH 7.9); abrupt smooth boundary.

Bk2—42 to 65 inches; light gray (2.5Y 7/2) and pale yellow (2.5Y 7/4) loamy sand with strata of silty clay loam, dark grayish brown (2.5Y 4/2) and olive brown (2.5Y 4/4) moist; strong thick and very thick platy structure; slightly hard, very friable, moderately sticky and slightly plastic; few very fine roots on surface of plates; many very fine tubular and interstitial pores; strongly effervescent; carbonates that are disseminated and are segregated as common fine irregularly shaped threads and soft masses; few fine prominent reddish yellow (5YR 7/6) relict redoximorphic masses that have accumulated iron and are on surface of strata, dark reddish brown (5YR 3/4) moist; moderately alkaline (pH 8.4); abrupt smooth boundary.

C—65 to 72 inches; light gray (2.5Y 7/2) loam with strata of silty clay loam, dark grayish brown (2.5Y 4/2) moist; moderate thick and very thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots on surface of plates; many very fine tubular and interstitial pores; very slightly effervescent; disseminated carbonates; moderately alkaline (pH 8.3).

Location of typical pedon: Fresno County, California; about 6 miles southeast of the community of Huron, about 2,490 feet north of Nevada Avenue and 3,045 feet west of Avenal Cut-off Road; 2,500 feet north and 150 feet east of the southwest corner of sec. 34, T. 20 S., R. 18 E., Mount Diablo Base and Meridian; lat. 36 degrees 8 minutes 42 seconds N. and long. 120 degrees 0 minutes 42 seconds W.; USGS Huron Topographic Quadrangle, NAD 27.

Range in Characteristics

These soils are more than 60 inches deep. The content of organic matter is less than 1 percent below the Ap horizon and decreases irregularly with depth. The particle-size control section averages 18 to 35 percent clay. By weighted average, less than 15 percent of the particles are fine sand or coarser between depths of 10 to 40 inches.

The Ap horizon has dry color of 10YR 6/3 or 2.5Y 6/2 or 6/4. Moist color is 10YR 4/3 or 4/4 or 2.5Y 4/2 or 4/3. Texture is loam or clay loam. The content of clay ranges from 18 to 35 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 8. Reaction is slightly alkaline or moderately alkaline.

The Bw horizon has dry color of 2.5Y 6/2, 6/4, 7/2, or 7/4. Moist color is 10YR 5/3 or 2.5Y 4/2, 4/3, or 4/4. Texture is loam or silty clay loam. The content of clay ranges from 18 to 35 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 8. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has dry color of 2.5Y 4/2, 5/2, 6/2, 7/2, or 7/4. Moist color is 2.5Y 4/2, 4/4, or 5/2. Texture ranges from loamy sand to loam with strata of silty clay loam. The content of clay ranges from 3 to 35 percent. The calcium carbonate equivalent ranges from 1 to 4 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 12.

The C horizon has dry color of 2.5Y 6/2, 6/4, 7/2, or 7/4. Moist color is 2.5Y 4/2, 4/4, 5/2, or 5/4. Texture ranges from loamy sand to loam with strata of silty clay loam. The content of clay ranges from 3 to 35 percent. The calcium carbonate equivalent ranges from 1 to 2 percent. Electrical conductivity ranges from 0 to 4 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 12.

Wisflat Series

The Wisflat series consists of shallow, well drained soils on hills and mountains. These soils formed in material weathered from marine sandstone. Slopes range from 15 to 75 percent.

Taxonomic class: Loamy, mixed, superactive, calcareous, thermic Lithic Xerorthents

Typical Pedon

Map unit: Wisflat sandy loam, in an area of Wisflat-Rock outcrop-Arburua complex, 30 to 50 percent slopes

A—0 to 6 inches; pale yellow (2.5Y 7/4) sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; slightly effervescent; disseminated carbonates; 2 percent sandstone gravel; neutral (pH 6.6); gradual smooth boundary.

C—6 to 14 inches; pale yellow (2.5Y 7/4) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; few very fine tubular and many very fine interstitial pores; strongly effervescent; disseminated carbonates; 5 percent sandstone gravel; 5 percent sandstone cobbles; moderately alkaline (pH 7.9); abrupt irregular boundary.

Cr—14 to 16 inches; strongly weathered and fractured sandstone with common very fine roots in fractures.

R—16 to 20 inches; slightly weathered sandstone.

Location of typical pedon: Fresno County, California; about 2 miles northwest of Little Panoche Reservoir; 300 feet west and 2,000 feet south of the northeast corner of sec. 12, T. 13 S., R. 10 E., Mount Diablo Base and Meridian; lat. 36 degrees 48 minutes 56 seconds N. and long. 120 degrees 49 minutes 25 seconds W.; USGS Laguna Seca Ranch Topographic Quadrangle, NAD 27.

Range in Characteristics

Depth to paralithic contact ranges from 10 to 19 inches. Depth to a lithic contact ranges from 11 to 20 inches. The mean annual soil temperature ranges from 59 to 64 degrees F. The content of organic matter is 1 percent or less. The content of clay ranges from 5 to 18 percent.

The A horizon has dry color of 10YR 7/2 or 2.5Y 6/2, 7/2, or 7/4. Moist color is 10YR 4/4, 5/2, or 5/4. The calcium carbonate equivalent ranges from 0 to 3 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 1 to 14 percent. The content of cobbles ranges from 0 to 5 percent. Reaction ranges from neutral to moderately alkaline.

The C horizon has dry color of 2.5Y 6/2, 7/2, or 7/4. Moist color is 10YR 4/4 or 5/4 or 2.5Y 4/2 or 5/2. The horizon is slightly effervescent to strongly effervescent. The calcium carbonate equivalent ranges from 1 to 4 percent. Electrical conductivity ranges from 0 to 2 decisiemens per meter. The sodium adsorption ratio ranges from 0 to 5. The content of gravel ranges from 4 to 14 percent. The content of cobbles ranges from 0 to 10 percent. Reaction is slightly alkaline or moderately alkaline.

Yribarren Taxadjunct

The Yribarren taxadjunct consists of very deep, well drained soils on alluvial fans. These soils formed in alluvium derived from calcareous sedimentary rock. Slopes range from 0 to 2 percent.

Taxonomic class: Fine, smectitic, thermic Vertic Haplargids

Typical Pedon

Map unit: Yribarren clay loam, 0 to 2 percent slopes

Ap1—0 to 4 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; strong very coarse prismatic structure parting to strong coarse subangular blocky; hard, firm, moderately sticky and moderately plastic; many very fine roots; few very fine tubular and interstitial pores; 5-millimeter wide cracks; strongly effervescent; disseminated carbonates; moderately alkaline (pH 8.1); abrupt smooth boundary.

Ap2—4 to 9 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate very coarse prismatic structure parting to moderate medium subangular blocky; hard, firm, moderately sticky and moderately plastic; common very fine and few fine roots; few very fine tubular and many very fine interstitial pores; 5-millimeter wide cracks; strongly effervescent; disseminated carbonates; moderately alkaline (pH 8.2); abrupt smooth boundary.

A—9 to 16 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; moderate medium and coarse prismatic structure parting to moderate coarse subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine tubular and interstitial pores; 5-millimeter wide cracks; strongly effervescent; carbonates that are disseminated and are segregated as few fine threads and soft masses; few pieces of charcoal 3 to 10 millimeters in diameter; moderately alkaline (pH 8.2); clear smooth boundary.

Btk1—16 to 24 inches; light yellowish brown (2.5Y 6/4) silty clay loam, olive brown (2.5Y 4/4) moist; moderate coarse prismatic structure parting to strong coarse angular blocky as wedge-shaped structural aggregates that have their long axes tilted less than 10 degrees; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine tubular and interstitial pores; 1- to 2-millimeter wide cracks; very few thin faint clay bridges and few thin faint clay films on faces of peds; strongly effervescent; carbonates that are disseminated and are segregated as common fine threads and soft masses; few pieces of charcoal 3 to 10 millimeters in diameter; moderately alkaline (pH 8.1); gradual smooth boundary.

Btk2—24 to 31 inches; light yellowish brown (2.5Y 6/4) silty clay, olive brown (2.5Y 4/4) moist; strong coarse angular blocky structure; hard, friable, moderately sticky and very plastic; few very fine and fine roots; common very fine and few fine tubular and common very fine interstitial pores; few moderately thick faint clay films on faces of peds; strongly effervescent; carbonates that are disseminated and are segregated as common fine threads and soft masses; common fine gypsum crystals; few pieces of charcoal 3 to 10 millimeters in diameter; moderately alkaline (pH 8.1); clear smooth boundary.

2Bky—31 to 51 inches; light yellowish brown (2.5Y 6/4) silt loam, olive brown (2.5Y 4/4) moist; weak medium angular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; few very fine roots; common very fine and few fine tubular and common very fine interstitial pores; very few thin faint silt skins; strongly effervescent; carbonates that are disseminated and are segregated as common fine threads and soft masses; common fine gypsum crystals; moderately alkaline (pH 8.2); abrupt smooth boundary.

3Bk—51 to 60 inches; pale yellow (2.5Y 7/4) clay loam, light olive brown (2.5Y 5/4) moist; massive; hard, very friable, moderately sticky and moderately plastic; few very fine tubular pores; strongly effervescent; carbonates that are disseminated and are segregated as few fine threads; moderately alkaline (pH 8.3).

Location of typical pedon: Fresno County, California; about 8 miles east of the community of Coalinga; 1,215 feet east of Sutter Avenue and about 1 mile south of Polvadero Country Club; 66 feet south and 1,215 feet west of the northeast corner of sec. 14, T. 21 S., R. 16 E., Mount Diablo Base and Meridian; lat. 36 degrees 6 minutes 31 seconds N. and long. 120 degrees 12 minutes 12 seconds W.; USGS Avenal Topographic Quadrangle, NAD 27.

Range in Characteristics

Between depths of 4 and 12 inches, these soils are usually dry from mid-April until early December and moist in some or all parts for less than 70 consecutive days. Carbonates are typically present throughout the profile; some pedons, however, do not have carbonates in the upper part of the A horizon. The content of gravel ranges from 0 to 10 percent.

The A horizon has dry color of 2.5Y 6/2 or 10YR 5/3 or 6/3. Moist color is 2.5Y 4/2 or 10YR 4/3. The content of clay ranges from 27 to 35 percent.

The Btk horizon has dry color of 2.5Y 6/4 or 10YR 6/4. Moist color is 2.5Y 4/4 or 10YR 4/4 or 5/4. Texture is silty clay loam, clay loam, silty clay, or clay. The content of clay ranges from 35 to 50 percent.

The 2Bky and 3Bk horizons are silt loam, loam, silty clay loam, or clay loam. The content of clay ranges from 20 to 35 percent.

The Yribarren soil is a taxadjunct to the series. It differs from the Yribarren series by having cracks to a depth of at least 12 inches and having wedge-shaped structural aggregates that have their long axes tilted less than 10 degrees. These differences however, do not significantly affect use and management.

Formation of the Soils

Soil is generally defined as a natural growing medium for plants and habitat for soil animals and microorganisms. 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 scientist involved in the 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 occurs 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 soil. Weathering is generally limited in the cool winter months, but leaching processes become active with the onset of seasonal rainfall. In the absence of fire, weathering is most active in spring and least active in summer and late fall. In soils that have a high water table, weathering can occur in summer and fall. Soils that are kept moist by applications of irrigation water also may have higher weathering rates.

The growth of plants in the hills and mountains of 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. Topography and relief affect present-day climate variations. With increasing elevation, temperature generally decreases and the amount of precipitation generally increases. As the amount of precipitation increases, the extent of leaching and the amount of vegetation generally increase, resulting in an increased content of organic matter and the cycling of bases. Fluctuations in temperature and moisture affect the rate at which organic matter decomposes and accumulates and the weathering of minerals. Soils on the older landforms, such as Narbaitz soils on fan remnants, have been affected by climatic conditions different from the current climatic conditions. In the past these “paleosols” formed on a landscape with distinctive morphological features resulting from a soil-forming environment that no longer exists at the site.

Living Organisms

The activities of living organisms, including soil flora, fauna, and humans, 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.

More than half of the survey area is used as irrigated cropland. The original vegetation had a significant impact on the soils. The impact is still evident to some degree in most soils, especially in the valleys, where soil modification by human activities is less intensive, and in the few uncultivated areas that remain in the survey area. Mollic epipedons in Tachi and Armona soils indicate the vegetative conditions on the basin floor of the San Joaquin Valley. The high content of organic matter in these soils resulted from vegetation in a wetland environment. Salt-tolerant plant communities growing along the lower portions of fan skirts supported such vegetation as saltbush, pickleweed, and saltgrass, which affected the soils by thriving in an environment where other plants could not. Most of these areas did not have enough organic matter derived from the vegetation to form mollic epipedons. Some soils, such as Tranquillity and saline-sodic Ciervo soils, have ochric epipedons.

The grassland and shrub vegetation on alluvial fans and fan remnants on the west side of the valley were dependent solely on precipitation as the source of soil moisture. Panoche, Polvadero, Guijarral, and other soils have ochric epipedons because there was not enough vegetation on the alluvial fans and fan remnants to allow the accumulation of organic matter needed to meet the requirements for a mollic epipedon.

The 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 increases stability by protecting the surface against erosion. Also, plant roots help to develop soil structure and aggregate stability.

Human activities have influenced the formation of numerous soils in the survey area. The activities that resulted in permanent chemical and physical modification of the soils are described in the section “Altered Soils,” which is under the heading “General Nature of the Survey Area.”

Time

Time is expressed through soil characteristics displayed in soil horizons. Young soils, such as Kimberlina soils on alluvial fans, have few distinctive characteristics and no diagnostic subsurface horizons. Polvadero and other soils that have natric and calcic diagnostic subsurface horizons are on stable fan remnants and have had the time to develop distinctive profile characteristics.

Parent Material

Soils at the lowest elevations in the survey area are on basin floors and flood plains. They formed primarily in alluvium weathered from igneous rocks from the Sierra Nevada. Gepford, Tachi, and Armona are examples of soils that formed in alluvium derived primarily from igneous rocks. Most of the soils in the San Joaquin Valley, west of the basin floor, formed in alluvium derived from sedimentary rocks. Polvadero soils on fan remnants, Panoche soils on alluvial fans, and Ciervo soils on fan skirts formed in alluvium weathered primarily from sedimentary rocks. The type of sedimentary rock affects the steepness of alluvial fans. As Bull notes (1964b), “Fans derived from mudstone or shale-rich basins are generally 35 to 75 percent steeper than fans of similar area derived from sandstone-rich basins and roughly twice as large as fans derived from sandstone basins of comparable size.”

The soils on the hills and mountains in the survey area generally formed in various types of material weathered from sedimentary rocks. Delgado and other shallow soils formed in material weathered from sandstone. Mercey and other moderately deep soils formed in material weathered from shale. Morenogulch and other shallow soils formed in material weathered from marine mudstone and/or diatomaceous, acid shale. The survey area has many different types of sedimentary parent material. Some of these sedimentary rocks are soft and easily break down into smaller rocks, while others are much harder and resist weathering processes. Reaction in the sedimentary parent material ranges from acid to alkaline. Different soils commonly form in different kinds of parent material even when the difference in parent material may appear to be quite insignificant.

Parent material commonly is a major factor in soil formation and the distribution of vegetation on the west side of the survey area. The shallow Atravesada soils formed in material weathered from serpentinite rock in the vicinity of Joaquin Ridge. They are a striking example of one of these environments. As Kruckeberg notes (1984, p. 39), “The vegetation found on soils formed from serpentine parent materials in this area is a mosaic of plant communities. It includes Jeffrey pine which makes its only appearance as a native in the south Coast Ranges on the serpentine barrens of the New Idria region.” These plant communities are tolerant of high concentrations of magnesium, nickel, and chromium and low levels of basic plant nutrients required for growth and development. The influence of high levels of magnesium in accentuating calcium deficiencies and the toxic effects of heavy metals appear to be of some significance in the vegetative growth and development on these soils (Key and Arroues, 1989, p. 306).

The shallow Hentine soils formed in parent materials dominated by serpentinite. The moderately deep Climara soils formed in mass-movement colluvial deposits derived from Franciscan melange greywacke, chert, serpentinite, gabbro, and blue schist. The common characteristics of soils that formed in this kind of parent material are an imbalance of calcium and magnesium, magnesium toxicity, heavy metal toxicity, and low levels of essential nutrients.

The moderately deep Gewter soils on hills near Cantua Creek formed in material weathered from marine mudstone and/or diatomaceous, acid shale that is high in content of selenium. A stand of Alvord oak and other vegetation on these hills is prominent among the grasslands surrounding this plant community.

The very deep Monvero soils in the vicinity of Monocline Ridge formed in eolian material on sand dunes, another unique parent material in the survey area. These sand dunes are somewhat stabilized by the ephedra shrubs that grow in this environment.

Topography and Landforms

The overall landscape in the survey area, mainly hills, mountains, and valleys, 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. The thematic map of “Dominant Landforms” (fig. 3) illustrates the landforms of the survey area and their relationship to each other.

Determining the exact age of most of the soils in the survey area is difficult. Relative ages can be estimated from the data available in other areas of the Central Valley. The age of soils also can be estimated from the age of the geomorphic surface. Buried paleosols or exhumed paleosols can occur on the younger surfaces.

Some of the landforms in the survey area have been obscured by land leveling associated with agricultural production, as noted in the section “Altered Soils.” Examination of soil data, interpretation of both recent and old aerial photographs, and the study of historical descriptions of the survey area reveal much about the landforms in the area.

The youngest geomorphic surfaces in the survey area are the alluvial fans, flood plains, and basin floors associated with the major rivers and streams. The soils at the lowest elevations are on basin floors and flood plains. Bisgani and Elnido soils on flood plains along the San Joaquin River north of Mendota have bar-and-channel topography in some areas. They formed primarily in alluvium derived from igneous rocks from the Sierra Nevada. The average width of the basin floor and associated flood plains in this survey area is approximately 4 miles. The part of the basin floor in this survey area is widest northwest of the community of Firebaugh. The most common soils on the basin floor are the very poorly drained Tachi soils, which have more than 60 percent clay in the particle-size control section. The basin floor is most narrow north of the community of Mendota, where the Panoche Creek fan skirt has pushed within 1 mile of the San Joaquin River.

The next landform to the west is a nearly level (less than 0.1 percent slope) fan skirt approximately 10 miles wide. In some areas this fan skirt is separated from the basin floor by a thin band of fan remnants. The soils on this fan skirt formed dominantly in alluvium derived from sedimentary rocks from the California Coast Ranges. Tranquillity and saline-sodic Ciervo soils are commonly mapped on this landform. In this survey area, this landform is most affected by a rising high water table and increases in salinity resulting from applications of irrigation water and a lack of drainage. See the sections “Saline-Sodic Soils” and “Altered Soils.”

The next landforms to the west, upslope from the fan skirt, are alluvial fans that resulted from the deposition of sediment by intermittent streams that drain the Coast Ranges. The streams can generally be separated into four drainage basins. From north to south, these drainage basins are Little Panoche Creek, Panoche Creek, Cantua Creek, and Arroyo Pasajero. Cerini, Panoche, and Westhaven soils are commonly mapped on these alluvial fans. The fans make up an area approximately 8 miles wide. The western edge of the area generally is directly west of Interstate 5. The alluvial fans fringing the western part of Fresno County are derived from drainage basins that are generally similar with respect to topography, climate, and tectonic environment.

The next landforms to the west, upslope from the alluvial fans, are fan remnants. Polvadero and Guijarral soils are commonly mapped on these fan remnants. The area of the fan remnants is approximately 2 miles wide. Most of these are erosional fan remnants that formerly were alluvial fans and that no longer receive significant deposits of sediment because they are significantly higher than the flood plains associated with intermittent streams. Gilgai microrelief occurs on Narbaitz soils on fan remnants in some areas.

A narrow band of hillslopes, approximately 2 miles wide, separates the fan remnants from the mountain slopes of the Diablo Range in the California Coast Ranges. The shallow Delgado and moderately deep Kettleman soils are commonly mapped in areas of the aridic soil moisture regime on the hillslopes. Mountain slopes extend to the top of the drainage basins and are approximately 12 miles wide. The deep Grazer and shallow Wisflat soils are commonly mapped on the mountain slopes. Small fluvial features, such as strath terraces and stream terraces, are associated with intermittent streams below hillslopes and mountain slopes in some areas. Similarities between calcic horizon development in soils on the highest and oldest terraces associated with fluvial deposition and dated soil profiles in the region (Lettis, 1985) suggest a late Pleistocene-age, ranging from 10,000 to 30,000 years or more. The groups of these terrace deposits along each of the creeks likely span a considerable range in age (Ostenaa and others, 2001). Mountain slopes rise from approximately 1,200 feet in the lower areas to a high of 4,970 feet on Condon Peak, near Joaquin Ridge. Southwest-facing escarpments are commonly associated with mountain slopes in the southwestern part of the survey area. Slides are common in certain areas on the mountain slopes. Climara, Altamont, and Vaquero soils generally are associated with mass-movement deposits. Most areas of these slides are undulating and have numerous depressions and mounds.

Different aspects have unique plant communities and associated soils that are readily recognized. Generally, the soils in the survey area with a northerly aspect have a mesic soil temperature regime, whereas the soils with southerly and easterly aspects have a thermic soil temperature regime (Arroues and others, 1999). An example of this relationship occurs in map unit 770. The Roacha soil in this unit occurs on west to northeast aspects and has a mesic soil temperature regime. It has a significant vegetative canopy because of the tree cover. The Millsholm and Lilten soils in map unit 770 occur on northeast to west aspects and have a thermic soil temperature regime.

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Glossary

AASHTO classification. A system that classifies soils specifically for geotechnical engineering purposes 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 materials.

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, commonly with gentle slopes, shaped like an open fan or a segment of a cone, 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. The fan is steepest near its apex, which 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.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit (AU). One mature cow of approximately 1,000 pounds and a calf up to the age of weaning, usually 6 months, or their equivalent.

Animal unit month (AUM). The amount of forage required by an animal unit (AU) for 1 month.

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 soil moisture regime. In the aridic moisture regime, soils are dry for at least half of the year. Soils that have an aridic moisture regime generally occur in areas of arid climates. A few are in areas of semiarid climates and either have physical properties that keep them dry, such as a crusty surface that virtually precludes the infiltration of water, or are on steep slopes where runoff is high. There is little or no leaching in the soils of this moisture regime, and soluble salts accumulate in the soils if there is a source.

Arroyo. The channel of a flat-floored ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material; sometimes called a wash. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rainfall within the watershed. Where arroyos intersect zones of ground-water discharge, they are more properly classed as intermittent stream channels.

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 (available moisture capacity). The volume of water that could be available to plants if the soil, inclusive of rock fragments, were at field capacity. It is commonly estimated as the amount of water held between the field capacity and the wilting point, with corrections for salinity, rock 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
Moderate	5 to 7.5
High	7.5 to 10
Very high	more than 10

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 are commonly bounded by a convex shoulder above and a concave footslope below. They may or may not include cliff segments (i.e., free faces). Backslopes are commonly erosional forms produced by mass movement, colluvial action, and running water.

Badland. A landscape that is intricately dissected and characterized by a very fine drainage network having high drainage densities and short, steep slopes with narrow interfluves. Badlands develop on surfaces with little or no vegetative cover, overlie unconsolidated or poorly cemented materials (clays, silts, or in some cases sand), and in some areas have soluble minerals, such as gypsum or halite.

Bajada. A broad, gently inclined piedmont slope extending from the base of a mountain range out into a basin. It is formed by the lateral coalescence of a series of alluvial fans. Typically, it has a broadly undulating transverse profile, parallel to the mountain front, resulting from the convexities of component fans. The term is generally restricted to constructional slopes of intermontane basins.

Bar (coasts). A generic term for any of various elongate offshore ridges, banks, or mounds of sand, gravel, or other unconsolidated material submerged at least at high tide and built up by the action of waves or currents, especially at the mouth of a river or estuary or at a slight distance offshore from the beach.

Bar (microfeature). A small, sinuous or arcuate, ridgelike lineation separated from others like it by small channels; caused by fluvial processes and common to flood plains and young alluvial terraces; a constituent part of bar-and-channel topography.

Bar (streams). A general term for a ridgelike accumulation of sand, gravel, or other alluvial material formed in the channel, along the banks, or at the mouth of a stream where a decrease in velocity induces deposition; e.g., a channel bar or a meander bar.

Bar-and-channel topography. A local-scale topography of recurring, small, sinuous or arcuate ridges separated by shallow troughs irregularly spaced across low-relief flood plains (generally with slopes of 2 to 6 percent). The effect is a subdued, sinuously undulating surface that is common on active flood plains. Micro-elevational differences generally range from less than 1 meter to less than 2 meters. The differences in elevation between bars and channels are largely controlled by the competency of the stream. The ridgelike bars commonly consist of coarser textured sediments compared to the finer textured sediments of the low areas.

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. The nearly level to gently sloping bottom of an wide structural depression between mountain ranges.

Basin floor. A general term for the nearly level, lowermost part of intermontane basins (i.e., bolsons and semi-bolsons). The floor includes all of the alluvial, eolian, and erosional landforms below the piedmont slope.

Batholith. A large body of igneous intrusive (plutonic) rock, commonly regional in extent. An example is the Sierra Nevada batholith.

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.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bolson. An internally drained (closed) intermontane basin into which drains from surrounding mountains converge inward toward a central depression.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Manipulation of woody plant cover to obtain the desired quantities and types of woody cover and/or to control competition with herbaceous understory vegetation in accordance with overall resource management objectives.

Bulk density. A measurement of the oven-dried weight of the soil material (less than 2 millimeters in size) per unit volume of soil. Common measurements are taken at a water tension of $^1/_{10}$ bar, $^1/_3$ bar, or 15 bar. 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. It 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 $CaCO_3$ equivalent of more than 150g kg^{-1}, and has at least 50g kg^{-1} more calcium carbonate equivalent than the underlying C horizon.

Calcium carbonate equivalent. The quantity of carbonate (CO_3) in the soil expressed as $CaCO_3$ and as a weight percentage of the fraction less than 2 millimeters in size.

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 of loamy very fine sand or finer textured material that has soil structure rather than rock structure, contains some weatherable minerals, and is characterized by the alteration or removal of mineral material, as indicated by mottling or gray colors, stronger chromas or redder hues than are evident in the underlying horizons, or the removal of carbonates. The cambic horizon lacks cementation or induration and shows too little evidence of illuviation to meet the requirements of the argillic horizon.

Canopy cover. The percentage of ground covered by a vertical projection of the outermost perimeter of the natural spread of the foliage of plants. Small openings within the canopy are included. Synonym: Crown cover.

Canyon. A long, deep, narrow valley with very steep sides and 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 across a landscape, of about the same age, derived from similar parent material, and occurring under similar climatic conditions, but having different characteristics because of variations in relief and in drainage.

Cathodic protection. The control of the electrolytic corrosion of an underground or underwater metallic structure (such as a pipeline) by the application of an electric current in such a way that the structure is made to act as the cathode instead of the anode of an electrolytic cell. See Coatings for pipelines.

Cation. An ion that carries 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.

Channery soil material. Soil material that is, 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.

Clayey. A soil texture group consisting of sandy clay, silty clay, and clay.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: Clay coating and clay skin.

Claypan. A dense, compact, slowly permeable layer in the subsoil. It has a much higher clay content than the overlying material from which is separated by a sharply defined boundary. A claypan is usually hard when dry and plastic or sticky when wet.

Climax plant community. See Historic climax plant community.

Coarse fragments. See Rock fragments.

Coarse textured soil. Sand or loamy sand.

Coatings for pipelines. A barrier to the flow of electricity and moisture. The coatings help to prevent 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 is 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 being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Compaction. The process by which soil grains are brought into closer contact with one another, decreasing the void space and increasing the 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 made up of rounded to subangular rock fragments larger than 2 millimeters, commonly with a matrix of sand and finer textured material; cements include silica, calcium carbonate, and iron oxides. The consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

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.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

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.

Cropping system. Growing crops according to a planned system of rotation and management practices.

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.

Debris flow (mass movement). The process, associated sediment (debris flow deposit), or resultant landform characterized by a very rapid type of flow dominated by a sudden downslope movement of a mass of rock, soil, and mud (in which more than 50 percent of the particles are more than 2 millimeters in size). Whether saturated or comparatively dry, debris flow behaves much as a viscous fluid.

Deep soil. See Depth, soil.

Deferred grazing. Postponing grazing or resting an area for a prescribed period, usually to meet a specific management objective.

Depocenter. The area of thickest deposition in a basin.

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.

Diagnostic horizons. As used in the U.S. system of soil taxonomy, combinations of specific soil characteristics that are indicative of certain classes of soils. Those that occur at the soil surface are called epipedons, and those that occur below the surface are called diagnostic subsurface horizons.

Diatomaceous shale. A geologic deposit of fine, grayish siliceous material composed chiefly or wholly of the remains of diatoms.

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 drainage water moves.

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 bare or covered with vegetation, capable of movement from place to place but always retaining its characteristic shape.

Duripan. A subsurface soil horizon that is cemented by illuvial silica, generally opal or microcrystalline forms of silica, to the degree that less than 50 percent of the volume of air-dry fragments will slake in water or HCl.

EC. See Electrical conductivity.

Ecological site. 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. Refer to the “National Range and Pasture Handbook” (USDA, NRCS) for further information.

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. Pertaining to material transported and deposited by the wind. Includes earth materials, such as dune sands, sand sheets, loess deposits, and clay.

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 running water, waves, or moving ice and wind or by such processes as mass wasting and corrosion (solution and other chemical processes). The term “geologic erosion” refers to natural erosion processes occurring over long (geologic) periods. The term “accelerated erosion” generically refers to erosion that is in excess of naturally occurring levels and that is a direct result of human activities.

Escarpment. A relatively continuous cliff or relatively steep slope produced by erosion or faulting and breaking the general continuity of more gently sloping land surfaces. The term is most commonly applied to cliffs produced by differential erosion, and it is commonly used synonymously with “scarp.”

Exchangeable sodium fraction. The fraction of the cation-exchange capacity of a soil occupied by sodium ions.

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. Refer to the section “Classification of the Soils.”

Fan piedmont. The most extensive landform on piedmont slopes, formed by a) the lateral, downslope coalescence of mountain-front alluvial fans into one generally smooth slope with or without the transverse undulations of the semi-conical alluvial fans and (b) accretions of fan aprons.

Fan remnant. A general term for a landform that is the remaining part of older fan landforms, such as alluvial fans, fan aprons, inset fans, and fan skirts. It either has been dissected (an erosional fan remnant) or partially buried (an unburied fan remnant). An erosional fan remnant must have a relatively flat summit that is a relict fan surface. An unburied fan remnant is a relict surface in its entirety.

Fan skirt. A belt of gently sloping, coalescent alluvial fans issuing from gullies and inset fans of a dissected fan piedmont and merging with the basin floor along the lower boundary.

Fan terrace. See Fan remnant.

Feldspathic. Containing feldspar as a principal ingredient.

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*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

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.

Flood plain. The nearly level plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It generally is a constructional landform built of sediment deposited during overflow and lateral migration of the streams.

Fluvial. Pertaining to rivers; produced by river action.

Foothills. A steeply sloping upland with hill relief (up to 300 meters) that fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, a footslope commonly is concave. It is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Foraminiferal shale. A geologic deposit made up chiefly of unicellular microorganisms of the order *Foraminifera*, having a calcareous shell with perforations.

Forb. Any broadleaf herbaceous plant other than one in the *Gramineae* (or *Poaceae*), *Cyperaceae*, or *Juncacea* family.

Forest land. Land on which the historic climax plant community is dominated by trees.

Fragments. Unattached, cemented pieces of bedrock, bedrocklike material, durinodes, concretions, and nodules 2 millimeters or more in diameter; also, woody material 20 millimeters or more in size 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.

Gilgai. The microrelief of soils produced by expansion and contraction with changes in moisture content. Evident in soils containing large amounts of smectitic clay that swell and shrink considerably with wetting and drying. Generally occurring as a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel to the direction of the slope. Also referred to, in part or in total, as crabhole, Bay of Biscay, or hushabye in older literature.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Granite. A felsic, igneous intrusive rock containing quartz and orthoclase, with smaller amounts of sodic plagioclase and commonly muscovite.

Granitic. A rock textural term generally pertaining to an igneous intrusive rock of felsic to intermediate composition. It is like granite but is not necessarily true granite. The term is 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 is 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 caused by erosion and cut by concentrated but intermittent flow of water usually during and immediately following heavy rains or after the melting of ice or snow. 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. A mineral consisting of hydrous calcium sulfate.

Halophytic. A term for vegetation that is adapted to growth in 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.

Head out. To form a flower head.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A generic term for an area of the land surface that rises as much as 300 meters above the surrounding lowlands, generally has a restricted summit area relative to the surrounding surfaces, and has a well defined outline. Hillslopes generally exceed 15 percent. The distinction between a hill and a mountain commonly is dependent on local usage.

Historic climax plant community. The plant community that was best adapted to the unique combination of factors associated with the ecological site. It was in a natural dynamic equilibrium with the historic biotic, abiotic, and climatic factors on its ecological site in North America at the time of European immigration and settlement. Differs from “potential natural vegetation.”

Hogwallow. See Mound-intermound microrelief.

Holocene. The epoch of the Quaternary Period of geologic time extending from the end of the Pleistocene Epoch (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.

Hummock. A rounded or conical mound or other small elevation.

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 rocks. 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.

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. The flood plain of an ephemeral stream that is confined between the 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

Intermittent stream. A stream, or reach of a stream, that does not flow throughout the year (commonly is dry for 3 or more months per year) and has a channel that is generally below the local water table. It flows only when it receives base flow during wet periods or when it receives ground-water discharge or protracted contributions from melting snow or other erratic surface and shallow subsurface sources.

Intrusive. Denoting igneous rocks derived from molten matter (magmas) that invaded preexisting rocks and cooled below the surface of the earth.

Invader. Plants that are not part of the original plant community and that invade an area as a result of disturbance, deterioration of the plant community, or both.

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.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Level basin (paddy).—Water is applied to a level plain surrounded by levees or dikes.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

K factor. A measurement of the erodibility caused by detachment of soil particles by water.

Lacustrine deposit. Clastic sediments 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.

Level basin (paddy). A method of irrigation in which water is applied to a level plain surrounded by levees or dikes.

Linear extensibility percent (LEP). The linear expression of the volume difference of natural soil fabric at $^1/_3$ bar or $^1/_{10}$ bar water content and oven dryness. The volume change is reported as percent change 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. A soil texture group consisting of 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.

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.

Mass movement. Dislodgement and downslope transport of soil and rock material as a unit under direct gravitational stress.

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.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth 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 subject to metamorphism.

Metavolcanic. Refers to a volcanic rock that shows evidence of metamorphism but that 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).

Mound-intermound microrelief. Circular or oval domes, generally 1 to 3 feet in height and 115 to 100 feet in diameter, with intervening basin-shaped depressions, which commonly have no external drainage. In various parts of the West, this kind of microrelief is called by many names. The most common terms probably are "hogwallow" and "Mima mounds."

Mountain. A natural elevation of the land surface rising more than 300 meters above the surrounding lowlands, generally having restricted summit area relative to the surrounding surfaces, and generally having steep sides (with 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 primarily formed by tectonic activity and/or volcanic action and secondarily by differential erosion.

Mudstone. a) A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. b) A general term for material that includes clay, silt, claystone, siltstone, shale, and argillite. The term should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

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.

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

Paleosol. A soil that formed on a site in the past and that has distinctive morphological features resulting from a soil-forming environment that no longer exists at the site. The former pedogenic process was either altered because of external environmental change or interrupted by burial. A paleosol (or component horizon) may be classed as relict if it has persisted in a land-surface position without major alteration of morphology by processes of the prevailing pedogenic environment. An exhumed paleosol is one that formerly was buried and has been re-exposed by erosion of the covering mantle. Most paleosols have been affected by some subsequent modification of diagnostic horizon morphologies and profile truncation.

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 more or less chemically weathered mineral or organic matter from which the solum is developed by pedogenic processes.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Perched water table. The upper surface of unconfined ground water separated from and underlying the 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:

Extremely slow	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

pH value. A numerical designation of acidity and alkalinity in soil. See Reaction, soil.

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

PI. See Plasticity index.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

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.

Plateau (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the lower lying adjacent terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa. The usually dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those occurring on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation-runoff events. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Pleistocene. The epoch of the Quaternary Period of geologic time following the Pliocene Epoch and preceding the Holocene (from approximately 2 million to 10,000 years ago). The term also refers to the corresponding time-stratigraphic "series" of earth materials.

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 natural vegetation (PNV). The biotic community that, under the present environmental conditions, would become established on an ecological site if all successional sequences were completed without human interference. Natural disturbances are inherent in its development. The vegetation may include acclimatized or naturalized nonnative species. Also called "potential natural community" (PNC).

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. The use of fire as a tool to achieve a management objective in a predetermined area under conditions where the intensity and extent of the fire are controlled.

Prescribed grazing. The controlled harvest of vegetation by grazing or browsing animals, managed with the intent to achieve a specific objective.

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 plant cover to protect the soil and maintain or improve the quantity and quality of desirable vegetation.

Rangeland. Land on which the historic climax plant community is dominantly grasses, grasslike plants, forbs, or shrubs. The land is revegetated naturally or artificially. The vegetation is routinely managed mainly through manipulation of grazing. Rangeland includes natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

Range site. See Ecological site.

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.

Relief. The elevations or inequalities of a land surface, considered collectively.

Remnant. The remaining part of some larger landform or of a 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.

Rill. A small, steep-sided channel caused by erosion and cut by concentrated but intermittent flow of water, usually during and immediately following moderate rains or after the melting of ice or snow. Generally, a rill is not an obstacle to wheeled vehicles and is shallow enough to be obliterated by ordinary tillage.

Riparian. Refers to land adjacent to a body of water that is at least periodically influenced by flooding. See Flood plain.

Riverwash. A barren alluvial area 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, gravel, cobbles, stones, and boulders.

Rock outcrop. Exposures of bedrock other than lava and rock-lined pits.

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 the growth of plants. A saline soil does not contain excess exchangeable sodium. Salinity classes, which are based on the electrical conductivity of a saturation extract in millimhos per centimeter or decisiemens per meter at 25 degrees C, 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 containing exchangeable sodium in an amount that impairs the growth of most crops and containing appreciable quantities of soluble salts. The exchangeable sodium ratio is more than 0.15; the conductivity of the soil solution, at saturated water content, is more than 4 decisiemens per meter (at 25 degrees C.); and the pH generally is 8.5 or less in the saturated soil.

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. The soil texture group consisting of sand and loamy sand.

Saprolite. Soft, friable, isovolumetrically weathered bedrock that retains the fabric and structure of the parent rock, exhibiting extensive intercrystal and intracrystal weathering. In pedology, the term “saprolite” was formerly applied to any unconsolidated residual material underlying the soil and grading 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.

Sedimentary rock. A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under “normal” low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, 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 formed by induration of a deposit of clay, silty clay, or silty clay loam and having the tendency to split into thin layers.

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:

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:

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
Moderate	13-25
Strong	more than 25

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. Factors Kw and Kf are erodibility factors that quantify the susceptibility of soil detachment by water. These erodibility factors predict the long-term average soil loss from sheet and rill erosion under various alternative combinations of crop systems and conservation techniques. For factor Kw the whole soil is considered, and for factor Kf only the fine-earth fraction (the material less than 2.0 millimeters in diameter) is considered.

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.

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.

Strath terrace. A type of stream terrace formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stratified. Formed, arranged, or laid down in layers. The term refers to geologic deposits. Layers in soils that result from 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, flanking and more or less parallel to the stream channel, originally formed near the level of the stream, and representing the dissected remnants of an abandoned flood plain, streambed, or valley floor produced during a former state of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

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. Two distinct types of land subsidence are common in the western part of Fresno County. Near-surface, or shallow, subsidence occurs in areas of alluvial fan deposits through which water percolates for the first time since burial. Compaction of these deposits, called shallow subsidence, is not expected to occur below a depth of 200 feet. In contrast to near-surface subsidence, subsidence resulting from artesian-head decline is caused by the compaction of unconsolidated deposits and the withdrawal of ground water.

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. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying 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. 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.

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. In a system that, for taxonomic purposes, categorizes general, long-term soil temperature conditions at the standard depth of 20 inches or at the bedrock surface, whichever is shallower, various soil temperature regimes are defined according to the freezing point of water or the high and low extremes for significant biological activity. The regimes are follows:

Pergellic.—Soils that have mean annual temperatures of less than 32 degrees F and have permafrost.

Cryic.—Soils that have mean annual temperatures between 32 and 47 degrees F and that remain cold in summer.

Frigid.—Soils that have mean annual temperatures similar to those in the cryic regime but have an average summer temperature that is at least 9 degrees F warmer.

Mesic.—Soils in which mean annual temperatures are between 47 and 59 degrees F and in which the difference between mean summer and winter temperatures is more than 9 degrees F.

Thermic.—Soils in which mean annual temperatures are between 59 and 72 degrees F and in which the difference between mean summer and winter temperatures is more than 9 degrees F.

Hyperthermic.—Soils in which mean annual temperatures are more than 72 degrees F and in which the difference between mean summer and winter temperatures is more than 9 degrees F.

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 (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Terrace (geomorphology)). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain or a lake or sea shore. The term generally is applied to both the relatively flat summit surface (tread), cut or built by stream or wave action, and the steeper descending slope (scarp or riser), graded to a lower base level of erosion. Practically, terraces are considered to be generally flat alluvial areas above the 100-year flood stage.

Terracette. A small, irregular, steplike surface on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may or may not be induced by trampling of livestock, such as sheep and cattle.

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.”

Thermic temperature regime. See Temperature regime, soil.

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.

Upland (geomorphology). (a) An informal, general term for the higher ground of a region, in contrast with low-lying, adjacent lands, such as a valley or plain. (b) Land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill. The unconsolidated sediment that is deposited by any agent (water, wind, ice, or mass wasting) and 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.

Vernal pool. Shallow surficial depressions that temporarily fill with water during winter and spring rains and desiccate during the dry summer months. They occur as small, poorly drained depressions perched above an impermeable or very slowly permeable soil horizon or bedrock.

Very deep soil. See Depth, soil.

Very shallow soil. See Depth, soil.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Water table. The upper surface of ground water or that level below which the soil is saturated by water. Also the top of an aquifer.

WEG. See Wind erodibility group.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Wind erodibility group (WEG). A grouping of soils that have similar properties affecting their resistance to wind erosion in cultivated areas.

Xeric soil moisture regime. The typical soil moisture regime in areas of Mediterranean climates, where winters are moist and cool and summers are warm and dry. The moisture, which falls during the winter, when potential evapotranspiration is at a minimum, is particularly effective for leaching. The mean annual soil temperature is lower than 22 degrees C, and the mean summer and mean winter soil temperatures differ by 6 degrees C.

Xerophytic. Refers to vegetation that is adapted to dry areas.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Coalinga and Priest Valley, California)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snow-fall
				Maximum temp. higher than--	Minimum temp. lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
COALINGA:											
January--	57.1	35.1	46.1	72	22	202	1.48	0.31	2.47	3	0.0
February-	64.0	39.1	51.5	79	25	327	1.55	.17	2.55	3	.0
March----	68.9	41.5	55.2	85	29	469	1.05	.27	1.73	3	.0
April----	76.0	45.2	60.6	96	33	618	.61	.16	1.13	1	.0
May------	85.4	51.8	68.6	103	38	882	.18	.05	.54	0	.0
June-----	93.2	58.9	76.1	108	44	1,071	.04	.02	.25	0	.0
July-----	98.9	64.5	81.7	109	51	1,287	.02	.03	.16	0	.0
August---	97.2	63.2	80.2	108	51	1,233	.04	.04	.26	0	.0
September	91.8	58.2	75.0	105	45	1,047	.38	.14	1.15	0	.0
October--	81.8	49.3	65.6	98	35	790	.34	.09	0.72	0	.0
November-	67.0	40.7	53.9	84	27	416	.98	.23	1.68	2	.0
December-	57.0	34.9	46.0	72	20	195	1.20	.29	1.99	2	.0
Yearly:											
Average	78.2	48.5	63.4	---	---	---	---	---	---	---	---
Extreme	112	11	---	110	19	---	---	---	---	---	---
Total--	---	---	---	---	---	8,537	7.87	5.23	9.89	14	.0
PRIEST VALLEY:											
January--	57.5	28.5	43.0	76	13	8	3.99	1.07	6.32	5	0.9
February-	59.9	31.0	45.5	78	16	18	3.40	.71	5.49	5	.2
March----	62.1	32.6	47.4	80	19	34	3.35	1.14	5.38	5	.3
April----	68.4	33.8	51.1	90	22	90	1.59	.41	2.73	3	.1
May------	77.3	38.7	58.0	97	26	258	0.32	.09	0.78	1	.0
June-----	86.9	44.5	65.7	104	31	471	.07	.08	0.27	0	.0
July-----	94.1	49.3	71.7	107	37	673	.05	.04	0.40	0	.0
August---	93.0	48.8	70.9	105	37	643	.09	.04	0.47	0	.0
September	87.1	44.5	65.8	103	31	472	0.47	.12	1.28	1	.0
October--	77.4	37.9	57.7	97	24	246	0.98	.28	1.88	2	.0
November-	63.9	32.1	48.0	84	17	41	2.76	.59	4.45	4	0.1
December-	57.5	28.2	42.9	76	13	6	3.13	1.17	4.96	5	0.3
Yearly:											
Average	73.8	37.5	55.6	---	---	---	---	---	---	---	---
Extreme	113	2	---	108	11	---	---	---	---	---	---
Total--	---	---	---	---	---	2,960	20.20	13.84	25.78	31	1.9

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F at Coalinga and 50 degrees F at Priest Valley).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Coalinga and Priest Valley, California)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
COALINGA:			
Last freezing temperature in spring:			
1 year in 10 later than-----	Feb. 4	Mar. 11	Apr. 8
2 years in 10 later than-----	Jan. 26	Feb. 28	Mar. 30
5 years in 10 later than-----	Jan. 3	Feb. 6	Mar. 13
First freezing temperature in fall:			
1 year in 10 earlier than---	Dec. 15	Nov. 21	Nov. 8
2 years in 10 earlier than---	Dec. 20	Nov. 29	Nov. 12
5 years in 10 earlier than---	Jan. 2	Dec. 13	Nov. 21
PRIEST VALLEY:			
Last freezing temperature in spring:			
1 year in 10 later than-----	May 7	May 20	June 10
2 years in 10 later than-----	Apr. 22	May 14	June 4
5 years in 10 later than-----	Mar. 25	May 4	May 24
First freezing temperature in fall:			
1 year in 10 earlier than---	Oct. 25	Oct. 6	Sept. 15
2 years in 10 earlier than---	Nov. 1	Oct. 13	Sept. 22
5 years in 10 earlier than---	Nov. 14	Oct. 25	Oct. 5

Table 3.--Growing Season

(Recorded in the period 1961-90 at Coalinga and Priest Valley, California)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
COALINGA:			
9 years in 10	323	268	226
8 years in 10	338	285	236
5 years in 10	>365	322	254
2 years in 10	>365	>365	273
1 year in 10	>365	>365	282
PRIST VALLEY:			
9 years in 10	188	147	105
8 years in 10	203	156	115
5 years in 10	232	174	133
2 years in 10	261	192	152
1 year in 10	277	201	162

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
101	Armona loam, partially drained, 0 to 1 percent slopes	17,620	1.3
107	Anela very gravelly sandy loam, 0 to 2 percent slopes	600	*
115	Bolfar loam, drained, 0 to 1 percent slopes	1,140	*
120	Altaslough clay loam, 0 to 1 percent slopes	3,510	0.3
130	Gepford clay, 0 to 1 percent slopes	16,750	1.2
282	Tachi clay, 0 to 1 percent slopes	31,140	2.2
284	Lillis clay, 0 to 1 percent slopes	7,290	0.5
285	Tranquillity-Tranquillity, wet, complex, saline-sodic, 0 to 1 percent slopes	60,000	4.3
286	Tranquillity clay, saline-sodic, wet, 0 to 1 percent slopes	51,500	3.7
311	Bisgani sandy loam, drained, 0 to 1 percent slopes	550	*
320	Elnido sandy loam, drained, 0 to 1 percent slopes	4,420	0.3
325	Palazzo sandy loam, drained, 0 to 1 percent slopes	2,450	0.2
375	Lethent silt loam, 0 to 1 percent slopes	1,760	0.1
376	Agnal silty clay, 0 to 1 percent slopes	850	*
404	Milham-Guijarral association, 5 to 15 percent slopes	17,910	1.3
405	Polvadero-Guijarral complex, 5 to 15 percent slopes	21,370	1.5
406	Guijarral sandy loam, 2 to 5 percent slopes	7,120	0.5
412	Yribarren clay loam, 0 to 2 percent slopes	2,350	0.2
414	Dospalos clay loam, drained, 0 to 1 percent slopes	1,820	0.1
415	Dospalos clay, drained, 0 to 1 percent slopes	6,320	0.5
425	Kimberlina sandy loam, 0 to 2 percent slopes	5,500	0.4
426	Kimberlina sandy loam, 2 to 5 percent slopes	1,860	0.1
434	Lethent clay loam, wet, 0 to 1 percent slopes	10,070	0.7
435	Lethent clay loam, 0 to 1 percent slopes	15,860	1.1
436	Panoche loam, 0 to 2 percent slopes	10,280	0.7
437	Panoche sandy loam, 0 to 2 percent slopes	3,250	0.2
438	Panoche loam, 2 to 5 percent slopes	6,660	0.5
442	Panoche clay loam, 0 to 2 percent slopes	27,870	2.0
445	Excelsior sandy loam, 0 to 2 percent slopes	29,260	2.1
447	Excelsior sandy loam, sandy substratum, 0 to 2 percent slopes	20,110	1.5
448	Excelsior loamy sand, sandy substratum, 0 to 1 percent slopes, eroded	990	*
451	Milham sandy loam, 0 to 2 percent slopes	7,700	0.6
452	Milham sandy loam, 2 to 5 percent slopes	12,180	0.9
453	Milham sandy loam, 5 to 9 percent slopes	1,270	*
454	Polvadero sandy loam, 0 to 2 percent slopes	6,310	0.5
455	Polvadero sandy loam, 2 to 5 percent slopes	4,660	0.3
459	Ciervo clay, 0 to 2 percent slopes	50,790	3.7
461	Ciervo clay, saline-sodic, wet, 0 to 1 percent slopes	17,580	1.3
462	Ciervo, wet-Ciervo complex, saline-sodic, 0 to 1 percent slopes	41,880	3.0
466	Paver clay loam, 0 to 2 percent slopes	6,100	0.4
468	Deldota clay, partially drained, 0 to 1 percent slopes	10,950	0.8
470	Chateau clay, partially drained, 0 to 1 percent slopes	7,870	0.6
472	Wekoda clay, partially drained, 0 to 1 percent slopes	18,510	1.3
474	Westhaven loam, 0 to 2 percent slopes	27,210	2.0
475	Posochanet clay loam, saline-sodic, wet, 0 to 1 percent slopes	16,430	1.2
476	Posochanet clay loam, saline-sodic, 0 to 2 percent slopes	4,340	0.3
477	Westhaven clay loam, 0 to 2 percent slopes	23,080	1.7
478	Cerini sandy loam, 0 to 2 percent slopes	12,570	0.9
479	Cerini clay loam, 0 to 2 percent slopes	76,200	5.5
480	Calflax clay loam, saline-sodic, 0 to 2 percent slopes	2,150	0.2
481	Cerini clay loam, 2 to 5 percent slopes	4,620	0.3
482	Calflax clay loam, saline-sodic, wet, 0 to 1 percent slopes	54,140	3.9
488	Wasco sandy loam, 0 to 2 percent slopes	3,530	0.3
489	Wasco sandy loam, 2 to 5 percent slopes	1,870	0.1
490	Cerini sandy loam, subsided, 0 to 5 percent slopes	5,330	0.4
491	Cerini clay loam, subsided, 0 to 5 percent slopes	14,890	1.1
492	Panoche loam, subsided, 0 to 5 percent slopes	9,440	0.7
493	Panoche clay loam, subsided, 0 to 5 percent slopes	13,890	1.0

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
587	Mugatu fine sandy loam, 0 to 5 percent slopes	370	*
588	Mugatu fine sandy loam, 5 to 30 percent slopes	2,110	0.2
590	Cerini-Anela-Fluvaquents, saline-sodic, association, 0 to 2 percent slopes	1,170	*
620	Delgado sandy loam, 5 to 15 percent slopes, eroded	680	*
621	Delgado sandy loam, 15 to 30 percent slopes, eroded	1,060	*
640	Kettleman-Delgado-Mercey association, 5 to 15 percent slopes, eroded	18,980	1.4
641	Mercey-Delgado-Kettleman association, 5 to 15 percent slopes	17,400	1.3
642	Mercey-Delgado-Kettleman association, 15 to 30 percent slopes, eroded	10,990	0.8
643	Mercey-Delgado-Kettleman association, 15 to 30 percent slopes	16,580	1.2
644	Mercey-Kettleman-Delgado complex, 30 to 50 percent slopes, eroded	2,410	0.2
645	Delgado-Mercey-Kettleman association, 30 to 50 percent slopes	8,390	0.6
670	Badland-Kettleman-Mercey association, 15 to 50 percent slopes	12,780	0.9
680	Arburua-Morenogulch association, 15 to 80 percent slopes	9,380	0.7
704	Franciscan gravelly sandy loam, 30 to 50 percent slopes	960	*
705	Roacha silty clay loam, 30 to 50 percent slopes	4,400	0.3
706	Sagaser loam, 50 to 75 percent slopes	990	*
709	Sagaser-Gaviota-Borreguero association, 50 to 75 percent slopes	6,790	0.5
710	Monoridge-Exclose-Badland association, 30 to 65 percent slopes	14,570	1.1
711	Currymountain-Wisflat-Borreguero association, 30 to 75 percent slopes	41,030	3.0
712	Altamont-Roacha-Borreguero association, 15 to 50 percent slopes	20,470	1.5
713	Currymountain-Rock outcrop-Quinto association, 50 to 75 percent slopes	3,940	0.3
714	Gaviota-Borreguero-Rock outcrop complex, 40 to 75 percent slopes	16,080	1.2
715	Belgarra-Wisflat association, 8 to 50 percent slopes	3,320	0.2
717	Belgarra-Arburua-Morenogulch association, 15 to 65 percent slopes	6,610	0.5
718	Nodhill-Wisflat-Rock outcrop complex, 15 to 50 percent slopes	5,020	0.4
719	Nodhill-Arburua-Wisflat association, 15 to 65 percent slopes	6,240	0.5
720	Exclose-Wisflat-Morenogulch association, 30 to 65 percent slopes	8,290	0.6
722	Exclose-Wisflat-Rock outcrop association, 30 to 65 percent slopes	8,250	0.6
723	Exclose-Wisflat-Grazer association, 15 to 65 percent slopes	19,970	1.4
725	Gewter clay, 15 to 30 percent slopes	1,460	0.1
727	Reliz-Gewter-Rock outcrop association, 25 to 75 percent slopes	6,430	0.5
728	Climara clay, 15 to 50 percent slopes	4,390	0.3
733	Hentine-Climara association, 15 to 50 percent slopes	12,590	0.9
735	Getrail-Vernado-Rock outcrop association, 15 to 65 percent slopes	3,780	0.3
737	Grazer-Badland-Wisflat association, 15 to 75 percent slopes	2,120	0.2
738	Grazer-Belgarra-Arburua association, 8 to 50 percent slopes	16,300	1.2
739	Domengine-Wisflat-Rock outcrop association, 30 to 65 percent slopes	3,360	0.2
740	Domengine-Lilten-Rock outcrop complex, 30 to 65 percent slopes	13,400	1.0
741	Anela-Vernalis association, 0 to 5 percent slopes	7,410	0.5
742	Millsholm-Wisflat-Lilten association, 30 to 65 percent slopes	10,180	0.7
743	Millsholm-Borreguero complex, 30 to 65 percent slopes	2,610	0.2
744	Lilten-Millsholm association, 30 to 65 percent slopes	8,540	0.6
745	Grazer-Wisflat-Arburua association, 8 to 50 percent slopes	32,470	2.3
746	Rock outcrop-Wisflat-Arburua complex, 50 to 65 percent slopes	8,580	0.6
747	Lilten-Grazer-Arburua association, 15 to 65 percent slopes	7,580	0.5
748	Vaquero-Grazer association, 15 to 65 percent slopes	3,790	0.3
749	Grazer-Wisflat-Exclose association, 30 to 65 percent slopes	2,050	0.1
750	Monvero-Monoridge association, 15 to 50 percent slopes	3,630	0.3
752	Cyvar-Nodhill complex, 5 to 15 percent slopes	2,590	0.2
753	Cyvar-Nodhill-Pits, Gypsiferous, complex, 5 to 15 percent slopes	590	*
755	Borreguero-Grazer-Rock outcrop association, 15 to 65 percent slopes	7,170	0.5
757	Rock outcrop-Borreguero complex, 30 to 65 percent slopes	9,260	0.7
758	Wisflat-Borreguero-Rock outcrop complex, 50 to 70 percent slopes	16,700	1.2
761	Atravesada gravelly sandy loam, 30 to 70 percent slopes	1,170	*
765	Atravesada-Pits, asbestos, complex, 2 to 30 percent slopes	870	*
767	Atravesada-Pits, asbestos, complex, 30 to 65 percent slopes	6,170	0.4
769	Dumps-Pits complex, asbestos, 2 to 30 percent slopes	1,300	*
770	Roacha-Millsholm-Lilten association, 30 to 65 percent slopes	29,030	2.1
773	Hentine-Rock outcrop complex, 30 to 65 percent slopes	1,840	0.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
774	Hentine-Franciscan-Rock outcrop complex, 30 to 65 percent slopes	3,780	0.3
782	Vaquero-Altamont complex, 15 to 50 percent slopes	1,640	0.1
783	Vaquero-Altamont complex, 50 to 75 percent slopes	410	*
817	Arburua loam, 2 to 8 percent slopes	120	*
818	Arburua loam, 8 to 15 percent slopes	10	*
819	Arburua loam, 15 to 30 percent slopes	840	*
820	Arburua loam, 30 to 50 percent slopes	90	*
822	Altamont clay, 5 to 8 percent slopes	580	*
823	Ayar clay, 5 to 8 percent slopes	570	*
827	Ayar-Arburua complex, 8 to 15 percent slopes	970	*
834	Bapos clay loam, 2 to 8 percent slopes	210	*
835	Pedcat loam, 0 to 2 percent slopes, eroded	370	*
842	Quinto-Millsholm-Rock outcrop complex, 40 to 75 percent slopes	1,080	*
847	Carranza gravelly sandy loam, 2 to 8 percent slopes	1,210	*
849	Chaqua loam, 2 to 8 percent slopes	110	*
851	Los Banos clay loam, 0 to 2 percent slopes	1,140	*
852	Los Banos clay loam, 2 to 8 percent slopes	500	*
853	Los Banos-Pleito complex, 2 to 8 percent slopes	5,210	0.4
855	Pleito gravelly clay loam, 15 to 30 percent slopes	2,140	0.2
863	Vernalis loam, 0 to 2 percent slopes	2,860	0.2
865	Conosta clay loam, 2 to 8 percent slopes	570	*
870	Wisflat-Rock outcrop-Arburua complex, 15 to 30 percent slopes	60	*
871	Wisflat-Rock outcrop-Arburua complex, 30 to 50 percent slopes	1,960	0.1
872	Vernalis loam, 2 to 5 percent slopes	860	*
873	Narbaitz-Pleito association, 5 to 30 percent slopes	4,430	0.3
940	Milham-Polvadero complex, organic surface, 0 to 5 percent slopes	950	*
941	Bisgani-Elnido association, 0 to 1 percent slopes	650	*
950	Pits, gravel	78	*
960	Excelsior, sandy substratum-Westhaven association, flooded, 0 to 2 percent slopes	9,420	0.7
980	Urban land	50	*
981	Sewage disposal pond	210	*
982	Water	2,360	0.2
	Total	1,386,400	100.0

* Less than 0.1 percent.

Table 5.--Land Capability and Irrigated Yields per Acre of Salt-Tolerant Crops

(Yields are those that can be expected under a high level of irrigated management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Alfalfa hay	Barley	Cotton lint	Pima cotton lint	Tomatoes	Wheat
		Tons	Tons	Lbs	Lbs	Tons	Tons
101:							
Armona-----------	3w	---	---	1,000.0	---	---	---
115:							
Bolfar-----------	2w	8.0	1.8	1,500.0	---	30.0	---
120:							
Altaslough-------	3w	---	---	1,500.0	---	---	---
130:							
Gepford----------	3w	---	---	1,382.0	---	---	---
282:							
Tachi------------	3w	---	---	1,344.0	---	---	---
284:							
Lillis-----------	4w	---	---	1,000.0	---	---	---
285:							
Tranquillity-----	3w	---	---	1,488.0	1,164.0	39.0	2.9
Tranquillity, wet	3w	---	---	1,324.0	1,010.0	35.0	2.8
286:							
Tranquillity-----	3w	---	---	1,324.0	1,010.0	35.4	2.8
311:							
Bisgani----------	3w	6.0	1.3	1,000.0	---	18.0	---
320:							
Elnido-----------	2w	8.0	1.4	1,200.0	---	25.0	---
325:							
Palazzo----------	2w	7.0	1.6	1,200.0	---	28.0	---
375:							
Lethent----------	3w	---	1.2	850.0	---	---	---
404:							
Milham-----------	3e	---	---	1,125.0	---	---	---
Guijarral--------	3e	---	---	1,050.0	---	---	---
405:							
Polvadero--------	3e	---	---	1,000.0	---	---	1.6
Guijarral--------	3e	---	---	1,050.0	---	---	55.0
406:							
Guijarral--------	3e	---	---	1,509.0	---	---	1.7
412:							
Yribarren--------	2s	---	2.0	1,320.0	---	---	2.6
414:							
Dospalos---------	2w	7.0	1.4	1,200.0	---	28.0	---

Table 5.--Land Capability and Irrigated Yields per Acre of Salt-Tolerant Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Barley	Cotton lint	Pima cotton lint	Tomatoes	Wheat
		Tons	Tons	Lbs	Lbs	Tons	Tons
415:							
Dospalos---------	2w	6.0	1.2	950.0	---	22.0	---
425:							
Kimberlina-------	1	---	---	1,490.0	---	41.7	---
426:							
Kimberlina-------	2e	---	---	1,490.0	---	---	---
434:							
Lethent----------	3s	---	---	1,240.0	---	---	2.7
435:							
Lethent----------	3s	---	---	1,246.0	1,168.0	---	3.0
436:							
Panoche----------	1	---	---	1,518.0	---	38.0	3.5
437:							
Panoche----------	1	---	---	1,627.0	---	38.0	3.5
438:							
Panoche----------	2e	---	---	1,500.0	---	38.0	3.5
442:							
Panoche----------	1	---	---	1,672.0	1,303.0	38.9	3.5
445:							
Excelsior--------	1	---	---	1,597.0	---	32.7	---
447:							
Excelsior--------	2s	---	---	1,380.0	---	32.5	---
448:							
Excelsior--------	2s	---	---	850.0	---	---	2.0
451:							
Milham-----------	1	---	---	1,335.0	1,135.0	43.0	---
452:							
Milham-----------	2e	---	---	1,125.0	---	---	---
453:							
Milham-----------	3e	---	---	1,125.0	---	---	---
454:							
Polvadero--------	2s	---	---	1,455.0	---	43.0	2.0
455:							
Polvadero--------	2e	---	---	1,300.0	---	---	---
459:							
Ciervo-----------	2s	---	---	1,620.0	1,369.0	40.6	---
461:							
Ciervo-----------	3s	---	---	1,262.0	---	35.0	---
462:							
Ciervo-----------	3s	---	---	1,311.0	1,152.0	34.3	2.5
Ciervo, wet------	2s	---	---	1,449.0	1,274.0	37.9	2.7

Table 5.--Land Capability and Irrigated Yields per Acre of Salt-Tolerant Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Barley	Cotton lint	Pima cotton lint	Tomatoes	Wheat
		Tons	Tons	Lbs	Lbs	Tons	Tons
466:							
Paver------------	1	---	---	1,200.0	---	35.0	---
468:							
Deldota----------	2w	7.0	---	1,200.0	---	30.0	2.9
470:							
Chateau----------	3w	---	1.7	1,100.0	---	---	---
472:							
Wekoda-----------	3w	---	---	900.0	---	---	---
474:							
Westhaven--------	1	---	---	1,415.0	1,337.0	34.6	3.3
475:							
Posochanet-------	3s	---	---	1,391.0	1,228.0	39.3	3.3
476:							
Posochanet-------	2s	---	---	1,463.0	---	46.6	3.4
477:							
Westhaven--------	1	---	---	1,484.0	1,590.0	36.2	3.0
478:							
Cerini-----------	1	---	---	1,374.0	---	41.8	---
479:							
Cerini-----------	1	---	---	1,560.0	1,310.0	39.4	3.7
480:							
Calflax----------	2s	---	---	1,444.0	1,170.0	43.6	2.8
481:							
Cerini-----------	2e	---	---	1,625.0	---	39.3	3.0
482:							
Calflax----------	3s	---	---	1,367.0	1,251.0	39.3	3.1
488:							
Wasco------------	2s	---	---	1,197.0	---	35.0	3.2
489:							
Wasco------------	2e	---	---	1,125.0	---	---	3.0
490:							
Cerini-----------	2e	---	---	1,450.0	---	38.0	---
491:							
Cerini-----------	2e	---	---	1,511.0	---	40.1	---
492:							
Panoche----------	2e	---	---	1,325.0	---	---	---
493:							
Panoche----------	2e	---	---	1,496.0	---	45.3	---
851:							
Los Banos--------	2s	---	1.2	750.0	---	---	---
852:							
Los Banos--------	2e	---	1.2	750.0	---	---	---

Table 5.--Land Capability and Irrigated Yields per Acre of Salt-Tolerant Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Barley	Cotton lint	Pima cotton lint	Tomatoes	Wheat
		Tons	Tons	Lbs	Lbs	Tons	Tons
853:							
Los Banos--------	2e	---	1.2	750.0	---	---	---
Pleito-----------	2e	---	---	750.0	---	---	---
855:							
Pleito-----------	4e	---	---	750.0	---	---	---
Narbaitz---------	3e	---	---	---	---	---	---
Pleito-----------	4e	---	---	750.0	---	---	---
960:							
Excelsior--------	2w	---	---	---	---	---	---
Westhaven--------	2w	---	---	1,428.0	---	---	---

Table 6.--Land Capability and Irrigated Yields per Acre of Crops That Are Sensitive to Salinity

(Yields are those that can be expected under a high level of irrigated management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Almonds	Cantaloupe	Garlic	Lettuce	Onions	Pistachios
		Lbs	Crates	Tons	Crates	Tons	Lbs
115:							
Bolfar-----------	2w	---	220.0	---	---	---	---
285:							
Tranquillity-----	3w	---	596.0	---	---	---	---
Tranquillity, wet	3w	---	500.0	---	---	---	---
286:							
Tranquillity-----	3w	---	---	---	---	17.3	---
320:							
Elnido-----------	2w	---	180.0	---	---	---	---
404:							
Milham-----------	3e	1,800.0	---	---	---	---	1,500.0
Guijarral--------	3e	1,650.0	---	---	---	---	1,350.0
405:							
Polvadero--------	3e	1,650.0	---	---	---	---	1,350.0
Guijarral--------	3e	1,350.0	---	---	---	---	1,350.0
406:							
Guijarral--------	3e	1,650.0	---	---	---	---	1,500.0
412:							
Yribarren--------	2s	---	---	---	---	14.3	---
414:							
Dospalos---------	2w	---	180.0	---	---	---	---
415:							
Dospalos---------	2w	---	160.0	---	---	---	---
425:							
Kimberlina-------	1	2,250.0	594.0	---	---	---	3,000.0
426:							
Kimberlina-------	2e	2,250.0	---	---	---	---	3,000.0
434:							
Lethent----------	3s	---	---	6.0	---	14.0	---
435:							
Lethent----------	3s	---	---	9.5	---	18.0	---
436, 437:							
Panoche----------	1	2,500.0	---	---	---	29.6	3,000.0
438:							
Panoche----------	2e	2,400.0	---	---	---	29.6	3,000.0
442:							
Panoche----------	1	2,400.0	---	8.0	---	17.5	---

Table 6.--Land Capability and Irrigated Yields per Acre of Crops That Are Sensitive to Salinity--Cont.

Map symbol and soil name	Land capability	Almonds	Cantaloupe	Garlic	Lettuce	Onions	Pistachios
		Lbs	Crates	Tons	Crates	Tons	Lbs
445:							
Excelsior--------	1	2,380.0	763.0	---	500.0	---	2,193.0
447:							
Excelsior--------	2s	1,829.0	400.0	9.2	600.0	---	2,232.0
448:							
Excelsior--------	2s	1,700.0	---	---	---	---	1,440.0
451:							
Milham-----------	1	2,200.0	---	7.5	---	17.5	2,000.0
452:							
Milham-----------	2e	2,200.0	---	---	---	---	2,188.0
453:							
Milham-----------	3e	2,000.0	---	---	---	---	1,900.0
454:							
Polvadero--------	2s	1,840.0	510.0	---	---	---	2,000.0
455:							
Polvadero--------	2e	1,600.0	---	---	---	---	1,800.0
459:							
Ciervo-----------	2s	1,575.0	661.0	8.8	---	16.7	2,021.0
462:							
Ciervo-----------	3s	---	421.0	8.3	---	16.2	---
Ciervo, wet------	2s	---	465.0	9.1	---	18.0	---
466:							
Paver------------	1	1,700.0	300.0	---	---	---	---
468:							
Deldota----------	2w	---	160.0	---	---	---	---
470:							
Chateau----------	3w	---	190.0	---	---	---	---
474:							
Westhaven--------	1	1,800.0	515.0	8.8	758.0	---	1,500.0
475:							
Posochanet-------	3s	---	---	7.5	---	---	---
477:							
Westhaven--------	1	---	946.0	10.0	---	---	---
478:							
Cerini-----------	1	2,293.0	731.0	---	---	---	---
479:							
Cerini-----------	1	2,424.0	558.0	10.8	700.0	19.2	---
481:							
Cerini-----------	2e	1,600.0	---	---	---	---	---
482:							
Calflax----------	3s	---	519.0	8.8	---	14.6	---

Table 6.--Land Capability and Irrigated Yields per Acre of Crops That Are Sensitive to Salinity--Cont.

Map symbol and soil name	Land capability	Almonds	Cantaloupe	Garlic	Lettuce	Onions	Pistachios
		Lbs	Crates	Tons	Crates	Tons	Lbs
488:							
Wasco------------	2s	2,000.0	---	---	---	---	1,867.0
489:							
Wasco------------	2e	1,900.0	---	---	---	---	1,700.0
490:							
Cerini-----------	2e	1,900.0	---	---	---	---	---
491:							
Cerini-----------	2e	1,980.0	---	---	---	---	---
492:							
Panoche----------	2e	2,000.0	---	---	---	17.0	2,000.0
493:							
Panoche----------	2e	2,000.0	591.0	---	---	---	---
960:							
Excelsior--------	2w	---	---	---	---	---	---
Westhaven--------	2w	---	---	---	---	16.6	---

Table 7.--Land Capability Classification

(The land capability system groups soils primarily on the basis of their ability to produce the commonly grown cultivated crops and pasture plants over a long period of time without deteriorating. Land capability placement in California is based on State criteria developed in 1978 and revised in 1992. Absence of an entry indicates that no land capability classification is assigned. N represents nonirrigated areas, and I represents irrigated areas)

Map symbol and soil name	Land capability	
	N	I
101:		
Armona loam, partially drained	7w	3w-6
107:		
Anela very gravelly sandy loam	4s-4	4s-4
115:		
Bolfar loam, drained	4w-2	2w-2
120:		
Altaslough clay loam	7w	3w-6
130:		
Gepford clay	6w	3w-6
282:		
Tachi clay	7w	3w-6
284:		
Lillis clay	7w	4w-6
285:		
Tranquillity clay, saline-sodic	7w	3w-6
Tranquillity clay, saline-sodic, wet	7w	3w-6
286:		
Tranquillity clay, saline-sodic, wet	7w	3w-6
311:		
Bisgani sandy loam, drained	4w-4	3w-4
320:		
Elnido sandy loam, drained	4w-2	2w-2
325:		
Palazzo sandy loam, drained	4w-2	2w-2
375:		
Lethent silt loam	7w	3w-6
376:		
Agnal silty clay	7w	4w-6
404:		
Milham sandy loam	7e	3e-1
Guijarral sandy loam	7e	3e-1
405:		
Polvadero sandy loam	7e	3e-1
Guijarral sandy loam	7e	3e-1

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability N	Land capability I
406:		
Guijarral sandy loam	7e	3e-1
412:		
Yribarren clay loam	7s	2s-5
414:		
Dospalos clay loam, drained	4w-2	2w-2
415:		
Dospalos clay, drained	4w-2	2w-2
425:		
Kimberlina sandy loam	7c	1
426:		
Kimberlina sandy loam	7e	2e-1
434:		
Lethent clay loam, wet	7s	3s-6
435:		
Lethent clay loam	7s	3s-6
436:		
Panoche loam	7c	1
437:		
Panoche sandy loam	7c	1
438:		
Panoche loam	7e	2e-1
442:		
Panoche clay loam	7c	1
445:		
Excelsior sandy loam	7c	1
447:		
Excelsior sandy loam, sandy substratum	7s	2s-4
448:		
Excelsior loamy sand, sandy substratum, eroded	7e	2s-1
451:		
Milham sandy loam	7c	1
452:		
Milham sandy loam	7e	2e-1
453:		
Milham sandy loam	7e	3e-1
454:		
Polvadero sandy loam	7s	2s-1
455:		
Polvadero sandy loam	7e	2e-1
459:		
Ciervo clay	7s	2s-3
461:		
Ciervo clay, saline-sodic, wet	7s	3s-6

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability N	I
462:		
Ciervo clay, saline-sodic, wet	7s	3s-6
Ciervo clay, saline-sodic	7s	2s-6
466:		
Paver clay loam	4c	1
468:		
Deldota clay, partially drained	4w-5	2w-5
470:		
Chateau clay, partially drained	6w	3w-6
472:		
Wekoda clay, partially drained	4w-5	3w-5
474:		
Westhaven loam	7c	1
475:		
Posochanet clay loam, saline-sodic, wet	7s	3s-6
476:		
Posochanet clay loam, saline-sodic	7s	2s-6
477:		
Westhaven clay loam	7c	1
478:		
Cerini sandy loam	7c	1
479:		
Cerini clay loam	7c	1
480:		
Calflax clay loam, saline-sodic	7s	2s-6
481:		
Cerini clay loam	7e	2e-1
482:		
Calflax clay loam, saline-sodic, wet	7s	3s-6
488:		
Wasco sandy loam	7e	2s-4
489:		
Wasco sandy loam	7e	2e-1
490:		
Cerini sandy loam, subsided	7e	2e-1
491:		
Cerini clay loam, subsided	7e	2e-1
492:		
Panoche loam, subsided	7e	2e-1
493:		
Panoche clay loam, subsided	7e	2e-1
587:		
Mugatu fine sandy loam	6e	2e-1

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
588:		
Mugatu fine sandy loam	6e	4e-1
590:		
Cerini sandy loam	7c	1
Anela very gravelly sandy loam	4w-2	4w-2
Fluvaquents, saline-sodic	7w	---
620, 621:		
Delgado sandy loam, eroded	7e	---
640:		
Kettleman clay loam, eroded	7e	---
Delgado sandy loam, eroded	7e	---
Mercey loam, eroded	7e	---
641:		
Mercey loam	7e	---
Delgado sandy loam	7e	---
Kettleman clay loam	7e	---
642:		
Mercey loam, eroded	7e	---
Delgado sandy loam, eroded	7e	---
Kettleman clay loam, eroded	7e	---
643:		
Mercey loam	7e	---
Delgado sandy loam	7e	---
Kettleman clay loam	7e	---
644:		
Mercey loam, eroded	7e	---
Kettleman clay loam, eroded	7e	---
Delgado sandy loam, eroded	7e	---
645:		
Delgado sandy loam	7e	---
Mercey loam	7e	---
Kettleman clay loam	7e	---
670:		
Badland	8	---
Kettleman clay loam	7e	---
Mercey loam	7e	---

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
680:		
Arburua loam	6e	---
Morenogulch parachannery silty clay	8	---
704:		
Franciscan gravelly sandy loam	6e	---
705:		
Roacha silty clay loam	6e	---
706:		
Sagaser loam	7e	---
709:		
Sagaser loam	7e	---
Gaviota sandy loam	7e	---
Borreguero sandy loam	7e	---
710:		
Monoridge fine sand	7e	---
Exclose clay loam	6e	---
Badland	8	---
711:		
Currymountain loam	6e	---
Wisflat sandy loam	7e	---
Borreguero sandy loam	7e	---
712:		
Altamont clay	6e	---
Roacha silty clay loam	6e	---
Borreguero sandy loam	7e	---
713:		
Currymountain loam	7e	---
Rock outcrop	8	---
Quinto gravelly sandy loam	7e	---
714:		
Gaviota sandy loam	7e	---
Borreguero sandy loam	7e	---
Rock outcrop	8	---
715:		
Belgarra clay	4e-5	---
Wisflat sandy loam	7e	---

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
717:		
Belgarra clay	4e-5	---
Arburua loam	6e	---
Morenogulch parachannery silty clay	8	---
718:		
Nodhill loam	6e	---
Wisflat sandy loam	7e	---
Rock outcrop	8	---
719:		
Nodhill loam	6e	---
Arburua loam	6e	---
Wisflat sandy loam	7e	---
720:		
Exclose clay loam	6e	---
Wisflat sandy loam	7e	---
Morenogulch parachannery silty clay	8	---
722:		
Exclose clay loam	6e	---
Wisflat sandy loam	7e	---
Rock outcrop	8	---
723:		
Exclose clay loam	6e	---
Wisflat sandy loam	7e	---
Grazer silty clay loam	6e	---
725:		
Gewter clay	7e	---
727:		
Reliz channery loam	7e	---
Gewter loam	7e	---
Rock outcrop	8	---
728:		
Climara clay	6e	---
733:		
Hentine very gravelly sandy loam	7e	---
Climara clay	6e	---

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
735:		
Getrail clay	6e	---
Vernado sandy loam	7e	---
Rock outcrop	8	---
737:		
Grazer silty clay loam	6e	---
Badland	8	---
Wisflat sandy loam	7e	---
738:		
Grazer silty clay loam	4e-5	---
Belgarra clay	4e-5	---
Arburua loam	6e	---
739:		
Domengine loam	6e	---
Wisflat sandy loam	7e	---
Rock outcrop	8	---
740:		
Domengine loam	6e	---
Lilten silty clay loam	6e	---
Rock outcrop	8	---
741:		
Anela very gravelly sandy loam	4w-2	4w-2
Vernalis loam	4e-1	2e-1
742:		
Millsholm clay loam	7e	---
Wisflat sandy loam	7e	---
Lilten silty clay loam	6e	---
743:		
Millsholm clay loam	7e	---
Borreguero sandy loam	7e	---
744:		
Lilten silty clay loam	6e	---
Millsholm clay loam	7e	---
745:		
Grazer silty clay loam	4e-5	---
Wisflat sandy loam	7e	---
Arburua loam	6e	---

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability N	Land capability I
746:		
Rock outcrop, sandstone and shale	8	---
Wisflat sandy loam	7e	---
Arburua loam	7e	---
747:		
Lilten silty clay	6e	---
Grazer silty clay loam	4e-5	---
Arburua loam	6e	---
748:		
Vaquero clay	6e	---
Grazer silty clay loam	4e-5	---
749:		
Grazer silty clay loam	6e	---
Wisflat sandy loam	7e	---
Exclose clay loam	6e	---
750:		
Monvero sand	6e	---
Monoridge fine sand	7e	---
752:		
Cyvar loam	7e	---
Nodhill loam	6e	---
753:		
Cyvar loam	7e	---
Nodhill loam	6e	---
Pits, gypsiferous	8	---
755:		
Borreguero sandy loam	7e	---
Grazer silty clay loam	4e-5	---
Rock outcrop	8	---
757:		
Rock outcrop	8	---
Borreguero sandy loam	7e	---
758:		
Wisflat sandy loam	7e	---
Borreguero sandy loam	7e	---
Rock outcrop	8	---
761:		
Atravesada gravelly sandy loam	7e	---

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
765, 767:		
Atravesada sandy loam	7e	---
Pits, asbestos	8	---
769:		
Dumps, asbestos	8	---
Pits, asbestos	8	---
770:		
Roacha silty clay loam	6e	---
Millsholm clay loam	7e	---
Lilten silty clay loam	6e	---
773:		
Hentine very gravelly sandy loam	7e	---
Rock outcrop	8	---
774:		
Hentine very gravelly sandy loam	7e	---
Franciscan gravelly sandy loam	6e	---
Rock outcrop	8	---
782:		
Vaquero clay	6e	---
Altamont clay	6e	---
783:		
Vaquero clay	7e	---
Altamont clay	7e	---
817, 818, 819:		
Arburua loam	4e-1	---
820:		
Arburua loam	6e	---
822:		
Altamont clay	4e-5	---
823:		
Ayar clay	4e-5	3e-5
827:		
Ayar clay	4e-5	---
Arburua loam	4e-1	---
834:		
Bapos clay loam	4e-3	3e-3
835:		
Pedcat loam, eroded	7w	---
842:		
Quinto gravelly sandy loam	7e	---

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
842:		
Millsholm clay loam	7e	---
Rock outcrop	8	---
847:		
Carranza gravelly sandy loam	4e-11	---
849:		
Chaqua loam	4e-1	3e-1
851:		
Los Banos clay loam	4s-3	2s-3
852:		
Los Banos clay loam	4e-3	2e-3
853:		
Los Banos clay loam	4e-3	2e-3
Pleito gravelly clay loam	4e-4	2e-4
855:		
Pleito gravelly clay loam	4e-4	4e-4
863:		
Vernalis loam	4c-1	1
865:		
Conosta clay loam	4e-3	3e-3
870, 871:		
Wisflat sandy loam	7e	---
Rock outcrop	8	---
Arburua loam	6e	---
872:		
Vernalis loam	4e-1	2e-1
873:		
Narbaitz loam	4e-3	3e-3
Pleito gravelly clay loam	4e-4	4e-4
940:		
Milham sandy loam, organic surface	7e	2e-1
Polvadero sandy loam, organic surface	7e	2e-1
941:		
Bisgani loamy sand	4w-2	---
Elnido sandy loam	4w-2	---
950:		
Pits, gravel	8	---
960:		
Excelsior sandy loam, sandy substratum	7w	2w-2
Westhaven loam	7w	2w-2

Table 7.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
980. Urban land.		
981. Sewage disposal ponds.		
982. Water.		

Table 8.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
115	Bolfar loam, drained, 0 to 1 percent slopes (if irrigated)
311	Bisgani sandy loam, drained, 0 to 1 percent slopes (if irrigated)
320	Elnido sandy loam, drained, 0 to 1 percent slopes (if irrigated)
325	Palazzo sandy loam, drained, 0 to 1 percent slopes (if irrigated)
406	Guijarral sandy loam, 2 to 5 percent slopes (if irrigated)
412	Yribarren clay loam, 0 to 2 percent slopes (if irrigated)
414	Dospalos clay loam, drained, 0 to 1 percent slopes (if irrigated)
415	Dospalos clay, drained, 0 to 1 percent slopes (if irrigated)
425	Kimberlina sandy loam, 0 to 2 percent slopes (if irrigated)
426	Kimberlina sandy loam, 2 to 5 percent slopes (if irrigated)
436	Panoche loam, 0 to 2 percent slopes (if irrigated)
437	Panoche sandy loam, 0 to 2 percent slopes (if irrigated)
438	Panoche loam, 2 to 5 percent slopes (if irrigated)
442	Panoche clay loam, 0 to 2 percent slopes (if irrigated)
445	Excelsior sandy loam, 0 to 2 percent slopes (if irrigated)
447	Excelsior sandy loam, sandy substratum, 0 to 2 percent slopes (if irrigated)
448	Excelsior loamy sand, sandy substratum, 0 to 1 percent slopes, eroded (if irrigated)
451	Milham sandy loam, 0 to 2 percent slopes (if irrigated)
452	Milham sandy loam, 2 to 5 percent slopes (if irrigated)
454	Polvadero sandy loam, 0 to 2 percent slopes (if irrigated and reclaimed of excess salts and sodium)
455	Polvadero sandy loam, 2 to 5 percent slopes (if irrigated and reclaimed of excess salts and sodium)
459	Ciervo clay, 0 to 2 percent slopes (if irrigated)
466	Paver clay loam, 0 to 2 percent slopes (if irrigated)
468	Deldota clay, partially drained, 0 to 1 percent slopes (if irrigated)
474	Westhaven loam, 0 to 2 percent slopes (if irrigated)
477	Westhaven clay loam, 0 to 2 percent slopes (if irrigated)
478	Cerini sandy loam, 0 to 2 percent slopes (if irrigated)
479	Cerini clay loam, 0 to 2 percent slopes (if irrigated)
481	Cerini clay loam, 2 to 5 percent slopes (if irrigated)
488	Wasco sandy loam, 0 to 2 percent slopes (if irrigated)
489	Wasco sandy loam, 2 to 5 percent slopes (if irrigated)
490	Cerini sandy loam, subsided, 0 to 5 percent slopes (if irrigated)
491	Cerini clay loam, subsided, 0 to 5 percent slopes (if irrigated)
492	Panoche loam, subsided, 0 to 5 percent slopes (if irrigated)
493	Panoche clay loam, subsided, 0 to 5 percent slopes (if irrigated)
823	Ayar clay, 5 to 8 percent slopes (if irrigated)
849	Chaqua loam, 2 to 8 percent slopes (if irrigated)
851	Los Banos clay loam, 0 to 2 percent slopes (if irrigated)
852	Los Banos clay loam, 2 to 8 percent slopes (if irrigated)
853	Los Banos-Pleito complex, 2 to 8 percent slopes (if irrigated)
863	Vernalis loam, 0 to 2 percent slopes (if irrigated)
872	Vernalis loam, 2 to 5 percent slopes (if irrigated)

Table 9.--Farmland of Statewide Importance

(Urban or built-up areas within the map units listed below are not considered farmland of statewide importance)

Map symbol	Map unit name
101	Armona loam, partially drained, 0 to 1 percent slopes
120	Altaslough clay loam, 0 to 1 percent slopes
130	Gepford clay, 0 to 1 percent slopes
282	Tachi clay, 0 to 1 percent slopes
285	Tranquillity-Tranquillity, wet, complex, saline-sodic, 0 to 1 percent slopes
286	Tranquillity clay, saline-sodic, wet, 0 to 1 percent slopes
404	Milham-Guijarral association, 5 to 15 percent slopes
405	Polvadero-Guijarral complex, 5 to 15 percent slopes
434	Lethent clay loam, wet, 0 to 1 percent slopes
435	Lethent clay loam, 0 to 1 percent slopes
453	Milham Sandy loam, 5 to 9 percent slopes
461	Ciervo clay, saline-sodic, wet, 0 to 1 percent slopes
462	Ciervo, wet-Ciervo Complex, saline-sodic, 0 to 1 percent slopes
470	Chateau clay, partially drained, 0 to 1 percent slopes
472	Wekoda clay, partially drained, 0 to 1 percent slopes
475	Posochanet clay loam, saline-sodic, wet, 0 to 1 percent slopes
476	Posochanet clay loam, saline-sodic, 0 to 2 percent slopes
480	Calflax clay loam, saline-sodic, 0 to 2 percent slopes
482	Calflax clay loam, saline-sodic, wet, 0 to 1 percent slopes

Table 10.--Storie Index

(The California Storie Index expresses numerically the relative degree of suitability of a soil for general intensive agricultural uses at the time of evaluation. The rating is based on soil characteristics only and is obtained by evaluating such factors as soil depth, texture of the surface soil, subsoil characteristics, and surface relief)

Map symbol and soil name	Storie index
101:	
Armona loam, partially drained	23
107:	
Anela very gravelly sandy loam	45
115:	
Bolfar loam, drained	76
120:	
Altaslough clay loam	39
130:	
Gepford clay	14
282:	
Tachi clay	14
284:	
Lillis clay	5
285:	
Tranquillity clay, saline-sodic	22
Tranquillity clay, saline-sodic, wet	5
286:	
Tranquillity clay, saline-sodic, wet	5
311:	
Bisgani sandy loam, drained	57
320:	
Elnido sandy loam, drained	72
325:	
Palazzo sandy loam, drained	76
375:	
Lethent silt loam	7
376:	
Agnal silty clay	1
404:	
Milham sandy loam	90
Guijarral sandy loam	86
405:	
Polvadero sandy loam	64
Guijarral sandy loam	86

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
406:	
Guijarral sandy loam	95
412:	
Yribarren clay loam	77
414:	
Dospalos clay loam, drained	52
415:	
Dospalos clay, drained	37
425:	
Kimberlina sandy loam	90
426:	
Kimberlina sandy loam	85
434:	
Lethent clay loam, wet	18
435:	
Lethent clay loam	46
436:	
Panoche loam	100
437:	
Panoche sandy loam	95
438:	
Panoche loam	90
442:	
Panoche clay loam	85
445:	
Excelsior sandy loam	90
447:	
Excelsior sandy loam, sandy substratum	80
448:	
Excelsior loamy sand, sandy substratum, eroded	61
451:	
Milham sandy loam	86
452:	
Milham sandy loam	81
453:	
Milham sandy loam	73
454:	
Polvadero sandy loam	68
455:	
Polvadero sandy loam	61
459:	
Ciervo clay	49

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
461:	
Ciervo clay, saline-sodic, wet	26
462:	
Ciervo clay, saline-sodic, wet	26
Ciervo clay, saline-sodic	34
466:	
Paver clay loam	85
468:	
Deldota clay, partially drained	46
470:	
Chateau clay, partially drained	14
472:	
Wekoda clay, partially drained	23
474:	
Westhaven loam	95
475:	
Posochanet clay loam, saline-sodic, wet	24
476:	
Posochanet clay loam, saline-sodic	48
477:	
Westhaven clay loam	81
478:	
Cerini sandy loam	90
479:	
Cerini clay loam	81
480:	
Calflax clay loam, saline-sodic	58
481:	
Cerini clay loam	77
482:	
Calflax clay loam, saline-sodic, wet	39
488:	
Wasco sandy loam	90
489:	
Wasco sandy loam	81
490:	
Cerini sandy loam, subsided	77
491:	
Cerini clay loam, subsided	69
492:	
Panoche loam, subsided	86

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
493:	
Panoche clay loam, subsided	73
587:	
Mugatu fine sandy loam	67
588:	
Mugatu fine sandy loam	57
590:	
Cerini sandy loam	81
Anela very gravelly sandy loam	41
Fluvaquents saline-sodic	1
620:	
Delgado sandy loam, eroded	22
621:	
Delgado sandy loam, eroded	14
640:	
Kettleman clay loam, eroded	45
Delgado sandy loam, eroded	22
Mercey loam, eroded	46
641:	
Mercey loam	54
Delgado sandy loam	26
Kettleman clay loam	54
642:	
Mercey loam, eroded	29
Delgado sandy loam, eroded	14
Kettleman clay loam, eroded	29
643:	
Mercey loam	46
Delgado sandy loam	19
Kettleman clay loam	45
644:	
Mercey loam, eroded	12
Kettleman clay loam, eroded	12
Delgado sandy loam, eroded	5
645:	
Delgado sandy loam	7
Mercey loam	19
Kettleman clay loam	19

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
670:	
Badland	1
Kettleman clay loam	24
Mercey loam	43
680:	
Arburua loam	36
Morenogulch parachannery silty clay	2
704:	
Franciscan gravelly sandy loam	19
705:	
Roacha silty clay loam	19
706:	
Sagaser loam	8
709:	
Sagaser loam	8
Gaviota sandy loam	3
Borreguero sandy loam	5
710:	
Monoridge fine sand	7
Exclose clay loam	14
Badland	1
711:	
Currymountain loam	24
Wisflat sandy loam	3
Borreguero sandy loam	5
712:	
Altamont clay	15
Roacha silty clay loam	19
Borreguero sandy loam	8
713:	
Currymountain loam	6
Rock outcrop.	
Quinto gravelly sandy loam	2
714:	
Gaviota sandy loam	5
Borreguero sandy loam	5
Rock outcrop.	

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
715:	
Belgarra clay	38
Wisflat sandy loam	9
717:	
Belgarra clay	38
Arburua loam	18
Morenogulch parachannery silty clay	2
718:	
Nodhill loam	57
Wisflat sandy loam	9
Rock outcrop.	
719:	
Nodhill loam	57
Arburua loam	18
Wisflat sandy loam	11
720:	
Exclose clay loam	24
Wisflat sandy loam	9
Morenogulch parachannery silty clay	2
722:	
Exclose clay loam	27
Wisflat sandy loam	11
Rock outcrop.	
723:	
Exclose clay loam	20
Wisflat sandy loam	11
Grazer silty clay loam	14
725:	
Gewter clay	9
727:	
Reliz channery loam	9
Gewter loam	12
Rock outcrop.	
728:	
Climara clay	14
733:	
Hentine very gravelly sandy loam	11
Climara clay	18

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
735:	
Getrail clay	21
Vernado sandy loam	17
Rock outcrop.	
737:	
Grazer silty clay loam	29
Badland	1
Wisflat sandy loam	19
738:	
Grazer silty clay loam	40
Belgarra clay	38
Arburua loam	24
739:	
Domengine loam	24
Wisflat sandy loam	11
Rock outcrop.	
740:	
Domengine loam	18
Lilten silty clay loam	17
Rock outcrop.	
741:	
Anela very gravelly sandy loam	43
Vernalis loam	90
742:	
Millsholm clay loam	10
Wisflat sandy loam	11
Lilten silty clay loam	17
743:	
Millsholm clay loam	10
Borreguero sandy loam	5
744:	
Lilten silty clay loam	17
Millsholm clay loam	10
745:	
Grazer silty clay loam	40
Wisflat sandy loam	9
Arburua loam	24

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
746:	
Rock outcrop, sandstone and shale.	
Wisflat sandy loam	9
Arburua loam	18
747:	
Lilten silty clay	17
Grazer silty clay loam	43
Arburua loam	18
748:	
Vaquero clay	10
Grazer silty clay loam	43
749:	
Grazer silty clay loam	19
Wisflat sandy loam	11
Exclose clay loam	27
750:	
Monvero sand	30
Monoridge fine sand	7
752:	
Cyvar loam	29
Nodhill loam	61
753:	
Cyvar loam	29
Nodhill loam	61
Pits gypsiferous.	
755:	
Borreguero sandy loam	5
Grazer silty clay loam	43
Rock outcrop.	
757:	
Rock outcrop.	
758:	
Wisflat sandy loam	9
Borreguero sandy loam	5
Rock outcrop.	
761:	
Atravesada gravelly sandy loam	4

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
765:	
Atravesada sandy loam	8
Pits asbestos.	
767:	
Atravesada sandy loam	2
Pits asbestos.	
769.	
Dumps asbestos-Pits asbestos	
770:	
Roacha silty clay loam	11
Millsholm clay loam	7
Lilten silty clay loam	22
773:	
Hentine very gravelly sandy loam	4
Rock outcrop.	
774:	
Hentine very gravelly sandy loam	4
Franciscan gravelly sandy loam	12
Rock outcrop.	
782:	
Vaquero clay	16
Altamont clay	15
783:	
Vaquero clay	7
Altamont clay	9
817:	
Arburua loam	68
818:	
Arburua loam	64
819:	
Arburua loam	53
820:	
Arburua loam	24
822:	
Altamont clay	49
823:	
Ayar clay	54
827:	
Ayar clay	60
Arburua loam	64

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
834:	
Bapos clay loam	69
835:	
Pedcat loam, eroded	3
842:	
Quinto gravelly sandy loam	4
Millsholm clay loam	7
Rock outcrop.	
847:	
Carranza gravelly sandy loam	60
849:	
Chaqua loam	77
851:	
Los banos clay loam	68
852:	
Los banos clay loam	65
853:	
Los banos clay loam	65
Pleito gravelly clay loam	77
855:	
Pleito gravelly clay loam	47
863:	
Vernalis loam	95
865:	
Conosta clay loam	54
870:	
Wisflat sandy loam	34
Rock outcrop.	
Arburua loam	53
871:	
Wisflat sandy loam	9
Rock outcrop.	
Arburua loam	24
872:	
Vernalis loam	90
873:	
Narbaitz loam	58
Pleito gravelly clay loam	57

Table 10.--Storie Index--Continued

Map symbol and soil name	Storie index
940:	
Milham sandy loam, organic surface	3
Polvadero sandy loam, organic surface	3
941:	
Bisgani loamy sand	29
Elnido sandy loam	34
950:	
Pits gravel.	
960:	
Excelsior sandy loam, sandy substratum	41
Westhaven loam	34
980.	
Urban land.	
981.	
Sewage disposal ponds.	
982.	
Water.	

Table 11.--Agricultural Waste 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. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101:							
Armona loam, partially drained--	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.68	Sodium content	0.68	Sodium content	0.68
		Restricted permeability	0.30	Flooding	0.40	Restricted permeability	0.22
		Salinity	0.01	Restricted permeability	0.22	Salinity	0.01
				Salinity	0.01		
107:							
Anela very gravelly sandy loam---------	85	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Leaching limitation	0.45	Flooding	0.40		
115:							
Bolfar loam, drained	85	Not limited		Somewhat limited		Not limited	
				Flooding	0.40		
120:							
Altaslough clay loam	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Salinity	0.50	Flooding	0.20		
130:							
Gepford clay--------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Runoff limitation	0.40	Flooding	0.40		
		Salinity	0.01				
282:							
Tachi clay----------	91	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Runoff limitation	0.40	Flooding	0.40		
284:							
Lillis clay---------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Salinity	1.00	Sodium content	1.00	Sodium content	1.00
		Sodium content	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Salinity	1.00	Salinity	1.00
		Runoff limitation	0.40	Flooding	0.20		

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
285:							
Tranquillity clay saline-sodic-------	60	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Flooding	0.20	Sodium content	0.08
		Sodium content	0.08	Sodium content	0.08		
Tranquillity clay, saline-sodic, wet--	25	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Salinity	0.65	Flooding	0.20		
		Runoff limitation	0.40				
286:							
Tranquillity clay saline-sodic, wet--	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Salinity	0.65	Flooding	0.40		
		Runoff limitation	0.40				
311:							
Bisgani sandy loam, drained-----------	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Droughty	0.64	Droughty	0.64	Droughty	0.64
				Flooding	0.40		
320:							
Elnido sandy loam, drained-----------	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Sodium content	0.68	Sodium content	0.68	Sodium content	0.68
		Too acid	0.03	Flooding	0.40	Too acid	0.14
				Too acid	0.14		
325:							
Palazzo sandy loam, drained-----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.89	Restricted permeability	0.78	Restricted permeability	0.78
		Sodium content	0.18	Flooding	0.40	Sodium content	0.18
				Sodium content	0.18		
375:							
Lethent silt loam---	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Salinity	1.00	Sodium content	1.00	Sodium content	1.00
		Sodium content	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Flooding	0.20		

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
376:							
Agnal silty clay----	90	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Salinity	1.00	Salinity	1.00	Salinity	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Runoff limitation	0.40	Flooding	0.20		
404:							
Milham sandy loam---	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Restricted permeability	0.22	Too steep for surface application	0.92
						Restricted permeability	0.22
						Too steep for sprinkler application	0.02
Guijarral sandy loam	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Too steep for surface application	1.00
		Droughty	0.01	Droughty	0.01	Too steep for sprinkler application	0.40
						Droughty	0.01
405:							
Polvadero sandy loam	55	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Too steep for surface application	1.00
		Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.40
						Restricted permeability	0.22
Guijarral sandy loam	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Too steep for surface application	1.00
		Droughty	0.01	Droughty	0.01	Too steep for sprinkler application	0.40
						Droughty	0.01
406:							
Guijarral sandy loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.01	Droughty	0.01	Droughty	0.01

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
412:							
Yribarren clay loam	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	0.32	Sodium content	0.32	Sodium content	0.32
				Flooding	0.20		
414:							
Dospalos clay loam, drained-----------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Flooding	0.20		
415:							
Dospalos clay, drained-----------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Flooding	0.20		
425, 426:							
Kimberlina sandy, loam---------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		
434:							
Lethant clay loam, wet----------------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Salinity	0.01	Flooding	0.40	Salinity	0.01
				Salinity	0.01		
435:							
Lethant clay loam---	90	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	0.68	Sodium content	0.68	Sodium content	0.68
				Flooding	0.20		
436:							
Panoche loam--------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		
437:							
Panoche sandy loam--	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		
438:							
Panoche loam--------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
442:							
Panoche clay loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		
445:							
Excelsior sandy, loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		
447:							
Excelsior sandy, loam, sandy substratum	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Sodium content	0.08	Flooding	0.40	Sodium content	0.08
				Sodium content	0.08		
448:							
Excelsior laomy, sand, sandy substratum, eroded	88	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Leaching limitation	0.45	Flooding	0.20	Sodium content	0.18
		Sodium content	0.18	Sodium content	0.18	Droughty	0.01
		Droughty	0.01	Droughty	0.01		
451:							
Milham sandy loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
				Flooding	0.20		
452:							
Milham sandy loam	89	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
453:							
Milham sandy loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Restricted permeability	0.22	Too steep for surface application	0.92
						Restricted permeability	0.22
						Too steep for sprinkler application	0.02
454:							
Polvadero sandy loam	85	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
				Flooding	0.20		

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
455:							
Polvadero sandy loam	85	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
459:							
Ciervo clay---------	80	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		
461:							
Ciervo clay, saline-sodic, wet---------	80	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Runoff limitation	0.40	Salinity	1.00	Salinity	1.00
		Salinity	0.22	Flooding	0.40		
462:							
Ciervo clay, saline-sodic, wet---------	50	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Runoff limitation	0.40	Salinity	1.00	Salinity	1.00
		Salinity	0.22	Flooding	0.20		
Ciervo clay, saline-sodic--------------	30	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	0.98	Sodium content	0.98	Sodium content	0.98
		Runoff limitation	0.40	Flooding	0.20		
466:							
Paver clay loam-----	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
				Flooding	0.20		
468:							
Deldota clay, partially drained--	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Flooding	0.20		
470:							
Chateau clay, partially drained--	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Sodium content	1.00	Sodium content	1.00
		Sodium content	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Salinity	1.00	Salinity	1.00
		Salinity	0.22	Flooding	0.20		

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
472:							
Wekoda clay, partially drained	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff limitation	0.40	Flooding	0.20		
		Salinity	0.01				
474:							
Westhaven loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.32	Sodium content	0.32	Sodium content	0.32
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
				Flooding	0.20		
475:							
Posochanet clay loam, saline-sodic, wet	88	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Sodium content	1.00	Sodium content	1.00
		Sodium content	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Salinity	0.50	Flooding	0.40		
476:							
Posochanet clay loam, saline-sodic	88	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Sodium content	1.00	Sodium content	1.00
		Sodium content	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Salinity	0.06	Flooding	0.20		
477:							
Westhaven clay loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.89	Restricted permeability	0.78	Restricted permeability	0.78
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		
478:							
Cerini sandy loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		
479:							
Cerini clay loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
				Sodium content	0.08		

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
480:							
Calflax clay loam, saline-sodic-------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.89	Restricted permeability	0.78	Restricted permeability	0.78
		Sodium content	0.08	Flooding	0.20	Sodium content	0.08
		Salinity	0.01	Sodium content	0.08	Salinity	0.01
				Salinity	0.01		
481:							
Cerini clay loam----	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
		Sodium content	0.08	Flooding	0.20	Too steep for surface application	0.08
				Sodium content	0.08	Sodium content	0.08
482:							
Calflax clay loam, saline-sodic, wet--	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.89	Restricted permeability	0.78	Restricted permeability	0.78
		Sodium content	0.18	Flooding	0.40	Sodium content	0.18
		Salinity	0.06	Sodium content	0.18	Salinity	0.01
				Salinity	0.01		
488, 489:							
Wasco sandy loam----	85	Not limited		Somewhat limited		Not limited	
				Flooding	0.20		
490:							
Cerini sandy loam, subsided----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Flooding	0.40	Restricted permeability	0.22
		Sodium content	0.08	Restricted permeability	0.22	Sodium content	0.08
				Sodium content	0.08		
491:							
Cerini clay loam, subsided----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Flooding	0.40	Restricted permeability	0.22
		Sodium content	0.08	Restricted permeability	0.22	Sodium content	0.08
				Sodium content	0.08		
492:							
Panoche loam, subsided----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.08	Flooding	0.40	Sodium content	0.08
				Sodium content	0.08		
493:							
Panoche clay loam, subsided----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Sodium content	0.08	Flooding	0.40	Sodium content	0.08
				Sodium content	0.08		

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
587:							
Mugatu fine sandy loam	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Restricted permeability	0.89	Restricted permeability	0.78	Restricted permeability	0.78
588:							
Mugatu fine sandy loam	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Filtering capacity	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.89	Restricted permeability	0.78	Filtering capacity	1.00
						Restricted permeability	0.78
590:							
Cerini sandy loam	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.30	Flooding	0.40	Restricted permeability	0.22
		Sodium content	0.08	Restricted permeability	0.22	Sodium content	0.08
				Sodium content	0.08		
Anela very gravelly sandy loam	30	Very limited		Very limited		Very limited	
		Droughty	1.00	Flooding	1.00	Droughty	1.00
		Flooding	0.60	Droughty	1.00	Flooding	0.60
		Leaching limitation	0.45				
Fluvaquents saline-sodic	20	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Salinity	1.00	Salinity	1.00
		Salinity	1.00	Sodium content	1.00	Flooding	1.00
		Sodium content	1.00	Flooding	1.00	Sodium content	1.00
		Flooding	1.00	Restricted permeability	1.00	Restricted permeability	1.00
620:							
Delgado sandy loam, eroded	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Runoff limitation	0.40	Low adsorption	1.00	Too steep for surface application	1.00
		Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.40
		Sodium content	0.02	Sodium content	0.02	Sodium content	0.02

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
621:							
Delgado sandy loam, eroded-------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Sodium content	0.02	Sodium content	0.02	Sodium content	0.02
640:							
Kettleman clay loam, eroded-------------	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.71	Low adsorption	1.00	Too steep for surface application	1.00
		Sodium content	0.32	Depth to bedrock	0.71	Depth to bedrock	0.71
		Droughty	0.24	Sodium content	0.32	Too steep for sprinkler application	0.40
		Slope	0.16	Droughty	0.24	Sodium content	0.32
				Slope	0.16	Droughty	0.24
Delgado sandy loam, eroded-------------	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Runoff limitation	0.40	Low adsorption	1.00	Too steep for surface application	1.00
		Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.40
		Sodium content	0.02	Sodium content	0.02	Sodium content	0.02
Mercey loam, eroded	20	Very limited		Very limited		Very limited	
		Depth to bedrock	0.99	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.97	Depth to bedrock	0.99	Depth to bedrock	0.99
		Restricted permeability	0.89	Droughty	0.97	Droughty	0.97
		Slope	0.16	Restricted permeability	0.78	Restricted permeability	0.78
		Sodium content	0.08	Slope	0.16	Too steep for sprinkler application	0.40

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
641:							
Mercey loam	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.90	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Depth to bedrock	0.90	Depth to bedrock	0.90
		Droughty	0.82	Droughty	0.82	Droughty	0.82
		Slope	0.16	Restricted permeability	0.78	Restricted permeability	0.78
		Sodium content	0.08	Slope	0.16	Too steep for sprinkler application	0.40
Delgado sandy loam	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Runoff limitation	0.40	Low adsorption	1.00	Too steep for surface application	1.00
		Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.40
		Sodium content	0.02	Sodium content	0.02	Sodium content	0.02
Kettleman clay loam	20	Somewhat limited		Very limited		Very limited	
		Sodium content	0.32	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.29	Sodium content	0.32	Too steep for sprinkler application	0.40
		Slope	0.16	Depth to bedrock	0.29	Sodium content	0.32
		Droughty	0.01	Slope	0.16	Depth to bedrock	0.29
				Droughty	0.01	Droughty	0.01
642:							
Mercey loam, eroded	35	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.99	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.97	Depth to bedrock	0.99	Depth to bedrock	0.99
		Restricted permeability	0.89	Droughty	0.97	Droughty	0.97
		Sodium content	0.08	Restricted permeability	0.78	Restricted permeability	0.78
Delgado sandy loam, eroded	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Sodium content	0.02	Sodium content	0.02	Sodium content	0.02

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
642:							
Kettleman clay loam, eroded	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Sodium content	0.32	Depth to bedrock	0.71	Depth to bedrock	0.71
		Droughty	0.24	Sodium content	0.32	Sodium content	0.32
				Droughty	0.24	Droughty	0.24
643:							
Mercey loam	35	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.90	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.89	Depth to bedrock	0.90	Depth to bedrock	0.90
		Droughty	0.82	Droughty	0.82	Droughty	0.82
		Sodium content	0.08	Restricted permeability	0.78	Restricted permeability	0.78
Delgado sandy loam	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Sodium content	0.02	Sodium content	0.02	Sodium content	0.02
Kettleman clay loam	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Sodium content	0.32	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Sodium content	0.32	Sodium content	0.32
		Droughty	0.01	Depth to bedrock	0.29	Depth to bedrock	0.29
				Droughty	0.01	Droughty	0.01
644:							
Mercey loam, eroded	35	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.99	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.97	Depth to bedrock	0.99	Depth to bedrock	0.99
		Restricted permeability	0.89	Droughty	0.97	Droughty	0.97
		Sodium content	0.08	Restricted permeability	0.78	Restricted permeability	0.78

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
644:							
Kettleman clay loam, eroded	30	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Sodium content	0.32	Depth to bedrock	0.71	Depth to bedrock	0.71
		Droughty	0.24	Sodium content	0.32	Sodium content	0.32
				Droughty	0.24	Droughty	0.24
Delgado sandy loam, eroded	20	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Sodium content	0.02	Sodium content	0.02	Sodium content	0.02
645:							
Delgado sandy loam	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Sodium content	0.02	Sodium content	0.02	Sodium content	0.02
Mercey loam	30	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.90	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.89	Depth to bedrock	0.90	Depth to bedrock	0.90
		Droughty	0.82	Droughty	0.82	Droughty	0.82
		Sodium content	0.08	Restricted permeability	0.78	Restricted permeability	0.78
Kettleman clay loam	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Sodium content	0.32	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Sodium content	0.32	Sodium content	0.32
		Droughty	0.01	Depth to bedrock	0.29	Depth to bedrock	0.29
				Droughty	0.01	Droughty	0.01

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
670:							
Badland	35	Not rated		Not rated		Not rated	
Kettleman clay loam	25	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Sodium content	0.32	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.29	Sodium content	0.32	Sodium content	0.32
		Droughty	0.01	Depth to bedrock	0.29	Depth to bedrock	0.29
				Droughty	0.01	Droughty	0.01
Mercey loam	25	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.90	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.89	Depth to bedrock	0.90	Depth to bedrock	0.90
		Droughty	0.82	Droughty	0.82	Droughty	0.82
		Sodium content	0.08	Restricted permeability	0.78	Restricted permeability	0.78
680:							
Arburua loam	45	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
Morenogulch parachannery silty clay	40	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Restricted permeability	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	1.00	Restricted permeability	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
704:							
Franciscan gravelly sandy loam---------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00		
		Depth to bedrock	0.80	Droughty	1.00		
		Restricted permeability	1.50	Depth to bedrock	0.80	Too steep for sprinkler application	1.00
				Restricted permeability	0.37		
						Droughty	1.00
						Depth to bedrock	0.80
						Restricted permeability	0.37
705:							
Roacha silty clay loam---------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted	1.00	Slope	1.00		
		permeability	0.23	Restricted permeability	1.00		
		Droughty	0.06			Too steep for sprinkler application	1.00
		Depth to bedrock	0.01	Droughty	0.23		
		Too acid		Depth to bedrock	0.06		
						Restricted permeability	1.00
						Droughty	0.23
						Depth to bedrock	0.06
706:							
Sagaser loam--------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	0.30	Slope	1.00		
				Restricted permeability	0.22		
						Too steep for sprinkler application	1.00
						Restricted permeability	0.22
709:							
Sagaser loam--------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	0.30	Slope	1.00		
				Restricted permeability	0.22		
						Too steep for sprinkler application	1.00
						Restricted permeability	0.22
Gaviota sandy loam--	20	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00		
						Too steep for sprinkler application	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
709:							
Borreguero sandy loam---------------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
710:							
Monoridge fine sand	45	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.84	Filtering capacity	1.00	Filtering capacity	1.00
				Depth to bedrock	0.84	Depth to bedrock	0.84
Exclose clay loam---	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Restricted permeability	0.78	Too steep for sprinkler application	1.00
						Restricted permeability	0.78
Badland-------------	15	Not rated		Not rated		Not rated	
711:							
Currymountain loam--	45	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.90	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.82	Depth to bedrock	0.90	Depth to bedrock	0.90
		Restricted permeability	0.30	Droughty	0.82	Droughty	0.82
				Restricted permeability	0.22	Restricted permeability	0.22
Wisflat sandy loam--	20	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
711:							
Borreguero sandy loam---------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
712:							
Altamont clay-------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation permeability	0.40	Restricted permeability	1.00	Restricted permeability	1.00
Roacha silty clay loam---------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.23	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to bedrock	0.06	Droughty	0.23	Droughty	0.23
		Too acid	0.01	Depth to bedrock	0.06	Depth to bedrock	0.06
Borreguero sandy loam---------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
713:							
Currymountain loam--	45	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Restricted permeability	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.99	Restricted permeability	1.00	Restricted permeability	1.00
		Too acid	0.02	Depth to bedrock	0.99	Depth to bedrock	0.99
Rock outcrop--------	20	Not rated		Not rated		Not rated	
Quinto gravelly sandy loam---------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	0.64	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	0.50	Restricted permeability	0.50
714:							
Gaviota sandy loam--	45	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Borreguero sandy loam---------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
Rock outcrop--------	15	Not rated		Not rated		Not rated	

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
715:							
Belgarra clay	55	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Slope	1.00	Slope	1.00	Restricted permeability	1.00
		Salinity	0.01			Too steep for sprinkler application	1.00
Wisflat sandy loam	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
717:							
Belgarra clay	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
		Salinity	0.01			Restricted permeability	1.00
Arburua loam	30	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
Morenogulch parachannery silty clay	15	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Restricted permeability	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	1.00	Restricted permeability	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste Rating class and limiting features	Value	Application of sewage sludge Rating class and limiting features	Value	Disposal of wastewater by irrigation Rating class and limiting features	Value
718:							
Nodhill loam--------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.73	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.65	Droughty	0.73	Droughty	0.73
		Sodium content	0.08	Depth to bedrock	0.65	Depth to bedrock	0.65
				Sodium content	0.08	Sodium content	0.08
Wisflat sandy loam--	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Rock outcrop--------	15	Not rated		Not rated		Not rated	
719:							
Nodhill loam--------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.73	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.65	Droughty	0.73	Droughty	0.73
		Sodium content	0.08	Depth to bedrock	0.65	Depth to bedrock	0.65
				Sodium content	0.08	Sodium content	0.08
Arburua loam--------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
Wisflat sandy loam--	15	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
720:							
Exclose clay loam---	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Restricted permeability	0.78	Too steep for sprinkler application	1.00
						Restricted permeability	0.78
Wisflat sandy loam--	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Morenogulch parachannery silty clay---------------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Restricted permeability	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	1.00	Restricted permeability	1.00
722:							
Exclose clay loam---	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Restricted permeability	0.78	Too steep for sprinkler application	1.00
						Restricted permeability	0.78
Wisflat sandy loam--	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Rock outcrop--------	15	Not rated		Not rated		Not rated	

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
723:							
Exclose clay loam---	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Restricted permeability	0.78	Too steep for sprinkler application	1.00
						Restricted permeability	0.78
Wisflat sandy loam--	25	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Grazer silty clay loam---------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00		
		Restricted permeability	1.00	Slope	1.00	Too steep for surface application	1.00
				Restricted permeability	1.00	Too steep for sprinkler application	1.00
						Restricted permeability	1.00
725:							
Gewter clay---------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.96	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to bedrock	0.95	Too acid	1.00	Too acid	1.00
		Too acid	0.78	Droughty	0.96	Droughty	0.96
727:							
Reliz channery loam	40	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Too acid	0.50	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Too acid	1.00	Too acid	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
727:							
Gewter loam	30	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to bedrock	0.84	Droughty	1.00	Droughty	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
728:							
Climara clay	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	1.00	Restricted permeability	1.00
		Droughty	0.05	Droughty	0.05	Droughty	0.05
		Depth to bedrock	0.01	Depth to bedrock	0.01	Depth to bedrock	0.01
					1.00		
733:							
Hentine very gravelly sandy loam	50	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	0.78	Restricted permeability	0.78
Climara clay	35	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	1.00	Restricted permeability	1.00
		Droughty	0.05	Droughty	0.05	Droughty	0.05
		Depth to bedrock	0.01	Depth to bedrock	0.01	Depth to bedrock	0.01

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
735:							
Getrail clay--------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	1.00	Restricted permeability	1.00
		Sodium content	0.02	Sodium content	0.02	Sodium content	0.02
Vernado sandy loam--	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.54	Droughty	1.00	Droughty	1.00
				Depth to bedrock	0.54	Depth to bedrock	0.54
Rock outcrop--------	20	Not rated		Not rated		Not rated	
737:							
Grazer silty clay loam---------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00
Badland-------------	30	Not rated		Not rated		Not rated	
Wisflat sandy loam--	20	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
738:							
Grazer silty clay loam---------------	35	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Slope	1.00	Restricted permeability	1.00	Restricted permeability	1.00
				Slope	1.00	Too steep for sprinkler application	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
738:							
Belgarra clay-------	30	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Slope	1.00	Slope	1.00	Restricted permeability	1.00
		Salinity	0.01			Too steep for sprinkler application	1.00
Argurua loam--------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
739:							
Domengine loam------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.01	Slope	1.00	Too steep for sprinkler application	1.00
				Depth to bedrock	0.01	Depth to bedrock	0.01
Wisflat sandy loam--	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Rock outcrop--------	15	Not rated		Not rated		Not rated	
740:							
Domengine loam------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.01	Slope	1.00	Too steep for sprinkler application	1.00
				Depth to bedrock	0.01	Depth to bedrock	0.01

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
740:							
Lilten silty clay loam	25	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
741:							
Anela very gravelly sandy loam	50	Very limited		Very limited		Very limited	
		Droughty	1.00	Flooding	1.00	Droughty	1.00
		Flooding	0.60	Droughty	1.00	Flooding	0.60
		Leaching limitation	0.45				
Vernalis loam	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.03	Flooding	0.40	Too acid	0.14
				Too acid	0.14		
742:							
Millsholm clay loam	40	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Wisflat sandy loam	25	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Lilten silty clay loam	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
743:							
Millsholm clay loam	50	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Borreguero sandy loam	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
744:							
Lilten silty clay loam	50	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00
Millsholm clay loam	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
745:							
Grazer silty clay loam	45	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Slope	1.00	Restricted permeability	1.00	Restricted permeability	1.00
				Slope	1.00	Too steep for sprinkler application	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
745:							
Wisflat sandy loam--	25	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Arburua loam--------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
746:							
Rock outcrop, sandstone and shale	40	Not rated		Not rated		Not rated	
Wisflat sandy loam--	25	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Arburua loam--------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
747:							
Lilten silty clay---	35	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
747:							
Grazer silty clay loam	30	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00
Arburua loam	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
748:							
Vaquero clay	70	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Sodium content	0.50	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Sodium content	0.50	Sodium content	0.50
		Droughty	0.12	Droughty	0.12	Droughty	0.12
Grazer silty clay loam	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00
749:							
Grazer silty clay loam	40	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
749:							
Wisflat sandy loam--	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.04	Slope	1.00	Too steep for sprinkler application	1.00
Exclose clay loam---	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Restricted permeability	0.78	Too steep for sprinkler application	1.00
						Restricted permeability	0.78
750:							
Monvero sand--------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Droughty	0.85	Droughty	0.85	Too steep for sprinkler application	1.00
		Leaching limitation	0.45			Droughty	0.85
Monoridge fine sand	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.84	Filtering capacity	1.00	Filtering capacity	1.00
				Depth to bedrock	0.84	Depth to bedrock	0.84
752:							
Cyvar loam----------	45	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Restricted permeability	0.89	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Restricted permeability	0.78	Restricted permeability	0.78
		Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.40

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
752:							
Nodhill loam	35	Somewhat limited		Very limited		Very limited	
		Droughty	0.73	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.65	Droughty	0.73	Droughty	0.73
		Slope	0.16	Depth to bedrock	0.65	Depth to bedrock	0.65
		Sodium content	0.08	Slope	0.16	Too steep for sprinkler application	0.40
				Sodium content	0.08	Sodium content	0.08
753:							
Cyvar loam	30	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Restricted permeability	0.89	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Restricted permeability	0.78	Restricted permeability	0.78
		Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.40
Nodhill loam	25	Somewhat limited		Very limited		Very limited	
		Droughty	0.73	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.65	Droughty	0.73	Droughty	0.73
		Slope	0.16	Depth to bedrock	0.65	Depth to bedrock	0.65
		Sodium content	0.08	Slope	0.16	Too steep for sprinkler application	0.40
				Sodium content	0.08	Sodium content	0.08
Pits, gypsiferous	25	Not rated		Not rated		Not rated	
755:							
Borreguero sandy loam	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
755:							
Grazer silty clay loam	25	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
757:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Borreguero sandy loam	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
758:							
Wisflat sandy loam	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Borreguero sandy loam	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
Rock outcrop	25	Not rated		Not rated		Not rated	

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
761:							
Atravesada gravelly sandy loam	85	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.99	Slope	1.00	Too steep for sprinkler application	1.00
				Depth to bedrock	0.99	Depth to bedrock	0.99
765:							
Atravesada sandy loam	50	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Pits, asbestos	25	Not rated		Not rated		Not rated	
767:							
Atravesada sandy loam	50	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Pits, asbestos	25	Not rated		Not rated		Not rated	
769:							
Dumps, asbestos	55	Not rated		Not rated		Not rated	
Pits, asbestos	40	Not rated		Not rated		Not rated	

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
770:							
Roacha silty clay loam	40	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.71	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to bedrock	0.65	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.65	Depth to bedrock	0.65
Millsholm clay loam	25	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Lilten silty clay loam	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
				Restricted permeability	1.00	Restricted permeability	1.00
773:							
Hentine very gravelly sandy loam	60	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	0.78	Restricted permeability	0.78
Rock outcrop	25	Not rated		Not rated		Not rated	

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
774:							
Hentine very gravelly sandy loam	55	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	0.78	Restricted permeability	0.78
Franciscan gravelly sandy loam	15	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.80	Droughty	1.00	Droughty	1.00
		Restricted permeability	0.50	Depth to bedrock	0.80	Depth to bedrock	0.80
				Restricted permeability	0.37	Restricted permeability	0.37
Rock outcrop	15	Not rated		Not rated		Not rated	
782, 783:							
Vaquero clay	45	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Sodium content	0.50	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Sodium content	0.50	Sodium content	0.50
		Droughty	0.12	Droughty	0.12	Droughty	0.12
Altamont clay	40	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff limitation	0.40	Restricted permeability	1.00	Restricted permeability	1.00
817:							
Arburua loam	88	Somewhat limited		Very limited		Somewhat limited	
		Droughty	0.71	Low adsorption	1.00	Droughty	0.71
		Depth to bedrock	0.71	Droughty	0.71	Depth to bedrock	0.71
				Depth to bedrock	0.71	Too steep for surface application	0.08

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
818:							
Arburua loam--------	85	Somewhat limited		Very limited		Very limited	
		Droughty	0.71	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Too steep for sprinkler application	0.78
		Slope	0.63	Depth to bedrock	0.71	Droughty	0.71
				Slope	0.63	Depth to bedrock	0.71
819, 820:							
Arburua loam--------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
822:							
Altamont clay-------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Restricted permeability	1.00	Too steep for surface application	0.68
823:							
Ayar clay-----------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Restricted permeability	1.00	Too steep for surface application	0.92
						Too steep for sprinkler application	0.02
827:							
Ayar clay-----------	50	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Slope	0.63	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Slope	0.63	Too steep for sprinkler application	0.78
Arburua loam--------	35	Somewhat limited		Very limited		Very limited	
		Droughty	0.71	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Too steep for sprinkler application	0.78
		Slope	0.63	Depth to bedrock	0.71	Droughty	0.71
				Slope	0.63	Depth to bedrock	0.71

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
834:							
Bapos clay loam-----	75	Very limited Restricted permeability Runoff limitation Sodium content	 1.00 0.40 0.08	Very limited Restricted permeability Sodium content	 1.00 0.08	Very limited Restricted permeability Too steep for surface application Sodium content	 1.00 0.32 0.08
835:							
Pedcat loam, eroded	85	Very limited Restricted permeability Ponding Sodium content Flooding Runoff limitation	 1.00 1.00 1.00 0.60 0.40	Very limited Restricted permeability Ponding Flooding Sodium content	 1.00 1.00 1.00 1.00	Very limited Restricted permeability Ponding Sodium content Flooding	 1.00 1.00 1.00 0.60
842:							
Quinto gravelly sandy loam---------	35	Very limited Slope Depth to bedrock Droughty Restricted permeability Runoff limitation	 1.00 1.00 1.00 0.64 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Restricted permeability	 1.00 1.00 1.00 1.00 0.50	Very limited Droughty Depth to bedrock Too steep for surface application Too steep for sprinkler application Restricted permeability	 1.00 1.00 1.00 1.00 0.50
Millsholm clay loam	30	Very limited Slope Depth to bedrock Droughty Runoff limitation	 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope	 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Too steep for surface application Too steep for sprinkler application	 1.00 1.00 1.00 1.00
Rock outcrop--------	20	Not rated		Not rated		Not rated	
847:							
Carranza gravelly sandy loam---------	85	Somewhat limited Restricted permeability Sodium content	 0.89 0.18	Somewhat limited Restricted permeability Sodium content	 0.78 0.18	Somewhat limited Restricted permeability Sodium content Too steep for surface application	 0.78 0.18 0.08
849:							
Chaqua loam---------	85	Somewhat limited Restricted permeability	 0.89	Very limited Low adsorption Restricted permeability	 1.00 0.78	Somewhat limited Restricted permeability Too steep for surface application	 0.78 0.32

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
851:							
Los Banos clay loam	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
852:							
Los Banos clay loam	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
						Too steep for surface application	0.08
853:							
Los Banos clay loam	55	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
						Too steep for surface application	0.32
Pleito gravelly clay loam---------------	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.89	Restricted permeability	0.78	Restricted permeability	0.78
						Too steep for surface application	0.32
855:							
Pleito gravelly clay loam---------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
						Restricted permeability	1.00
863:							
Vernalis loam-------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.03	Flooding	0.40	Too acid	0.14
				Too acid	0.14		
865:							
Conosta clay loam---	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00	Restricted permeability	1.00
		Droughty	0.69	Restricted permeability	1.00	Droughty	0.69
		Depth to bedrock	0.29	Droughty	0.69	Too steep for surface application	0.32
				Depth to bedrock	0.29	Depth to bedrock	0.29

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
870:							
Wisflat sandy loam--	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Rock outcrop--------	30	Not rated		Not rated		Not rated	
Arburua loam--------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
871:							
Wisflat sandy loam--	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	1.00	Too steep for sprinkler application	1.00
Rock outcrop--------	30	Not rated		Not rated		Not rated	
Arburua loam--------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.71	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.71	Droughty	0.71	Droughty	0.71
				Depth to bedrock	0.71	Depth to bedrock	0.71
872:							
Vernalis loam-------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.03	Flooding	0.40	Too acid	0.14
				Too acid	0.14		

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
873:							
Narbaitz loam	60	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Shallow to Discontinuity	1.00	Shallow to Discontinuity	1.00	Too steep for surface application	1.00
		Shallow to densic materials	0.97	Shallow to densic materials	0.97	Too steep for sprinkler application	0.40
		Slope	0.16	Slope	0.16	Droughty	0.14
		Droughty	0.14	Droughty	0.14	Too acid	0.03
Pleito gravelly clay loam	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Restricted permeability	0.89	Restricted permeability	0.78	Too steep for sprinkler application	1.00
						Restricted permeability	0.78
940:							
Milham sandy loam, organic surface	40	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Sodium content	1.00
		Dense layer	1.00	Shallow to densic materials	1.00	Restricted permeability	1.00
		Shallow to densic materials	1.00	Sodium content	1.00		
		Sodium content	1.00	Restricted permeability	1.00		
Polvadero sandy loam, organic surface	40	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Sodium content	1.00
		Dense layer	1.00	Shallow to densic materials	1.00	Restricted permeability	1.00
		Shallow to densic materials	1.00	Sodium content	1.00		
		Sodium content	1.00	Restricted permeability	1.00		
941:							
Bisgani loamy sand	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Droughty	0.87	Droughty	0.87	Droughty	0.87

Table 11.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
941:							
Elnido sandy loam---	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Sodium content	0.68	Sodium content	0.68	Sodium content	0.68
		Too acid	0.03	Too acid	0.14	Too acid	0.14
950:							
Pits, gravel--------	85	Not rated		Not rated		Not rated	
960:							
Excelsior sandy loam, sandy substratum---------	50	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Filtering capacity	1.00	Flooding	1.00	Filtering capacity	1.00
		Flooding	0.60	Filtering capacity	1.00	Flooding	0.60
		Sodium content	0.08	Sodium content	0.08	Sodium content	0.08
Westhaven loam------	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Sodium content	0.32	Sodium content	0.32	Sodium content	0.32
		Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
980:							
Urban land----------	97	Not rated		Not rated		Not rated	
981:							
Sewage disposal ponds--------------	100	Not rated		Not rated		Not rated	
982:							
Water---------------	100	Not rated		Not rated		Not rated	

Table 12.--Ecological Sites, Productivity, and Potential Natural Vegetation

(Uncultivated soils in Major Land Resource Areas (MLRAs) 15 and 17 that can be used for livestock production, timber management, and/or upland wildlife habitat were correlated to ecological sites. This table shows the average annual production and species composition by dry weight of the potential natural vegetation for each ecological site by map unit and soil component. For full ecological site descriptions, consult Section II of the NRCS Field Office Technical Guide)

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
107:						
Anela very gravelly sandy loam	Very Gravelly Loamy, R017XE101CA	1,200	800	500	Soft chess (BRHOH)	45
					Rattail fescue (VUMY)	20
					Filaree (ERODI)	10
					Red brome (BRRU2)	10
					Allscale saltbush (ATPO)	5
					Misc. annual grasses (AAGG)	4
					Misc. annual forbs (AAFF)	2
					Tamarisk (TAMAR2)	2
					Cottonwood (POPUL)	1
					Misc. shrubs (SSSS)	1
404:						
Milham sandy loam	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)	40
					Soft chess (BRHOH)	30
					Filaree (ERODI)	10
					Allscale saltbush (ATPO)	5
					Annual bluegrass (POAN)	5
					Rattail fescue (VUMY)	5
					Misc. annual forbs (AAFF)	2
					Misc. annual grasses (AAGG)	2
					Misc. shrubs (SSSS)	1
Guijarral sandy loam	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)	30
					Misc. annual grasses (AAGG)	20
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					Soft chess (BRHOH)	10
					Allscale saltbush (ATPO)	5
					Schismus (SCHIS)	5
					Wild oat (AVFA)	5
					Misc. annual forbs (AAFF)	4
					Misc. shrubs (SSSS)	1

Table 12.--Ecological Sites, 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
405:						
Polvadero sandy loam----	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)--------------	30
					Misc. annual grasses (AAGG)----	20
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					Soft chess (BRHOH)-------------	10
					Allscale saltbush (ATPO)-------	5
					Schismus (SCHIS)---------------	5
					Wild oat (AVFA)----------------	5
					Misc. annual forbs (AAFF)------	4
					Misc. shrubs (SSSS)------------	1
Guijarral sandy loam----	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)--------------	30
					Misc. annual grasses (AAGG)----	20
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					Soft chess (BRHOH)-------------	10
					Allscale saltbush (ATPO)-------	5
					Schismus (SCHIS)---------------	5
					Wild oat (AVFA)----------------	5
					Misc. annual forbs (AAFF)------	4
					Misc. shrubs (SSSS)------------	1
406:						
Guijarral sandy loam----	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)--------------	30
					Misc. annual grasses (AAGG)----	20
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					Soft chess (BRHOH)-------------	10
					Allscale saltbush (ATPO)-------	5
					Schismus (SCHIS)---------------	5
					Wild oat (AVFA)----------------	5
					Misc. annual forbs (AAFF)------	4
					Misc. shrubs (SSSS)------------	1

Table 12.--Ecological Sites, 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
425, 426:						
Kimberlina sandy loam---	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)--------------	30
					Misc. annual grasses (AAGG)----	20
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					Soft chess (BRHOH)-------------	10
					Allscale saltbush (ATPO)-------	5
					Schismus (SCHIS)---------------	5
					Wild oat (AVFA)----------------	5
					Misc. annual forbs (AAFF)------	4
					Misc. shrubs (SSSS)------------	1
451, 452, 453:						
Milham sandy loam-------	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)--------------	40
					Soft chess (BRHOH)-------------	30
					Filaree (ERODI)----------------	10
					Allscale saltbush (ATPO)-------	5
					Annual bluegrass (POAN)--------	5
					Rattail fescue (VUMY)----------	5
					Misc. annual forbs (AAFF)------	2
					Misc. annual grasses (AAGG)----	2
					Misc. shrubs (SSSS)------------	1
454, 455:						
Polvadero sandy loam----	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)--------------	30
					Misc. annual grasses (AAGG)----	20
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					Soft chess (BRHOH)-------------	10
					Allscale saltbush (ATPO)-------	5
					Schismus (SCHIS)---------------	5
					Wild oat (AVFA)----------------	5
					Misc. annual forbs (AAFF)------	4
					Misc. shrubs (SSSS)------------	1

Table 12.--Ecological Sites, 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
488, 489:						
Wasco sandy loam	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)	30
					Misc. annual grasses (AAGG)	20
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					Soft chess (BRHOH)	10
					Allscale saltbush (ATPO)	5
					Schismus (SCHIS)	5
					Wild oat (AVFA)	5
					Misc. annual forbs (AAFF)	4
					Misc. shrubs (SSSS)	1
587, 588:						
Mugatu fine sandy loam	Loamy 6-8" p.z., R017XG043CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Misc. annual grasses (AAGG)	12
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRRI8)	5
					Misc. annual forbs (AAFF)	2
					Misc. shrubs (SSSS)	1
590:						
Cerini sandy loam	Loamy 6-8" p.z., R017XG043CA	2,700	1,900	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Misc. annual grasses (AAGG)	12
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	2
					Misc. shrubs (SSSS)	1
Anela very gravelly sandy loam	Very Gravelly Loamy, R017XE101CA	1,200	800	500	Soft chess (BRHOH)	45
					Rattail fescue (VUMY)	20
					Filaree (ERODI)	10
					Red brome (BRRU2)	10
					Misc. shrubs (SSSS)	7
					Allscale saltbush (ATPO)	5
					Tamarisk (TAMAR2)	2
					Cottonwood (POPUL)	1

Table 12.--Ecological Sites, 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
590:						
Fluvaquents, saline-sodic	Alkaline Streambank, R017XG050CA	700	600	500	Seashore saltgrass (DISP)	60
					Misc. annual grasses (AAGG)	13
					Allscale saltbush (ATPO)	10
					Bulrush (SCIRP)	10
					Misc. shrubs (SSSS)	5
					Misc. annual forbs (AAFF)	2
620, 621:						
Delgado sandy loam, eroded	Shallow Loamy 5-8" p.z., R015XG009CA	2,200	1,300	500	Red brome (BRRU2)	40
					Rattail fescue (VUMY)	20
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Clover (TRIFO)	5
					Mouse barley (HOMAG)	5
					Misc. annual forbs (AAFF)	4
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	2
640:						
Kettleman clay loam, eroded	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRDI3)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2

Table 12.--Ecological Sites, 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
640:						
Delgado sandy loam, eroded	Shallow Loamy 5-8" p.z., R015XG009CA	2,200	1,300	500	Red brome (BRRU2)	40
					Rattail fescue (VUMY)	20
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Clover (TRIFO)	5
					Mouse barley (HOMAG)	5
					Misc. annual forbs (AAFF)	4
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	2
Mercey loam, eroded	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRRI8)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2
641:						
Mercey loam	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRRI8)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2

Table 12.--Ecological Sites, 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
641:						
Delgado sandy loam	Shallow Loamy 5-8" p.z., R015XG009CA	2,200	1,300	500	Red brome (BRRU2)	40
					Rattail fescue (VUMY)	20
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Clover (TRIFO)	5
					Mouse barley (HOMAG)	5
					Misc. annual forbs (AAFF)	4
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	2
Kettleman clay loam	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRDI3)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2
642:						
Mercey loam, eroded	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRRI8)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2

Table 12.--Ecological Sites, 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
642:						
Delgado sandy loam, eroded	Shallow Loamy 5-8" p.z., R015XG009CA	2,200	1,300	500	Red brome (BRRU2)	40
					Rattail fescue (VUMY)	20
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Clover (TRIFO)	5
					Mouse barley (HOMAG)	5
					Misc. annual forbs (AAFF)	4
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	2
Kettleman clay loam, eroded	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRDI3)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2
643:						
Mercey loam	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRRI8)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2

Table 12.--Ecological Sites, 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
643:						
Delgado sandy loam------	Shallow Loamy 5-8" p.z., R015XG009CA	2,200	1,300	500	Red brome (BRRU2)--------------	40
					Rattail fescue (VUMY)----------	20
					Allscale saltbush (ATPO)-------	10
					Filaree (ERODI)----------------	10
					Clover (TRIFO)-----------------	5
					Mouse barley (HOMAG)-----------	5
					Misc. annual forbs (AAFF)------	4
					Misc. annual grasses (AAGG)----	4
					Misc. shrubs (SSSS)------------	2
Kettleman clay loam-----	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)--------------	45
					Rattail fescue (VUMY)----------	15
					Allscale saltbush (ATPO)-------	10
					Filaree (ERODI)----------------	10
					Ripgut brome (BRDI3)-----------	5
					Misc. annual grasses (AAGG)----	4
					Misc. shrubs (SSSS)------------	4
					Misc. annual forbs (AAFF)------	3
					Snakeweed (GUTIE)--------------	2
					Spinescale saltbush (ATSP)-----	2
644:						
Mercey loam, eroded-----	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)--------------	45
					Rattail fescue (VUMY)----------	15
					Allscale saltbush (ATPO)-------	10
					Filaree (ERODI)----------------	10
					Ripgut brome (BRRI8)-----------	5
					Misc. annual grasses (AAGG)----	4
					Misc. shrubs (SSSS)------------	4
					Misc. annual forbs (AAFF)------	3
					Snakeweed (GUTIE)--------------	2
					Spinescale saltbush (ATSP)-----	2

Table 12.--Ecological Sites, 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
644:						
Kettleman clay loam, eroded	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRDI3)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2
Delgado sandy loam, eroded	Shallow Loamy 5-8" p.z., R015XG009CA	2,200	1,300	500	Red brome (BRRU2)	40
					Rattail fescue (VUMY)	20
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Clover (TRIFO)	5
					Mouse barley (HOMAG)	5
					Misc. annual forbs (AAFF)	4
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	2
645:						
Delgado sandy loam	Shallow Loamy 5-8" p.z., R015XG009CA	2,200	1,300	500	Red brome (BRRU2)	40
					Rattail fescue (VUMY)	20
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Clover (TRIFO)	5
					Mouse barley (HOMAG)	5
					Misc. annual forbs (AAFF)	4
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	2

Table 12.--Ecological Sites, 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
645:						
Mercey loam	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRRI8)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2
Kettleman clay loam	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRDI3)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2
670:						
Badland.						
Kettleman clay loam	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRDI3)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2

Table 12.--Ecological Sites, 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:						
Mercey loam	Loamy 5-8" p.z., R015XG008CA	2,700	2,000	800	Red brome (BRRU2)	45
					Rattail fescue (VUMY)	15
					Allscale saltbush (ATPO)	10
					Filaree (ERODI)	10
					Ripgut brome (BRRI8)	5
					Misc. annual grasses (AAGG)	4
					Misc. shrubs (SSSS)	4
					Misc. annual forbs (AAFF)	3
					Snakeweed (GUTIE)	2
					Spinescale saltbush (ATSP)	2
680:						
Arburua loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Filaree (ERODI)	5
					Mouse barley (HOMU)	5
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	4
					Narrowleaf goldenbush (ERLI6)	3
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Purple needlegrass (NAPU4)	2
					Slender oat (AVBA)	2
Morenogulch parachannery silty clay	Shallow Acidic 9-13" p.z., R015XF041CA	200	100	50	Protruding buckwheat (ERNUI)	25
					Temblor buckwheat (ERTE15)	20
					Misc. annual grasses (AAGG)	18
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Schismus (SCHIS)	10
					Misc. annual forbs (AAFF)	2

Table 12.--Ecological Sites, 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
704:						
Franciscan gravelly sandy loam	Quercus Douglasii-Juniperus Californica/bromus Hordeaceus, F015XE078CA	3,000	2,000	1,000	Soft chess (BRHOH)	20
					Wild oat (AVFA)	20
					Misc. annual grasses (AAGG)	15
					Blue oak (QUDO)	10
					California juniper (JUCA7)	5
					Blue wildrye (ELGL)	5
					Clarkia (CLARK)	5
					Miners lettuce (CLPE)	5
					Pine bluegrass (POSC)	5
					Sanicle (SANIC)	5
					Foothill pine (PISA2)	3
					California buckeye (AECA)	2
705:						
Roacha silty clay loam	Quercus Douglasii-Pinus Sabiniana/bromus Hordeaceus, F015XE074CA	3,200	2,400	1,200	Soft chess (BRHOH)	20
					Blue oak (QUDO)	13
					Foothill pine (PISA2)	10
					Wild oat (AVFA)	10
					Miners lettuce (CLPE)	6
					California buckeye (AECA)	5
					Clarkia (CLARK)	5
					Goldenbush (ERICA2)	5
					Pine bluegrass (POSC)	5
					Tomcat clover (TRTR2)	5
					Ripgut brome (BRRI8)	4
					California juniper (JUCA7)	2
					Blue wildrye (ELGL)	2
					Live oak (QUVI)	2
					Manzanita (ARCTO3)	2
					Purple needlegrass (NAPU4)	2
					Sanicle (SANIC)	2

Table 12.--Ecological Sites, 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
706:						
Sagaser loam	Quercus Douglasii-Juniperus Californica/bromus Hordeaceus, F015XE078CA	3,000	2,000	1,000	Soft chess (BRHOH)	20
					Wild oat (AVFA)	20
					Misc. annual grasses (AAGG)	15
					Blue oak (QUDO)	10
					California juniper (JUCA7)	5
					Blue wildrye (ELGL)	5
					Clarkia (CLARK)	5
					Miners lettuce (CLPE)	5
					Pine bluegrass (POSC)	5
					Sanicle (SANIC)	5
					Foothill pine (PISA2)	3
					California buckeye (AECA)	2
709:						
Sagaser loam	Quercus Douglasii-Juniperus Californica/bromus Hordeaceus, F015XE078CA	3,000	2,000	1,000	Soft chess (BRHOH)	20
					Wild oat (AVFA)	20
					Misc. annual grasses (AAGG)	15
					Blue oak (QUDO)	10
					California juniper (JUCA7)	5
					Blue wildrye (ELGL)	5
					Clarkia (CLARK)	5
					Miners lettuce (CLPE)	5
					Pine bluegrass (POSC)	5
					Sanicle (SANIC)	5
					Foothill pine (PISA2)	3
					California buckeye (AECA)	2
Gaviota sandy loam	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)	30
					California buckwheat (ERFA2)	10
					California sagebrush (ARCA11)	10
					Filaree (ERODI)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Black sage (SAME3)	5
					Chamise (ADFA)	5

Table 12.--Ecological Sites, 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
709:						
Borreguero sandy loam---	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)-------------	30
					California buckwheat (ERFA2)---	10
					California sagebrush (ARCA11)--	10
					Filaree (ERODI)----------------	10
					Pine bluegrass (POSC)----------	10
					Rattail fescue (VUMY)----------	10
					Red brome (BRRU2)--------------	10
					Black sage (SAME3)-------------	5
					Chamise (ADFA)-----------------	5
710:						
Monoridge fine sand-----	Sandy Upland 9-13" p.z., R015XF017CA	1,200	700	300	Red brome (BRRU2)--------------	59
					Filaree (ERODI)----------------	15
					Snakeweed (GUTIE)--------------	10
					Soft chess (BRHOH)-------------	10
					California buckwheat (ERFA2)---	2
					Allscale saltbush (ATPO)-------	2
					Narrowleaf goldenbush (ERLI6)--	1
					Pine bluegrass (POSC)----------	1
Exclose clay loam-------	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)-------------	30
					Rattail fescue (VUMY)----------	15
					Red brome (BRRU2)--------------	15
					Burclover (MEHI)---------------	10
					Filaree (ERODI)----------------	10
					Wild oat (AVFA)----------------	10
					Ripgut brome (BRDI3)-----------	5
					Misc. annual grasses (AAGG)----	2
					Narrowleaf goldenbush (ERLI6)--	1
					Misc. shrubs (SSSS)------------	1
					Purple needlegrass (NAPU4)-----	1
Badland.						

Table 12.--Ecological Sites, 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
711:						
Currymountain loam	Quercus Douglasii- Juniperus Californica/bromus Hordeaceus, F015XE078CA	3,000	2,000	1,000	Soft chess (BRHOH)	20
					Wild oat (AVFA)	20
					Misc. annual grasses (AAGG)	15
					Blue oak (QUDO)	10
					California juniper (JUCA7)	5
					Blue wildrye (ELGL)	5
					Clarkia (CLARK)	5
					Miners lettuce (CLPE)	5
					Pine bluegrass (POSC)	5
					Sanicle (SANIC)	5
					Foothill pine (PISA2)	3
					California buckeye (AECA)	2
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)	30
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
					Narrowleaf goldenbush (ERLI6)	2
Borreguero sandy loam	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)	30
					California buckwheat (ERFA2)	10
					California sagebrush (ARCA11)	10
					Filaree (ERODI)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Black sage (SAME3)	5
					Chamise (ADFA)	5

Table 12.--Ecological Sites, 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
712:						
Altamont clay-----------	Clayey Hills 10-14" p.z., R015XE001CA	3,600	2,800	1,200	Wild oat (AVFA)----------------	40
					Soft chess (BRHOH)-------------	23
					Burclover (MEHI)---------------	10
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	5
					Ripgut brome (BRDI3)-----------	5
					Misc. shrubs (SSSS)------------	3
					Pine bluegrass (POSC)----------	2
					Purple needlegrass (NAPU4)-----	2
Roacha silty clay loam--	Quercus Douglasii-Pinus Sabiniana/bromus Hordeaceus, F015XE074CA	3,200	2,400	1,200	Soft chess (BRHOH)-------------	20
					Blue oak (QUDO)----------------	13
					Foothill pine (PISA2)----------	10
					Wild oat (AVFA)----------------	10
					Miners lettuce (CLPE)----------	6
					California buckeye (AECA)------	5
					Clarkia (CLARK)----------------	5
					Goldenbush (ERICA2)------------	5
					Pine bluegrass (POSC)----------	5
					Tomcat clover (TRTR2)----------	5
					Ripgut brome (BRRI8)-----------	4
					California juniper (JUCA7)-----	2
					Blue wildrye (ELGL)------------	2
					Live oak (QUVI)----------------	2
					Manzanita (ARCTO3)-------------	2
					Purple needlegrass (NAPU4)-----	2
					Sanicle (SANIC)----------------	2
Borreguero sandy loam---	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)-------------	30
					California buckwheat (ERFA2)---	10
					California sagebrush (ARCA11)--	10
					Filaree (ERODI)----------------	10
					Pine bluegrass (POSC)----------	10
					Rattail fescue (VUMY)----------	10
					Red brome (BRRU2)--------------	10
					Black sage (SAME3)-------------	5
					Chamise (ADFA)-----------------	5

Table 12.--Ecological Sites, 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
713:						
Currymountain loam	Quercus Douglasii-Juniperus Californica/bromus Hordeaceus, F015XE078CA	3,000	2,000	1,000	Soft chess (BRHOH)	20
					Wild oat (AVFA)	20
					Misc. annual grasses (AAGG)	15
					Blue oak (QUDO)	10
					California juniper (JUCA7)	5
					Blue wildrye (ELGL)	5
					Clarkia (CLARK)	5
					Miners lettuce (CLPE)	5
					Pine bluegrass (POSC)	5
					Sanicle (SANIC)	5
					Foothill pine (PISA2)	3
					California buckeye (AECA)	2
Rock outcrop.						
Quinto gravelly sandy loam	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)	30
					California buckwheat (ERFA2)	10
					California sagebrush (ARCA11)	10
					Filaree (ERODI)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Black sage (SAME3)	5
					Chamise (ADFA)	5
714:						
Gaviota sandy loam	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)	30
					California buckwheat (ERFA2)	10
					California sagebrush (ARCA11)	10
					Filaree (ERODI)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Black sage (SAME3)	5
					Chamise (ADFA)	5

Table 12.--Ecological Sites, 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
714:						
Borreguero sandy loam	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)	30
					California buckwheat (ERFA2)	10
					California sagebrush (ARCA11)	10
					Filaree (ERODI)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Black sage (SAME3)	5
					Chamise (ADFA)	5
Rock outcrop.						
715:						
Belgarra clay	Clayey Hills 10-14" p.z., R015XF001CA	3,400	2,700	1,100	Red brome (BRRU2)	25
					Soft chess (BRHOH)	23
					Wild oat (AVFA)	12
					Filaree (ERODI)	10
					Burclover (MEHI)	5
					Goldenbush (ERICA2)	5
					Purple needlegrass (NAPU4)	5
					Rattail fescue (VUMY)	5
					Ripgut brome (BRRI8)	5
					Misc. shrubs (SSSS)	3
					Pine bluegrass (POSC)	2
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)	30
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
					Narrowleaf goldenbush (ERLI6)	2

Table 12.--Ecological Sites, 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
717:						
Belgarra clay	Clayey Hills 10-14" p.z., R015XF001CA	3,400	2,700	1,100	Red brome (BRRU2)	25
					Soft chess (BRHOH)	23
					Wild oat (AVFA)	12
					Filaree (ERODI)	10
					Burclover (MEHI)	5
					Goldenbush (ERICA2)	5
					Purple needlegrass (NAPU4)	5
					Rattail fescue (VUMY)	5
					Ripgut brome (BRRI8)	5
					Misc. shrubs (SSSS)	3
					Pine bluegrass (POSC)	2
Arburua loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Filaree (ERODI)	5
					Mouse barley (HOMU)	5
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	4
					Narrowleaf goldenbush (ERLI6)	3
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Purple needlegrass (NAPU4)	2
					Slender oat (AVBA)	2
Morenogulch parachannery silty clay	Shallow Acidic 9-13" p.z.,R015XF041CA	200	100	50	Protruding buckwheat (ERNUI)	25
					Temblor buckwheat (ERTE15)	20
					Misc. annual grasses (AAGG)	18
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Schismus (SCHIS)	10
					Misc. annual forbs (AAFF)	2

Table 12.--Ecological Sites, 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
718:						
Nodhill loam------------	Loamy Upland 9-13" p.z., R015XF031CA	2,800	2,000	1,000	Red brome (BRRU2)--------------	45
					Filaree (ERODI)----------------	15
					Soft chess (BRHOH)-------------	15
					Rattail fescue (VUMY)----------	10
					Ephedra (EPHED)----------------	5
					Snakeweed (GUTIE)--------------	5
					Allscale saltbush (ATPO)-------	2
					Pine bluegrass (POSC)----------	2
					Narrowleaf goldenbush (ERLI6)--	1
Wisflat sandy loam------	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)--------------	30
					Soft chess (BRHOH)-------------	25
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					California buckwheat (ERFA2)---	8
					California sagebrush (ARCA11)--	6
					Wild oat (AVFA)----------------	5
					Pine bluegrass (POSC)----------	4
					Narrowleaf goldenbush (ERLI6)--	2
Rock outcrop.						
719:						
Nodhill loam------------	Loamy Upland 9-13" p.z., R015XF031CA	2,800	2,000	1,000	Red brome (BRRU2)--------------	45
					Filaree (ERODI)----------------	15
					Soft chess (BRHOH)-------------	15
					Rattail fescue (VUMY)----------	10
					Ephedra (EPHED)----------------	5
					Snakeweed (GUTIE)--------------	5
					Allscale saltbush (ATPO)-------	2
					Pine bluegrass (POSC)----------	2
					Narrowleaf goldenbush (ERLI6)--	1

Table 12.--Ecological Sites, 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
719:						
Arburua loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Filaree (ERODI)	5
					Mouse barley (HOMU)	5
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	4
					Narrowleaf goldenbush (ERLI6)	3
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Purple needlegrass (NAPU4)	2
					Slender oat (AVBA)	2
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)	30
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
					Narrowleaf goldenbush (ERLI6)	2
720:						
Exclose clay loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	15
					Burclover (MEHI)	10
					Filaree (ERODI)	10
					Wild oat (AVFA)	10
					Ripgut brome (BRDI3)	5
					Misc. annual grasses (AAGG)	2
					Narrowleaf goldenbush (ERLI6)	1
					Misc. shrubs (SSSS)	1
					Purple needlegrass (NAPU4)	1

Table 12.--Ecological Sites, 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
720:						
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)	30
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
					Narrowleaf goldenbush (ERLI6)	2
Morenogulch parachannery silty clay	Shallow Acidic 9-13" p.z., R015XF041CA	200	100	50	Protruding buckwheat (ERNUI)	25
					Temblor buckwheat (ERTE15)	20
					Misc. annual grasses (AAGG)	18
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Schismus (SCHIS)	10
					Misc. annual forbs (AAFF)	2
722:						
Exclose clay loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	15
					Burclover (MEHI)	10
					Filaree (ERODI)	10
					Wild oat (AVFA)	10
					Ripgut brome (BRDI3)	5
					Misc. annual grasses (AAGG)	2
					Narrowleaf goldenbush (ERLI6)	1
					Misc. shrubs (SSSS)	1
					Purple needlegrass (NAPU4)	1
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)	30
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
					Narrowleaf goldenbush (ERLI6)	2

Table 12.--Ecological Sites, 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
722:						
Rock outcrop.						
723:						
Exclose clay loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	15
					Burclover (MEHI)	10
					Filaree (ERODI)	10
					Wild oat (AVFA)	10
					Ripgut brome (BRDI3)	5
					Misc. annual grasses (AAGG)	2
					Narrowleaf goldenbush (ERLI6)	1
					Misc. shrubs (SSSS)	1
					Purple needlegrass (NAPU4)	1
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z.,R015XF033CA	1,200	800	500	Red brome (BRRU2)	30
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
					Narrowleaf goldenbush (ERLI6)	2
Grazer silty clay loam	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)	40
					Filaree (ERODI)	15
					Red brome (BRRU2)	15
					Clover (TRIFO)	10
					Rattail fescue (VUMY)	10
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	3
					Baccharis (BACCH)	1
					Narrowleaf goldenbush (ERLI6)	1

Table 12.--Ecological Sites, 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
725:						
Gewter clay	Acidic Upland 10-16" p.z., R015XE076CA	300	200	100	Red brome (BRRU2)	40
					Rattail fescue (VUMY)	20
					Alvord oak (QUAL2)	20
					Misc. annual grasses (AAGG)	8
					Buckwheat (ERIOG)	5
					Soft chess (BRHOH)	5
					California juniper (JUCA7)	2
727:						
Reliz channery loam	Acidic Upland 10-16" p.z., R015XE076CA	300	200	100	Chamise (ADENO2)	40
					Manzanita (ARCTO3)	15
					Shrub live oak (QUTU2)	10
					Soft chess (BRHOH)	10
					Buckwheat (ERIOG)	5
					Toyon (HEAR5)	5
					Wild oat (AVFA)	5
					Foothill pine (PISA2)	3
					Mountainmahogany (CERCO)	3
					Coulter pine (PICO3)	2
					Live oak (QUVI)	2
Gewter loam	Acidic Upland 10-16" p.z., R015XE076CA	300	200	100	Chamise (ADENO2)	20
					Coulter pine (PICO3)	10
					Blue oak (QUDO)	10
					Ceanothus (CEANO)	10
					Foothill pine (PISA2)	10
					Soft chess (BRHOH)	10
					Wild oat (AVFA)	10
					Alvord oak (QUAL2)	5
					Buckwheat (ERIOG)	5
					Shrub live oak (QUTU2)	5
					Mountainmahogany (CERCO)	3
					Toyon (HEAR5)	2
Rock outcrop.						

Table 12.--Ecological Sites, 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
728:						
Climara clay	Clayey Hills 10-14" p.z., R015XE001CA	3,600	2,800	1,200	Wild oat (AVFA)	30
					Soft chess (BRHOH)	23
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Burclover (MEHI)	5
					Ripgut brome (BRDI3)	5
					Misc. shrubs (SSSS)	3
					Pine bluegrass (POSC)	2
					Purple needlegrass (NAPU4)	2
733:						
Hentine very gravelly sandy loam	Shallow Loamy Hills 10-15" p.z. (gravelly), R015XE077CA	1,500	1,000	500	Chamise (ADFA)	45
					Foothill pine (PISA2)	10
					Misc. annual forbs (AAFF)	8
					Pine bluegrass (POSC)	8
					Blue oak (QUDO)	5
					Buckbrush (CECU)	5
					Manzanita (ARCTO3)	5
					Misc. annual grasses (AAGG)	5
					Misc. perennial forbs (PPFF)	5
					California melicgrass (MECA2)	4
Climara clay	Clayey Hills 10-14" p.z., R015XE001CA	3,600	2,800	1,200	Wild oat (AVFA)	30
					Soft chess (BRHOH)	23
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Burclover (MEHI)	5
					Ripgut brome (BRDI3)	5
					Misc. shrubs (SSSS)	3
					Pine bluegrass (POSC)	2
					Purple needlegrass (NAPU4)	2

Table 12.--Ecological Sites, 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
735:						
Getrail clay------------	Quercus Douglasii-Pinus Sabiniana/bromus Hordeaceus, F015XE074CA	3,200	2,400	1,200	Soft chess (BRHOH)-------------	25
					Wild oat (AVFA)----------------	20
					Blue oak (QUDO)----------------	8
					Pepperweed (LEPID)-------------	5
					Pine bluegrass (POSC)----------	5
					Rattail fescue (VUMY)----------	5
					Red brome (BRRU2)--------------	5
					Ripgut brome (BRDI3)-----------	5
					Tomcat clover (TRTR2)----------	5
					Foothill pine (PISA2)----------	4
					Misc. annual forbs (AAFF)------	3
					California buckeye (AECA)------	2
					Blue wildrye (ELGL)------------	2
					Narrowleaf goldenbush (ERLI6)--	2
					Misc. perennial forbs (PPFF)---	2
					Purple needlegrass (NAPU4)-----	2
Vernado sandy loam------	Quercus Douglasii-Juniperus Californica/bromus Hordeaceus, F015XE078CA	3,000	2,000	1,000	Soft chess (BRHOH)-------------	20
					Wild oat (AVFA)----------------	20
					Blue oak (QUDO)----------------	10
					Misc. annual grasses (AAGG)----	10
					California juniper (JUCA7)-----	5
					Blue wildrye (ELGL)------------	5
					Clarkia (CLARK)----------------	5
					Narrowleaf goldenbush (ERLI6)--	5
					Misc. perennial forbs (PPFF)---	5
					Pine bluegrass (POSC)----------	5
					Sanicle (SANIC)----------------	5
					Misc. annual forbs (AAFF)------	3
					California buckeye (AECA)------	2
Badland.						

Table 12.--Ecological Sites, 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
737:						
Grazer silty clay loam--	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)-------------	40
					Filaree (ERODI)----------------	15
					Red brome (BRRU2)--------------	15
					Clover (TRIFO)-----------------	10
					Rattail fescue (VUMY)----------	10
					Wild oat (AVFA)----------------	5
					Pine bluegrass (POSC)----------	3
					Baccharis (BACCH)--------------	1
					Narrowleaf goldenbush (ERLI6)--	1
Badland.						
Wisflat sandy loam------	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)--------------	30
					Soft chess (BRHOH)-------------	25
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					California buckwheat (ERFA2)---	8
					California sagebrush (ARCA11)--	6
					Wild oat (AVFA)----------------	5
					Pine bluegrass (POSC)----------	4
					Narrowleaf goldenbush (ERLI6)--	2
738:						
Grazer silty clay loam--	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)-------------	40
					Filaree (ERODI)----------------	15
					Red brome (BRRU2)--------------	15
					Clover (TRIFO)-----------------	10
					Rattail fescue (VUMY)----------	10
					Wild oat (AVFA)----------------	5
					Pine bluegrass (POSC)----------	3
					Baccharis (BACCH)--------------	1
					Narrowleaf goldenbush (ERLI6)--	1

Table 12.--Ecological Sites, 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
738:						
Belgarra clay	Clayey Hills 10-14" p.z., R015XF001CA	3,400	2,700	1,100	Red brome (BRRU2)	25
					Soft chess (BRHOH)	23
					Wild oat (AVFA)	12
					Filaree (ERODI)	10
					Burclover (MEHI)	5
					Goldenbush (ERICA2)	5
					Purple needlegrass (NAPU4)	5
					Rattail fescue (VUMY)	5
					Ripgut brome (BRRI8)	5
					Misc. shrubs (SSSS)	3
					Pine bluegrass (POSC)	2
Arburua loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Filaree (ERODI)	5
					Mouse barley (HOMU)	5
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	4
					Narrowleaf goldenbush (ERLI6)	3
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Purple needlegrass (NAPU4)	2
					Slender oat (AVBA)	2
739:						
Domengine loam	Loamy Slopes 9-12" p.z., R015XE026CA	2,800	2,000	1,200	Soft chess (BRHOH)	30
					Red brome (BRRU2)	20
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					Ripgut brome (BRDI3)	10
					California sagebrush (ARCA11)	5
					Pine bluegrass (POSC)	5
					Wild oat (AVFA)	5
					California buckwheat (ERFA2)	2
					Narrowleaf goldenbush (ERLI6)	2
					Snakeweed (GUTIE)	1

Table 12.--Ecological Sites, 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
739:						
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)	30
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
					Narrowleaf goldenbush (ERLI6)	2
Rock outcrop.						
740:						
Domengine loam	Loamy Hills 10-13" p.z., R015XE079CA	3,200	2,400	1,200	Red brome (BRRU2)	20
					Soft chess (BRHOH)	20
					California sagebrush (ARCA11)	15
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					Big sagebrush (ARTR2)	5
					Bush lupine (LUAR)	5
					Deervetch (LOTUS)	5
					Wild oat (AVFA)	5
					Yerba santa (ERAN2)	3
					Pine bluegrass (POSC)	2
Lilten silty clay loam	Quercus Douglasii-Pinus Sabiniana/bromus Hordeaceus, F015XE074CA	3,200	2,400	1,200	Soft chess (BRHOH)	30
					Blue oak (QUDO)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Misc. annual grasses (AAGG)	5
					California buckeye (AECA)	3
					Foothill pine (PISA2)	3
					Narrowleaf goldenbush (ERLI6)	3
					California sagebrush (ARCA11)	2
					Manzanita (ARCTO3)	2
					California juniper (JUCA7)	1
					Purple needlegrass (NAPU4)	1
Rock outcrop.						

Table 12.--Ecological Sites, 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
741:						
Anela very gravelly sandy loam	Very Gravelly Loamy, R017XE101CA	1,200	800	500	Soft chess (BRHOH)	45
					Rattail fescue (VUMY)	20
					Filaree (ERODI)	10
					Red brome (BRRU2)	10
					Misc. shrubs (SSSS)	7
					Misc. annual grasses (AAGG)	5
					Cottonwood (POPUL)	2
					Tamarisk (TAMAR2)	1
Vernalis loam	Loamy Fan Remnant 8-10" p.z., R017XE061CA	3,000	2,500	1,000	Soft chess (BRHOH)	35
					Foxtail barley (HOJU)	15
					Filaree (ERODI)	10
					Red brome (BRRU2)	10
					Misc. annual grasses (AAGG)	9
					Misc. annual forbs (AAFF)	5
					Rattail fescue (VUMY)	5
					Ripgut brome (BRDI3)	5
					Baccharis (BACCH)	2
					Wooly yerba santa (ERTO)	2
					Allscale saltbush (ATPO)	1
					Cottonwood (POPUL)	1
742:						
Millsholm clay loam	Shallow Loamy Hills 13-18" p.z., R015XE107CA	1,300	1,000	700	California buckwheat (ERFA2)	45
					Black sage (SAME3)	25
					Pine bluegrass (POSC)	10
					Misc. annual grasses (AAGG)	7
					Chaparral yucca (YUWH)	5
					Misc. shrubs (SSSS)	5
					Chamise (ADFA)	3
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)	30
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
					Narrowleaf goldenbush (ERLI6)	2

Table 12.--Ecological Sites, 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
742:						
Lilten silty clay loam--	Quercus Douglasii-Pinus Sabiniana/bromus Hordeaceus, F015XE074CA	3,200	2,400	1,200	Soft chess (BRHOH)-------------	30
					Blue oak (QUDO)----------------	10
					Pine bluegrass (POSC)----------	10
					Rattail fescue (VUMY)----------	10
					Red brome (BRRU2)--------------	10
					Wild oat (AVFA)----------------	10
					Misc. annual grasses (AAGG)----	5
					California buckeye (AECA)------	3
					Foothill pine (PISA2)----------	3
					Narrowleaf goldenbush (ERLI6)--	3
					California sagebrush (ARCA11)--	2
					Manzanita (ARCTO3)-------------	2
					California juniper (JUCA7)-----	1
					Purple needlegrass (NAPU4)-----	1
743:						
Millsholm clay loam-----	Shallow Loamy Hills 13-18" p.z., R015XE107CA	1,300	1,000	700	California buckwheat (ERFA2)---	45
					Black sage (SAME3)-------------	25
					Pine bluegrass (POSC)----------	10
					Misc. annual grasses (AAGG)----	7
					Chaparral yucca (YUWH)---------	5
					Misc. shrubs (SSSS)------------	5
					Chamise (ADFA)-----------------	3
Borreguero sandy loam---	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)-------------	30
					California buckwheat (ERFA2)---	10
					California sagebrush (ARCA11)--	10
					Filaree (ERODI)----------------	10
					Pine bluegrass (POSC)----------	10
					Rattail fescue (VUMY)----------	10
					Red brome (BRRU2)--------------	10
					Black sage (SAME3)-------------	5
					Chamise (ADFA)-----------------	5

Table 12.--Ecological Sites, 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
744:						
Lilten silty clay loam--	Quercus Douglasii-Pinus Sabiniana/bromus Hordeaceus, F015XE074CA	3,200	2,400	1,200	Soft chess (BRHOH)-------------	30
					Blue oak (QUDO)----------------	10
					Pine bluegrass (POSC)----------	10
					Rattail fescue (VUMY)----------	10
					Red brome (BRRU2)--------------	10
					Wild oat (AVFA)----------------	10
					Misc. annual grasses (AAGG)----	5
					California buckeye (AECA)------	3
					Foothill pine (PISA2)----------	3
					Narrowleaf goldenbush (ERLI6)--	3
					California sagebrush (ARCA11)--	2
					Manzanita (ARCTO3)-------------	2
					California juniper (JUCA7)-----	1
					Purple needlegrass (NAPU4)-----	1
Millsholm clay loam-----	Shallow Loamy Hills 13-18" p.z., R015XE107CA	1,300	1,000	700	California buckwheat (ERFA2)---	45
					Black sage (SAME3)-------------	25
					Pine bluegrass (POSC)----------	10
					Misc. annual grasses (AAGG)----	7
					Chaparral yucca (YUWH)---------	5
					Misc. shrubs (SSSS)------------	5
					Chamise (ADFA)-----------------	3
745:						
Grazer silty clay loam--	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)-------------	40
					Filaree (ERODI)----------------	15
					Red brome (BRRU2)--------------	15
					Clover (TRIFO)-----------------	10
					Rattail fescue (VUMY)----------	10
					Wild oat (AVFA)----------------	5
					Pine bluegrass (POSC)----------	3
					Baccharis (BACCH)--------------	1
					Narrowleaf goldenbush (ERLI6)--	1

Table 12.--Ecological Sites, 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
745:						
Wisflat sandy loam------	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)--------------	30
					Soft chess (BRHOH)-------------	25
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					California buckwheat (ERFA2)---	8
					California sagebrush (ARCA11)--	6
					Wild oat (AVFA)----------------	5
					Pine bluegrass (POSC)----------	4
					Narrowleaf goldenbush (ERLI6)--	2
Arburua loam------------	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)-------------	30
					Rattail fescue (VUMY)----------	15
					Red brome (BRRU2)--------------	10
					Wild oat (AVFA)----------------	10
					Filaree (ERODI)----------------	5
					Mouse barley (HOMU)------------	5
					Misc. annual grasses (AAGG)----	5
					Ripgut brome (BRDI3)-----------	5
					Misc. annual forbs (AAFF)------	4
					Narrowleaf goldenbush (ERLI6)--	3
					California buckwheat (ERFA2)---	2
					Allscale saltbush (ATPO)-------	2
					Purple needlegrass (NAPU4)-----	2
					Slender oat (AVBA)-------------	2
746:						
Rock outcrop.						
Wisflat sandy loam------	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)--------------	30
					Soft chess (BRHOH)-------------	25
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					California buckwheat (ERFA2)---	8
					California sagebrush (ARCA11)--	6
					Wild oat (AVFA)----------------	5
					Pine bluegrass (POSC)----------	4
					Narrowleaf goldenbush (ERLI6)--	2

Table 12.--Ecological Sites, 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
746:						
Arburua loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Filaree (ERODI)	5
					Mouse barley (HOMU)	5
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	4
					Narrowleaf goldenbush (ERLI6)	3
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Purple needlegrass (NAPU4)	2
					Slender oat (AVBA)	2
747:						
Lilten silty clay	Quercus Douglasii-Pinus Sabiniana/bromus Hordeaceus, F015XE074CA	3,200	2,400	1,200	Soft chess (BRHOH)	30
					Blue oak (QUDO)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Misc. annual grasses (AAGG)	5
					California buckeye (AECA)	3
					Foothill pine (PISA2)	3
					Narrowleaf goldenbush (ERLI6)	3
					California sagebrush (ARCA11)	2
					Manzanita (ARCTO3)	2
					California juniper (JUCA7)	1
					Purple needlegrass (NAPU4)	1
Grazer silty clay loam	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)	40
					Filaree (ERODI)	15
					Red brome (BRRU2)	15
					Clover (TRIFO)	10
					Rattail fescue (VUMY)	10
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	3
					Baccharis (BACCH)	1
					Narrowleaf goldenbush (ERLI6)	1

Table 12.--Ecological Sites, 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
747:						
Arburua loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Filaree (ERODI)	5
					Mouse barley (HOMU)	5
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	4
					Narrowleaf goldenbush (ERLI6)	3
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Purple needlegrass (NAPU4)	2
					Slender oat (AVBA)	2
748:						
Vaquero clay	Clayey Hills 10-14" p.z., R015XE001CA	3,600	2,800	1,200	Wild oat (AVFA)	30
					Soft chess (BRHOH)	23
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Burclover (MEHI)	5
					Ripgut brome (BRDI3)	5
					Misc. shrubs (SSSS)	3
					Pine bluegrass (POSC)	2
					Purple needlegrass (NAPU4)	2
Grazer silty clay loam	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)	40
					Filaree (ERODI)	15
					Red brome (BRRU2)	15
					Clover (TRIFO)	10
					Rattail fescue (VUMY)	10
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	3
					Baccharis (BACCH)	1
					Narrowleaf goldenbush (ERLI6)	1

Table 12.--Ecological Sites, 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
749:						
Grazer silty clay loam--	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)-------------	40
					Filaree (ERODI)----------------	15
					Red brome (BRRU2)--------------	15
					Clover (TRIFO)-----------------	10
					Rattail fescue (VUMY)----------	10
					Wild oat (AVFA)----------------	5
					Pine bluegrass (POSC)----------	3
					Baccharis (BACCH)--------------	1
					Narrowleaf goldenbush (ERLI6)--	1
Wisflat sandy loam------	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)--------------	30
					Soft chess (BRHOH)-------------	25
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					California buckwheat (ERFA2)---	8
					California sagebrush (ARCA11)--	6
					Wild oat (AVFA)----------------	5
					Pine bluegrass (POSC)----------	4
					Narrowleaf goldenbush (ERLI6)--	2
Exclose clay loam-------	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)-------------	30
					Rattail fescue (VUMY)----------	15
					Red brome (BRRU2)--------------	15
					Burclover (MEHI)---------------	10
					Filaree (ERODI)----------------	10
					Wild oat (AVFA)----------------	10
					Ripgut brome (BRDI3)-----------	5
					Misc. annual grasses (AAGG)----	2
					Narrowleaf goldenbush (ERLI6)--	1
					Misc. shrubs (SSSS)------------	1
					Purple needlegrass (NAPU4)-----	1
750:						
Monvero sand------------	Sandy Upland 9-13" p.z. Deep, R015XF039CA	1,800	1,200	500	Red brome (BRRU2)--------------	35
					Cooper goldenbush (ERCO23)-----	15
					Arabian schismus (SCAR)--------	10
					Ephedra (EPHED)----------------	10
					Filaree (ERODI)----------------	10
					Misc. annual forbs (AAFF)------	10
					Desert needlegrass (ACSP12)----	5
					Indian ricegrass (ACHY)--------	3
					California buckwheat (ERFA2)---	2

Table 12.--Ecological Sites, 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
750:						
Monoridge fine sand	Sandy Upland 9-13" p.z., R015XF017CA	1,200	700	300	Red brome (BRRU2)	59
					Filaree (ERODI)	15
					Snakeweed (GUTIE)	10
					Soft chess (BRHOH)	10
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Narrowleaf goldenbush (ERLI6)	1
					Pine bluegrass (POSC)	1
752:						
Cyvar loam	Limy Upland (shallow) 9-12" p.z., R015XF034CA	1,800	1,300	600	Red brome (BRRU2)	30
					Rattail fescue (VUMY)	20
					Filaree (ERODI)	15
					Soft chess (BRHOH)	15
					Misc. annual grasses (AAGG)	7
					Misc. annual forbs (AAFF)	5
					Ephedra (EPHED)	2
					Goldenbush (ERICA2)	2
					Pine bluegrass (POSC)	2
					Snakeweed (GUTIE)	2
Nodhill loam	Loamy Upland 9-13" p.z., R015XF031CA	2,800	2,000	1,000	Red brome (BRRU2)	45
					Filaree (ERODI)	15
					Soft chess (BRHOH)	15
					Rattail fescue (VUMY)	10
					Ephedra (EPHED)	5
					Snakeweed (GUTIE)	5
					Allscale saltbush (ATPO)	2
					Pine bluegrass (POSC)	2
					Narrowleaf goldenbush (ERLI6)	1

Table 12.--Ecological Sites, 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
753:						
Cyvar loam	Limy Upland (shallow) 9-12" p.z., R015XF034CA	1,800	1,300	600	Red brome (BRRU2)	30
					Rattail fescue (VUMY)	20
					Filaree (ERODI)	15
					Soft chess (BRHOH)	15
					Misc. annual grasses (AAGG)	7
					Misc. annual forbs (AAFF)	5
					Ephedra (EPHED)	2
					Goldenbush (ERICA2)	2
					Pine bluegrass (POSC)	2
					Snakeweed (GUTIE)	2
Nodhill loam	Loamy Upland 9-13" p.z., R015XF031CA	2,800	2,000	1,000	Red brome (BRRU2)	45
					Filaree (ERODI)	15
					Soft chess (BRHOH)	15
					Rattail fescue (VUMY)	10
					Ephedra (EPHED)	5
					Snakeweed (GUTIE)	5
					Allscale saltbush (ATPO)	2
					Pine bluegrass (POSC)	2
					Narrowleaf goldenbush (ERLI6)	1
Pits, gysiferous.						
755:						
Borreguero sandy loam	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)	30
					California buckwheat (ERFA2)	10
					California sagebrush (ARCA11)	10
					Filaree (ERODI)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Black sage (SAME3)	5
					Chamise (ADFA)	5

Table 12.--Ecological Sites, 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
755:						
Grazer silty clay loam	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)	40
					Filaree (ERODI)	15
					Red brome (BRRU2)	15
					Clover (TRIFO)	10
					Rattail fescue (VUMY)	10
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	3
					Baccharis (BACCH)	1
					Narrowleaf goldenbush (ERLI6)	1
Rock outcrop.						
757:						
Rock outcrop.						
Borreguero sandy loam	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)	30
					California buckwheat (ERFA2)	10
					California sagebrush (ARCA11)	10
					Filaree (ERODI)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Black sage (SAME3)	5
					Chamise (ADFA)	5
758:						
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)	30
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
					Narrowleaf goldenbush (ERLI6)	2

Table 12.--Ecological Sites, 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
758:						
Borreguero sandy loam	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)	30
					California buckwheat (ERFA2)	10
					California sagebrush (ARCA11)	10
					Filaree (ERODI)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Black sage (SAME3)	5
					Chamise (ADFA)	5
Rock outcrop.						
761:						
Atravesada gravelly sandy loam	Loamy Serpentinitic 8-9" p.z. (gravelly), R015XF042CA	1,200	900	600	Rattail fescue (VUMY)	45
					Allscale saltbush (ATPO)	15
					Mouse barley (HOMU)	10
					Soft chess (BRHOH)	10
					Misc. annual grasses (AAGG)	8
					California buckwheat (ERFA2)	5
					Red brome (BRRU2)	5
					Misc. annual forbs (AAFF)	2
765:						
Atravesada sandy loam	Loamy Serpentinitic 17-20" p.z., R015XE093CA	1,000	600	200	Leather oak (QUDU4)	42
					Manzanita (ARCTO3)	25
					Buckbrush (CECU)	15
					California buckthorn (RHCA)	5
					Coulter pine (PICO3)	5
					Foothill pine (PISA2)	5
					Jeffrey pine (PIJE)	1
					Misc. annual forbs (AAFF)	1
					Misc. annual grasses (AAGG)	1
Pits, asbestos.						

Table 12.--Ecological Sites, 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
767:						
Atravesada sandy loam	Loamy Serpentinitic 17-20" p.z., R015XE093CA	1,000	600	200	Leather oak (QUDU4)	42
					Manzanita (ARCTO3)	25
					Buckbrush (CECU)	15
					California buckthorn (RHCA)	5
					Coulter pine (PICO3)	5
					Foothill pine (PISA2)	5
					Jeffrey pine (PIJE)	1
					Misc. annual forbs (AAFF)	1
					Misc. annual grasses (AAGG)	1
Pits, asbestos.						
770:						
Roacha silty clay loam	Quercus Douglasii-Pinus Sabiniana/bromus Hordeaceus, F015XE074CA	3,200	2,400	1,200	Soft chess (BRHOH)	20
					Blue oak (QUDO)	13
					Foothill pine (PISA2)	10
					Wild oat (AVFA)	10
					Miners lettuce (CLPE)	6
					California buckeye (AECA)	5
					Clarkia (CLARK)	5
					Goldenbush (ERICA2)	5
					Pine bluegrass (POSC)	5
					Tomcat clover (TRTR2)	5
					Ripgut brome (BRRI8)	4
					California juniper (JUCA7)	2
					Blue wildrye (ELGL)	2
					Live oak (QUVI)	2
					Manzanita (ARCTO3)	2
					Purple needlegrass (NAPU4)	2
					Sanicle (SANIC)	2
Millsholm clay loam	Shallow Loamy Hills 13-18" p.z., R015XE107CA	1,300	1,000	700	California buckwheat (ERFA2)	45
					Black sage (SAME3)	25
					Pine bluegrass (POSC)	10
					Misc. annual grasses (AAGG)	7
					Chaparral yucca (YUWH)	5
					Misc. shrubs (SSSS)	5
					Chamise (ADFA)	3

Table 12.--Ecological Sites, 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
770:						
Lilten silty clay loam	Quercus Douglasii-Pinus Sabiniana/bromus Hordeaceus, F015XE074CA	3,200	2,400	1,200	Soft chess (BRHOH)	30
					Blue oak (QUDO)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Misc. annual grasses (AAGG)	5
					California buckeye (AECA)	3
					Foothill pine (PISA2)	3
					Narrowleaf goldenbush (ERLI6)	3
					California sagebrush (ARCA11)	2
					Manzanita (ARCTO3)	2
					California juniper (JUCA7)	1
					Purple needlegrass (NAPU4)	1
773:						
Hentine very gravelly sandy loam	Shallow Loamy Hills 10-15" p.z. (gravelly), R015XE077CA	1,500	1,000	500	Chamise (ADFA)	45
					Foothill pine (PISA2)	10
					Misc. annual forbs (AAFF)	8
					Pine bluegrass (POSC)	8
					Blue oak (QUDO)	5
					Buckbrush (CECU)	5
					Manzanita (ARCTO3)	5
					Misc. annual grasses (AAGG)	5
					Misc. perennial forbs (PPFF)	5
					California melicgrass (MECA2)	4
Rock outcrop.						
774:						
Hentine very gravelly sandy loam	Shallow Loamy Hills 10-15" p.z. (gravelly), R015XE077CA	1,500	1,000	500	Chamise (ADFA)	45
					Foothill pine (PISA2)	10
					Misc. annual forbs (AAFF)	8
					Pine bluegrass (POSC)	8
					Blue oak (QUDO)	5
					Buckbrush (CECU)	5
					Manzanita (ARCTO3)	5
					Misc. annual grasses (AAGG)	5
					Misc. perennial forbs (PPFF)	5
					California melicgrass (MECA2)	4

Table 12.--Ecological Sites, 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
774:						
Franciscan gravelly sandy loam	Quercus Douglasii-Juniperus Californica/bromus Hordeaceus, F015XE078CA	3,000	2,000	1,000	Soft chess (BRHOH)	20
					Wild oat (AVFA)	20
					Misc. annual grasses (AAGG)	15
					Blue oak (QUDO)	10
					California juniper (JUCA7)	5
					Blue wildrye (ELGL)	5
					Clarkia (CLARK)	5
					Miners lettuce (CLPE)	5
					Pine bluegrass (POSC)	5
					Sanicle (SANIC)	5
					Foothill pine (PISA2)	3
					California buckeye (AECA)	2
Rock outcrop.						
782, 783:						
Vaquero clay	Clayey Hills 10-14" p.z., R015XE001CA	3,600	2,800	1,200	Wild oat (AVFA)	30
					Soft chess (BRHOH)	23
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Burclover (MEHI)	5
					Ripgut brome (BRDI3)	5
					Misc. shrubs (SSSS)	3
					Pine bluegrass (POSC)	2
					Purple needlegrass (NAPU4)	2
Altamont clay	Clayey Hills 10-14" p.z., R015XE001CA	3,600	2,800	1,200	Wild oat (AVFA)	40
					Soft chess (BRHOH)	23
					Burclover (MEHI)	10
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	5
					Ripgut brome (BRDI3)	5
					Misc. shrubs (SSSS)	3
					Pine bluegrass (POSC)	2
					Purple needlegrass (NAPU4)	2

Table 12.--Ecological Sites, 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
817, 818, 819, 820:						
Arburua loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Filaree (ERODI)	5
					Mouse barley (HOMU)	5
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	4
					Narrowleaf goldenbush (ERLI6)	3
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Purple needlegrass (NAPU4)	2
					Slender oat (AVBA)	2
822:						
Altamont clay	Clayey Hills 10-14" p.z., R015XE001CA	3,600	2,800	1,200	Wild oat (AVFA)	40
					Soft chess (BRHOH)	23
					Burclover (MEHI)	10
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	5
					Ripgut brome (BRDI3)	5
					Misc. shrubs (SSSS)	3
					Pine bluegrass (POSC)	2
					Purple needlegrass (NAPU4)	2
823:						
Ayar clay	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)	25
					Red brome (BRRU2)	20
					Filaree (ERODI)	10
					Ripgut brome (BRDI3)	10
					Tomcat clover (TRTR2)	10
					Lupine (LUPIN)	5
					Purple needlegrass (NAPU4)	5
					Rattail fescue (VUMY)	5
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	3
					Baccharis (BACCH)	1
					Narrowleaf goldenbush (ERLI6)	1

Table 12.--Ecological Sites, 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
827:						
Ayar clay	Clayey Upland 9-13" p.z., R015XE075CA	3,000	2,200	1,200	Soft chess (BRHOH)	25
					Red brome (BRRU2)	20
					Filaree (ERODI)	10
					Ripgut brome (BRDI3)	10
					Tomcat clover (TRTR2)	10
					Lupine (LUPIN)	5
					Purple needlegrass (NAPU4)	5
					Rattail fescue (VUMY)	5
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	3
					Baccharis (BACCH)	1
					Narrowleaf goldenbush (ERLI6)	1
Arburua loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Filaree (ERODI)	5
					Mouse barley (HOMU)	5
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	4
					Narrowleaf goldenbush (ERLI6)	3
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Purple needlegrass (NAPU4)	2
					Slender oat (AVBA)	2
834:						
Bapos clay loam	Fine Loamy 8-10" p.z., R017XE041CA	3,200	2,400	1,000	Soft chess (BRHOH)	30
					Red brome (BRRU2)	20
					Filaree (ERODI)	15
					Wild oat (AVFA)	10
					Misc. annual grasses (AAGG)	8
					Misc. annual forbs (AAFF)	5
					Rattail fescue (VUMY)	5
					Ripgut brome (BRDI3)	5
					Misc. perennial grasses (PPGG)	1
					Misc. shrubs (SSSS)	1

Table 12.--Ecological Sites, 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
835:						
Pedcat loam, eroded	Loamy Saline-Alkali 9-12" p.z., R017XF069CA	1,000	800	500	Saltgrass (DISTI)	60
					Alkali sacaton (SPAI)	10
					Filaree (ERODI)	5
					Foxtail fescue (FEME)	5
					Misc. annual grasses (AAGG)	5
					Misc. shrubs (SSSS)	5
					Red brome (BRRU2)	5
					Spinescale saltbush (ATSP)	2
					Alkali heath (FRSA)	1
					Iodinebush (ALOC2)	1
					Mouse barley (HOMU)	1
842:						
Quinto gravelly sandy loam	Shallow Coarse Loamy 10-16" p.z., R015XE080CA	1,600	1,100	800	Soft chess (BRHOH)	30
					California buckwheat (ERFA2)	10
					California sagebrush (ARCA11)	10
					Filaree (ERODI)	10
					Pine bluegrass (POSC)	10
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Black sage (SAME3)	5
					Chamise (ADFA)	5
Millsholm clay loam	Shallow Loamy Hills 13-18" p.z., R015XE083CA	1,300	1,000	700	California buckwheat (ERFA2)	45
					Black sage (SAME3)	25
					Pine bluegrass (POSC)	10
					Misc. annual grasses (AAGG)	7
					Chaparral yucca (YUWH)	5
					Misc. shrubs (SSSS)	5
					Chamise (ADFA)	3
Rock outcrop.						

Table 12.--Ecological Sites, 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
847:						
Carranza gravelly sandy loam	Loamy Fan Remnant 8-10" p.z., R017XE061CA	3,000	2,500	1,000	Soft chess (BRHOH)	35
					Filaree (ERODI)	10
					Misc. annual forbs (AAFF)	10
					Rattail fescue (VUMY)	10
					Wild oat (AVFA)	10
					Misc. annual grasses (AAGG)	6
					Foxtail barley (HOJU)	5
					Red brome (BRRU2)	5
					Ripgut brome (BRDI3)	5
					Baccharis (BACCH)	2
					Wooly yerba santa (ERTO)	2
849:						
Chaqua loam	Loamy Fan Remnant 8-10" p.z., R017XE061CA	3,000	2,500	1,000	Soft chess (BRHOH)	35
					Filaree (ERODI)	15
					Misc. annual grasses (AAGG)	11
					Misc. annual forbs (AAFF)	10
					Foxtail barley (HOJU)	5
					Purple needlegrass (NAPU4)	5
					Rattail fescue (VUMY)	5
					Red brome (BRRU2)	5
					Wild oat (AVFA)	5
					Baccharis (BACCH)	2
					Misc. shrubs (SSSS)	2
851, 852:						
Los Banos clay loam	Fine Loamy 8-10" p.z., R017XE041CA	3,200	2,400	1,000	Soft chess (BRHOH)	30
					Red brome (BRRU2)	15
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					Wild oat (AVFA)	10
					Misc. annual grasses (AAGG)	8
					Burclover (MEHI)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	3
					Allscale saltbush (ATPO)	2
					Misc. shrubs (SSSS)	2

Table 12.--Ecological Sites, 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
853:						
Los Banos clay loam-----	Fine Loamy 8-10" p.z., R017XE041CA	3,200	2,400	1,000	Soft chess (BRHOH)-------------	30
					Red brome (BRRU2)--------------	15
					Filaree (ERODI)----------------	10
					Rattail fescue (VUMY)----------	10
					Wild oat (AVFA)----------------	10
					Misc. annual grasses (AAGG)----	8
					Burclover (MEHI)---------------	5
					Ripgut brome (BRDI3)-----------	5
					Misc. annual forbs (AAFF)------	3
					Allscale saltbush (ATPO)-------	2
					Misc. shrubs (SSSS)------------	2
Pleito gravelly clay loam------------------	Loamy Fan Remnant 8-10" p.z., R017XE061CA	3,000	2,500	1,000	Soft chess (BRHOH)-------------	25
					Misc. annual grasses (AAGG)----	11
					Filaree (ERODI)----------------	10
					Foxtail barley (HOJU)----------	10
					Rattail fescue (VUMY)----------	10
					Wild oat (AVFA)----------------	10
					Burclover (MEHI)---------------	5
					Misc. annual forbs (AAFF)------	5
					Red brome (BRRU2)--------------	5
					Ripgut brome (BRDI3)-----------	5
					Baccharis (BACCH)--------------	2
					Misc. shrubs (SSSS)------------	2
855:						
Pleito gravelly clay loam------------------	Loamy Fan Remnant 8-10" p.z., R017XE061CA	3,000	2,500	1,000	Soft chess (BRHOH)-------------	25
					Misc. annual grasses (AAGG)----	11
					Filaree (ERODI)----------------	10
					Foxtail barley (HOJU)----------	10
					Rattail fescue (VUMY)----------	10
					Wild oat (AVFA)----------------	10
					Burclover (MEHI)---------------	5
					Misc. annual forbs (AAFF)------	5
					Red brome (BRRU2)--------------	5
					Ripgut brome (BRDI3)-----------	5
					Baccharis (BACCH)--------------	2
					Misc. shrubs (SSSS)------------	2

Table 12.--Ecological Sites, 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
863:						
Vernalis loam	Loamy Fan Remnant 8-10" p.z., R017XE061CA	3,000	2,500	1,000	Soft chess (BRHOH)	35
					Foxtail barley (HOJU)	15
					Filaree (ERODI)	10
					Red brome (BRRU2)	10
					Misc. annual grasses (AAGG)	9
					Misc. annual forbs (AAFF)	5
					Rattail fescue (VUMY)	5
					Ripgut brome (BRDI3)	5
					Baccharis (BACCH)	2
					Wooly yerba santa (ERTO)	2
					Allscale saltbush (ATPO)	1
					Cottonwood (POPUL)	1
865:						
Conosta clay loam	Loamy Slopes 9-12" p.z., R015XE026CA	2,800	2,000	1,200	Soft chess (BRHOH)	35
					Filaree (ERODI)	15
					Wild oat (AVFA)	15
					Rattail fescue (VUMY)	10
					Red brome (BRRU2)	10
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					California buckwheat (ERFA2)	2
					Narrowleaf goldenbush (ERLI6)	2
					Snakeweed (GUTIE)	1
870, 871:						
Wisflat sandy loam	Shallow Coarse Loamy 9-13" p.z., R015XF033CA	1,200	800	500	Red brome (BRRU2)	32
					Soft chess (BRHOH)	25
					Filaree (ERODI)	10
					Rattail fescue (VUMY)	10
					California buckwheat (ERFA2)	8
					California sagebrush (ARCA11)	6
					Wild oat (AVFA)	5
					Pine bluegrass (POSC)	4
Rock outcrop.						

Table 12.--Ecological Sites, 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
870, 871:						
Arburua loam	Fine Loamy 9-13" p.z., R015XE020CA	3,300	2,700	1,000	Soft chess (BRHOH)	30
					Rattail fescue (VUMY)	15
					Red brome (BRRU2)	10
					Wild oat (AVFA)	10
					Filaree (ERODI)	5
					Mouse barley (HOMU)	5
					Misc. annual grasses (AAGG)	5
					Ripgut brome (BRDI3)	5
					Misc. annual forbs (AAFF)	4
					Narrowleaf goldenbush (ERLI6)	3
					California buckwheat (ERFA2)	2
					Allscale saltbush (ATPO)	2
					Purple needlegrass (NAPU4)	2
					Slender oat (AVBA)	2
872:						
Vernalis loam	Loamy Fan Remnant 8-10" p.z., R017XE061CA	3,000	2,500	1,000	Soft chess (BRHOH)	35
					Foxtail barley (HOJU)	15
					Filaree (ERODI)	10
					Red brome (BRRU2)	10
					Misc. annual grasses (AAGG)	9
					Misc. annual forbs (AAFF)	5
					Rattail fescue (VUMY)	5
					Ripgut brome (BRDI3)	5
					Baccharis (BACCH)	2
					Wooly yerba santa (ERTO)	2
					Allscale saltbush (ATPO)	1
					Cottonwood (POPUL)	1
873:						
Narbaitz loam	Loamy Upland 8-10" p.z., R017XF077CA	3,200	2,000	800	Red brome (BRRU2)	35
					Rattail fescue (VUMY)	20
					Mouse barley (HOMU)	15
					Soft chess (BRHOH)	15
					Filaree (ERODI)	5
					Misc. annual forbs (AAFF)	5
					Misc. annual grasses (AAGG)	5

Table 12.--Ecological Sites, 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
873: Pleito gravelly clay loam	Loamy Fan Remnant 8-10" p.z., R017XE061CA	3,000	2,500	1,000	Soft chess (BRHOH)	25
					Misc. annual grasses (AAGG)	11
					Filaree (ERODI)	10
					Foxtail barley (HOJU)	10
					Rattail fescue (VUMY)	10
					Wild oat (AVFA)	10
					Burclover (MEHI)	5
					Misc. annual forbs (AAFF)	5
					Red brome (BRRU2)	5
					Ripgut brome (BRDI3)	5
					Baccharis (BACCH)	2
					Misc. shrubs (SSSS)	2

Table 13.--General Ecological Site Unit Map Legend

General Ecological Site Map Unit	Soil map units	Dominant soil component(s)	Dominant ecological site ID(s)	Dominant ecological site name(s)	Associated ecological site ID(s)	Associated ecological site name(s)
1	404 405 406 451 452 453 454 455 590 940	Milham-Polvadero-Guijarral	R017XG043CA	Loamy 6-8” p.z.	R017XE101CA R017XG050CA	Very Gravelly Loamy Alkaline Streambank
2	587 588 752 753 834 835 847 849 851 852 853 855 865 873	Los Banos-Pleito	R017XE061CA R015XF031CA	Loamy Fan Remnant 8-10” p.z. Loamy Upland 9-13” p.z.	R017XF077CA R017XE041CA R015XE026CA R015XF034CA	Loamy Upland 8-10” p.z. Fine Loamy 8-10” p.z. Loamy Slopes 9-12” p.z. Limy Upland (Shallow) 9-12” p.z.
3	620 621 640 641 642 643 644 645 670	Delgado-Mercey-Kettleman	R015XG008CA R015XG009CA	Loamy 5-8” p.z. Shallow Loamy 5-8” p.z.	None	None

Table 13.--General Ecological Site Unit Map Legend--Continued

General Ecological Site Map Unit	Soil map units	Dominant soil component(s)	Dominant ecological site ID(s)	Dominant ecological site name(s)	Associated ecological site ID(s)	Associated ecological site name(s)
4	107 817 818 819 820 823 827 863 870 871 872	Vernalis-Arburua	R015XE020CA	Fine Loamy 9-13” p.z.	R017XE061CA R015XE075CA	Loamy Fan Remnant 8-10” p.z. Clayey Upland 9-13” p.z.
5	680 710 715 717 718 719 720 722 723 725 735 737 739 749 750 842	Exclose-Wisflat	R015XF033CA	Shallow Coarse Loamy 9-13” p.z.	R015XF001CA R015XE075CA R015XE020CA R015XE026CA R015XF031CA R015XF017CA R015XF041CA	Clayey Hills 10-14” p.z. Clayey Upland 9-13” p.z. Fine Loamy 9-13” p.z. Loamy Slopes 9-12” p.z. Loamy Upland 9-13” p.z. Sandy Upland 9-13” p.z. Shallow Acidic 9-13” p.z.
6	738 740 742 743 744 745 746 747 748 755 757 758	Grazer-Wisflat	R015XE075CA R015XE107CA	Clayey Upland 9-13” p.z. Shallow Loamy Hills 13-18” p.z.	F015XE074CA R015XE080CA R015XE079CA R015XF001CA	QUDO-PISA2/BRHOH Shallow Coarse Loamy 10-16” p.z. Loamy Hills 10-13” p.z. Clayey Hills 10-14” p.z.

Table 13.--General Ecological Site Unit Map Legend--Continued

General Ecological Site Map Unit (GESMU)	Soil map units	Dominant soil component(s)	Dominant ecological site ID(s)	Dominant ecological site name(s)	Associated ecological site ID(s)	Associated ecological site name(s)
7	761 765 767 769	Altravesada	R015XE093CA	Loamy Serpentinitic 17-20” p.z.	R015XF042CA	Loamy Serpentinitic 8-9” p.z.
8	704 705 706 709 711 712 713 714 727 741 770 782 783 822	Currymountain-Roacha-Borreguero	F015XE074CA R015XE080CA F015XE078CA	QUDO-PISA2/BRHOH Shallow Coarse Loamy 10-16” p.z. QUDO-JUCA7/BRHOH	R015XE075CA R015XE001CA	Clayey Upland 9-13” p.z. Clayey Hills 10-14” p.z.
9	728 733 773 774	Hentine-Climara	R015XE001CA R015XE077CA	Clayey Hills 10-14” p.z. Shallow Loamy Hills 10-15” p.z. (gravelly)	None	None

Table 14.--Correlated Ecological Sites

Ecological site ID #	Ecological site name
	MLRA 15 Forestland Ecological Sites:
F015XE074CA	Quercus douglasii-Pinus sabiniana/Bromus hordeaceus
F015XE078CA	Quercus douglasii-Juniperus californica/Bromus hordeaceus
	MLRA 15 Rangeland Ecological Sites:
R015XE001CA	Clayey Hills 10-14" p.z.
R015XE020CA	Fine Loamy 9-13" p.z.
R015XE026CA	Loamy Slopes 9-12" p.z.
R015XE075CA	Clayey Upland 9-13" p.z.
R015XE076CA	Acidic Upland 10-16" p.z.
R015XE077CA	Shallow Loamy Hills 10-15" p.z. (gravelly)
R015XE079CA	Loamy Hills 10-13" p.z.
R015XE080CA	Shallow Coarse Loamy 10-16" p.z.
R015XE083CA	Shallow Loamy Hills 13-18" p.z.
R015XE093CA	Loamy Serpentinitic 17-20" p.z.
R015XE107CA	Shallow Loamy Hills 13-18" p.z.
R015XF001CA	Clayey Hills 10-14" p.z.
R015XF017CA	Sandy Upland 9-13" p.z.
R015XF031CA	Loamy Upland 9-13" p.z.
R015XF033CA	Shallow Coarse Loamy 9-13" p.z.
R015XF034CA	Limy Upland (shallow) 9-12" p.z.
R015XF039CA	Sandy Upland 9-13" p.z. deep
R015XF041CA	Shallow Acidic 9-13" p.z.
R015XF042CA	Loamy Serpentinitic 8-9" p.z. (gravelly)
R015XG008CA	Loamy 5-8" p.z.
R015XG009CA	Shallow Loamy 5-8" p.z.
	MLRA 17 Rangeland Ecological Sites:
R017XE041CA	Fine Loamy 8-10" p.z.
R017XE061CA	Loamy Fan Remnant 8-10" p.z.
R017XE101CA	Very Gravelly Loamy
R017XF069CA	Loamy Saline-Alkali 9-12" p.z.
R017XF077CA	Loamy Upland 8-10" p.z.
R017XG043CA	Loamy 6-8" p.z.
R017XG050CA	Alkaline Streambank

Table 15.--Index of Common and Scientific Plant Names and Plant Symbols

(List is alphabetical according to common name. This table serves as a cross-reference to table 12. Current (2003) plant taxonomy and synonymy are followed. See USDA-NRCS PLANTS Database; http://plants.usda.gov)

Local common name	Scientific name	Plant symbol
aleppo pine	Pinus halepensis	PIHA7
alkali heath	Frankenia salina	FRSA
alkali sacaton	Sporobolus airoides	SPAI
allscale saltbush	Atriplex polycarpa	ATPO
Alvord oak	Quercus X alvordiana	QUAL2
annual bluegrass	Poa annua	POAN
Arabian schismus	Schismus arabicus	SCAR
Arizona cypress	Cupressus arizonica	CUAR
athel	Tamarix articulata	TAAR3
baccharis	Baccharis spp.	BACCH
Bailey acacia	Acacia baileyana	ACBA
big sagebrush	Artemisia tridentata	ARTR2
big saltbush	Atriplex lentiformis	ATLE
black sage	Salvia mellifera	SAME3
blue oak	Quercus douglasii	QUDO
blue wildrye	Elymus glaucus	ELGL
buckbrush	Ceanothus cuneatus	CECU
buckwheat	Eriogonum spp.	ERIOG
bulrush	Scirpus spp.	SCIRP
burclover	Medicago hispida	MEHI
bush lupine	Lupinus arboreus	LUAR
California buckeye	Aesculus californica	AECA
California buckthorn	Rhamnus californica	RHCA
California buckwheat	Eriogonum fasciculatum	ERFA2
California juniper	Juniperus californica	JUCA7
California melicgrass	Melica californica	MECA2
California sagebrush	Artemisia californica	ARCA11
cattail	Typha spp.	TYPHA
ceanothus	Ceanothus spp.	CEANO
chamise	Adenostoma fasciculatum	ADFA
chamise	Adenostoma spp.	ADENO2
chaparral yucca	Yucca whipplei	YUWH
Chinese elm	Ulmus parvifolia	ULPA
clarkia	Clarkia spp.	CLARK
clover	Trifolium spp.	TRIFO
Cooper goldenbush	Ericameria cooperi	ERCO23
cottonwood	Populus spp.	POPUL
Coulter pine	Pinus coulteri	PICO3
deervetch	Lotus spp.	LOTUS
desert needlegrass	Achnatherum speciosum	ACSP12
ephedra	Ephedra spp.	EPHED
eucalyptus	Eucalyptus spp.	EUCAL
filaree	Erodium spp.	ERODI
foothill pine	Pinus sabiniana	PISA2
fourwing saltbush	Atriplex canescens	ATCA2
foxtail barley	Hordeum jubatum	HOJU
foxtail fescue	Festuca megalura	FEME
goldenbush	Ericameria spp.	ERICA2
indian ricegrass	Achnatherum hymenoides	ACHY
iodinebush	Allenrolfea occidentalis	ALOC2
Jeffrey pine	Ainus jeffreyi	PIJE
leather oak	Quercus durata	QUDU4
live oak	Quercus virginiana	QUVI
lupine	Lupinus spp.	LUPIN
manzanita	Arctostaphylos spp.	ARCTO3
miners lettuce	Claytonia perfoliata	CLPE
misc. annual forbs		AAFF
misc. annual grasses		AAGG
misc. perennial forbs		PPFF

Table 15.--Index of Common and Scientific Plant Names and Plant Symbols--Continued

Local common name	Scientific name	Plant symbol
misc. perennial grasses		PPGG
misc. shrubs		SSSS
mountainmahogany	Cercocarpus spp.	CERCO
mouse barley	Hordeum marinum ssp. gussonianum	HOMAG
mouse barley	Hordeum murinum	HOMU
narrowleaf goldenbush	Ericameria linearifolia	ERLI6
oleander	Nerium oleander	NEOL
pampasgrass	Cortaderia selloana	COSE4
pepperweed	Lepidium spp.	LEPID
pickleweed	Salicornia spp.	SALIC
pine bluegrass	Poa scabrella	POSC
pomegranate	Punica granatum	PUGR2
protruding buckwheat	Eriogonum nudum var. indictum	ERNUI
purple needlegrass	Nassella pulchra	NAPU4
pyracantha	Pyracantha spp.	PYRAC
rattail fescue	Vulpia myuros	VUMY
red brome	Bromus rubens	BRRU2
ripgut brome	Bromus diandrus	BRDI3
ripgut brome	Bromus rigidus	BRRI8
Russian olive	Elaeagnus angustifolia	ELAN
saltbush	Atriplex spp.	ATRIP
saltgrass	Distichlis ssp.	DISTI
sanicle	Sanicula spp.	SANIC
schismus	Schismus spp.	SCHIS
seashore saltgrass	Distichlis spicata	DISP
shrub live oak	Quercus turbinella	QUTU2
Siberian elm	Ulmus pumila	ULPU
slender oat	Avena barbata	AVBA
smallcone ironwood	Casuarina cunninghamiana	CACU8
snakeweed	Gutierrezia spp.	GUTIE
soft chess	Bromus hordeaceus ssp. hordeaceus	BRHOH
spinescale saltbush	Atriplex spinifera	ATSP
tamarisk	Tamarix spp.	TAMAR2
Temblor buckwheat	Eriogonum temblorense	ERTE15
tomcat clover	Trifolium tridentatum	TRTR2
toyon	Heteromeles arbutifolia	HEAR5
tule	Scirpus spp.	SCIRP
wild oat	Avena fatua	AVFA
wooly yerba santa	Eriodictyon tomentosum	ERTO
yerba santa	Eriodictyon angustifolium	ERAN2

Table 16.--Recreational Development (Part 1)

(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 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	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
101:							
Armona loam, partially drained----	85	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Surface SAR between 8-13	0.08	Surface SAR of 8-13	0.08
		SAR >12	1.00	Surface EC 4-8 dS/m	0.00	Surface EC 4-8 dS/m	0.00
		Surface EC 4-6 dS/m	0.00				
107:							
Anela very gravelly sandy loam----	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Fragments (<3”) >50%	1.00	Permeability of .06-.6”/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6”/hr	0.50			Fragments >3" 5 to 30%	0.01
115:							
Bolfar loam, drained--------------	85	Severe		Slight		Slight	
		Flooding ≥ rare	1.00				
120:							
Altaslough clay loam--------------	85	Severe		Severe		Severe	
		SAR >12	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
130:							
Gepford clay----------------------	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
		SAR >12	1.00				
		Surface clay ≥ 40%	1.00				
282:							
Tachi clay------------------------	91	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
		SAR >12	1.00	Surface SAR of 8-13	0.32	Surface SAR of 8-13	0.32
		Surface clay ≥ 40%	1.00				
284:							
Lillis clay-----------------------	85	Severe		Severe		Severe	
		SAR >12	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
		Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
285:							
Tranquillity clay, saline-sodic	60	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
		SAR >12	1.00				
Tranquillity clay, saline-sodic, wet	25	Severe		Severe		Severe	
		SAR >12	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
286:							
Tranquillity clay, saline-sodic, wet	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
		SAR >12	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
		Surface clay ≥ 40%	1.00				
311:							
Bisgani sandy loam, drained	85	Severe		Slight		Slight	
		Flooding ≥ rare	1.00				
320:							
Elnido sandy loam, drained	85	Severe		Slight		Slight	
		Flooding ≥ rare	1.00				
		SAR >12	1.00				
325:							
Palazzo sandy loam, drained	85	Severe		Slight		Slight	
		Flooding ≥ rare	1.00				
375:							
Lethent silt loam	85	Severe		Moderate		Moderate	
		SAR >12	1.00	Dusty	0.50	Dusty	0.50
		Dusty	0.50	Surface SAR of 8-13	0.32	Surface SAR of 8-13	0.32
376:							
Agnal silty clay	90	Severe		Severe		Severe	
		Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00
		SAR >12	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
404:							
Milham sandy loam	55	Moderate		Moderate		Severe	
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Slopes >6%	1.00
						Permeability of .06-.6"/hr	0.35

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
404:							
Guijarral sandy loam	30	Moderate		Moderate		Severe	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Slopes >6%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Permeability of .06-.6"/hr	0.50
						Surface fragments (<3") 10-25%	0.22
405:							
Polvadero sandy loam	55	Severe		Moderate		Severe	
		SAR >12	1.00	Permeability of .06-.6"/hr	0.35	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.35	Slopes 8 to 15%	0.16	Permeability of .06-.6"/hr	0.35
		Slopes 8 to 15%	0.16				
Guijarral sandy loam	30	Moderate		Moderate		Severe	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Slopes >6%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Permeability of .06-.6"/hr	0.50
						Surface fragments (<3") 10-25%	0.22
406:							
Guijarral sandy loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
						Slopes 2 to 6%	0.26
						Surface fragments (<3") 10-25%	0.22
412:							
Yribarren clay loam	85	Slight		Slight		Slight	
414:							
Dospalos clay loam, drained	85	Slight		Slight		Slight	
415:							
Dospalos clay, drained	85	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
425:							
Kimberlina sandy loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
426:							
Kimberlina sandy loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
						Slopes 2 to 6%	0.26

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
434:							
Lethent clay loam, wet	85	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Surface EC 4-8 dS/m	0.00	Surface EC 4-8 dS/m	0.00
		SAR >12	1.00				
		Surface EC 4-6 dS/m	0.00				
435:							
Lethent clay loam	90	Severe		Slight		Slight	
		SAR >12	1.00				
436:							
Panoche loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
437:							
Panoche sandy loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
438:							
Panoche loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slopes 2 to 6%	0.26
442:							
Panoche clay loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
445:							
Excelsior sandy loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
447:							
Excelsior sandy loam, sandy substratum	85	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6"/hr	0.50				
448:							
Excelsior sandy loam, sandy substratum, eroded	88	Moderate		Moderate		Moderate	
		Surface sand fractions 70-90% by wt.	0.88	Surface sand fractions 70-90% by wt.	0.88	Surface sand fractions 70-90% by wt.	0.88
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
451:							
Milham sandy loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
452:							
Milham sandy loam	89	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
						Slopes 2 to 6%	0.26
453:							
Milham sandy loam	85	Moderate		Moderate		Severe	
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Slopes >6%	1.00
						Permeability of .06-.6"/hr	0.35
454:							
Polvadero sandy loam	85	Severe		Moderate		Moderate	
		SAR >12	1.00	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
		Permeability of .06-.6"/hr	0.35				
455:							
Polvadero sandy loam	85	Severe		Moderate		Moderate	
		SAR >12	1.00	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
		Permeability of .06-.6"/hr	0.35			Slopes 2 to 6%	0.26
459:							
Ciervo clay	80	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
461:							
Ciervo clay, saline-sodic, wet	80	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00
		SAR >12	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
		Surface EC >8 dS/m	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
462:							
Ciervo clay, saline-sodic, wet	50	Severe		Severe		Severe	
		SAR >12	1.00	Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00
		Surface EC >8 dS/m	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
Ciervo clay, saline-sodic	30	Severe		Severe		Severe	
		SAR >12	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
		Surface clay ≥ 40%	1.00				

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
466:							
Paver clay loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
468:							
Deldota clay, partially drained	85	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
470:							
Chateau clay, partially drained	85	Severe		Severe		Severe	
		SAR >12	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
		Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00
472:							
Wekoda clay, partially drained	85	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
		Wetness from 18 to 30" depth	0.39	Wetness from 12 to 30" depth	0.19	Wetness from 18 to 30" depth	0.39
474:							
Westhaven loam	85	Moderate		Moderate		Moderate	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
475:							
Posochanet clay loam, saline-sodic, wet	88	Severe		Slight		Slight	
		Flooding ≥ rare	1.00				
		SAR >12	1.00				
476:							
Posochanet clay loam, saline-sodic	88	Severe		Slight		Slight	
		SAR >12	1.00				
477:							
Westhaven clay loam	85	Slight		Slight		Slight	
478:							
Cerini sandy loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
479:							
Cerini clay loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
480:							
Calflax clay loam, saline-sodic	85	Severe		Moderate		Moderate	
		SAR >12	1.00	Surface EC 4-8 dS/m	0.00	Surface EC 4-8 dS/m	0.00
		Surface EC 4-6 dS/m	0.00				
481:							
Cerini clay loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Slopes 2 to 6%	0.50
						Permeability of .06-.6"/hr	0.35
482:							
Calflax clay loam, saline-sodic, wet	85	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Surface EC 4-8 dS/m	0.00	Surface EC 4-8 dS/m	0.00
		SAR >12	1.00				
		Surface EC 4-6 dS/m	0.00				
488:							
Wasco sandy loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
489:							
Wasco sandy loam	85	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
						Slopes 2 to 6%	0.26
490:							
Cerini sandy loam, subsided	85	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
		Permeability of .06-.6"/hr	0.35			Slopes 2 to 6%	0.26
491:							
Cerini clay loam, subsided	85	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
		Permeability of .06-.6"/hr	0.35			Slopes 2 to 6%	0.26
492:							
Panoche loam, subsided	85	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6"/hr	0.50	Dusty	0.50	Dusty	0.50
		Dusty	0.50			Slopes 2 to 6%	0.26
493:							
Panoche clay loam, subsided	85	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6"/hr	0.50			Slopes 2 to 6%	0.26

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
587:							
Mugatu fine sandy loam------------	85	Slight		Slight		Moderate	
						Slopes 2 to 6%	0.26
588:							
Mugatu fine sandy loam------------	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
590:							
Cerini sandy loam-----------------	30	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
		Permeability of .06-.6"/hr	0.35				
Anela very gravelly sandy loam----	30	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Fragments (<3") >50%	1.00	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6"/hr	0.50			Occasional flooding	0.50
Fluvaquents saline-sodic----------	20	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Surface SAR > 13	1.00	Surface SAR > 13	1.00
		Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00	Surface EC >8 dS/m	1.00
		Wetness from 18 to 30"	0.98	Wetness from 12 to 30"	0.75	Wetness from 18 to 30" depth	0.98
620:							
Delgado sandy loam, eroded--------	85	Severe		Severe		Severe	
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Slopes >6%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Permeability of .06-.6"/hr	0.50
621:							
Delgado sandy loam, eroded--------	85	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
640:							
Kettleman clay loam, eroded-------	35	Moderate		Moderate		Severe	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes >6%	1.00
Delgado sandy loam, eroded--------	30	Severe		Severe		Severe	
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Slopes >6%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Permeability of .06-.6"/hr	0.50

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
640:							
Mercey loam, eroded---------------	20	Moderate		Moderate		Severe	
		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
641:							
Mercey loam-----------------------	35	Moderate		Moderate		Severe	
		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
Delgado sandy loam----------------	30	Severe		Severe		Severe	
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Slopes >6%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Permeability of .06-.6"/hr	0.50
Kettleman clay loam---------------	20	Moderate		Moderate		Severe	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes >6%	1.00
642:							
Mercey loam, eroded---------------	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Delgado sandy loam, eroded--------	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Kettleman clay loam, eroded-------	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
643:							
Mercey loam-----------------------	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Delgado sandy loam----------------	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Kettleman clay loam---------------	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
644:							
Mercey, loam, eroded	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Kettleman clay loam, eroded	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Delgado sandy loam, eroded	20	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
645:							
Delgado sandy loam	35	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Mercey loam	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Kettleman clay loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
670:							
Badland	35	Not rated		Not rated		Not rated	
Kettleman clay loam	25	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Mercey loam	25	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
680:							
Arburua loam	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Morenogulch parachannery silty clay	40	Severe		Severe		Severe	
		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 clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
704:							
Franciscan gravelly sandy loam----	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.24	Permeability of .06-.6"/hr	0.24	Surface fragments (<3") >25%	1.00
		Fragments (<3") 25-50%	0.16	Fragments (<3") 25-50%	0.16	Bedrock 20-40" and slopes >2%	0.50
705:							
Roacha silty clay loam------------	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
706:							
Sagaser loam----------------------	85	Severe		Severe		Severe	
		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	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
709:							
Sagaser loam----------------------	50	Severe		Severe		Severe	
		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	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
Gaviota sandy loam----------------	20	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Borreguero sandy loam-------------	15	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
710:							
Monoridge fine sand---------------	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Surface sand fractions 70-90% by wt.	0.98	Surface sand fractions 70-90% by wt.	0.98	Surface sand fractions 70-90% by wt.	0.98
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Exclose clay loam-----------------	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Badland---------------------------	15	Not rated		Not rated		Not rated	

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
711:							
Currymountain loam	45	Severe		Severe		Severe	
		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	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
Wisflat sandy loam	20	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Borreguero sandy loam	20	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
712:							
Altamont clay	40	Severe		Severe		Severe	
		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
Roacha silty clay loam	25	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Borreguero sandy loam	20	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
713:							
Currymountain loam	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Surface fragments (<3") 10-25%	0.15
Rock outcrop	20	Not rated		Not rated		Not rated	
Quinto gravelly sandy loam	20	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.15	Permeability of .06-.6"/hr	0.15	Surface fragments (<3") >25%	1.00

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
714:							
Gaviota sandy loam	45	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Borreguero sandy loam	25	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
Rock outcrop	15	Not rated		Not rated		Not rated	
715:							
Belgarra clay	55	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Slopes >6%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Surface clay ≥ 40%	1.00
Wisflat sandy loam	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
717:							
Belgarra clay	35	Severe		Severe		Severe	
		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
Arburua loam	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Morenogulch parachannery silty clay	15	Severe		Severe		Severe	
		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 clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
718:							
Nodhill loam	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
718:							
Wisflat sandy loam	35	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
719:							
Nodhill loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Arburua loam	25	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Wisflat sandy loam	15	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
720:							
Exclose clay loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Wisflat sandy loam	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Morenogulch parachannery silty clay	15	Severe		Severe		Severe	
		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 clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
722:							
Exclose clay loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
722:							
Wisflat sandy loam	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
723:							
Exclose clay loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Wisflat sandy loam	25	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Grazer silty clay loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
725:							
Gewter clay	85	Severe		Severe		Severe	
		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
727:							
Reliz channery loam	40	Severe		Severe		Severe	
		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
		Dusty	0.50	Dusty	0.50	Bedrock depth <20”	1.00
Gewter loam	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
728:							
Climara clay	85	Severe		Severe		Severe	
		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
						Bedrock 20-40" and slopes >2%	0.50

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
733:							
Hentine very gravelly sandy loam--	50	Severe		Severe		Severe	
		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
Climara clay----------------------	35	Severe		Severe		Severe	
		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
						Bedrock 20-40" and slopes >2%	0.50
735:							
Getrail clay----------------------	35	Severe		Severe		Severe	
		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
Vernado sandy loam----------------	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
						Bedrock 20-40" and slopes >2%	0.50
Rock outcrop----------------------	20	Not rated		Not rated		Not rated	
737:							
Grazer silty clay loam------------	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Badland---------------------------	30	Not rated		Not rated		Not rated	
Wisflat sandy loam----------------	20	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
738:							
Grazer silty clay loam------------	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Belgarra clay---------------------	30	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Slopes >6%	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Surface clay ≥ 40%	1.00

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
738:							
Arburua loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
739:							
Domengine loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Wisflat sandy loam	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
740:							
Domengine loam	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Lilten silty clay loam	25	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
741:							
Anela very gravelly sandy loam	50	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Fragments (<3") >50%	1.00	Surface fragments (<3") >25%	1.00
		Fragments (<3”) >50%	1.00	Permeability of .06-.6”/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6”/hr	0.50			Occasional flooding	0.50
Vernalis loam	35	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6"/hr	0.50	Dusty	0.50	Dusty	0.50
		Dusty	0.50			Slopes 2 to 6%	0.26
742:							
Millsholm clay loam	40	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
742:							
Wisflat sandy loam	25	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Lilten silty clay loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
743:							
Millsholm clay loam	50	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Borreguero sandy loam	35	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
744:							
Lilten silty clay loam	50	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Millsholm clay loam	35	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
745:							
Grazer silty clay loam	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Wisflat sandy loam	25	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Arburua loam	15	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
746:							
Rock outcrop, sandstone and shale	40	Not rated		Not rated		Not rated	

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas Limitation	Camp areas Value	Picnic areas Limitation	Picnic areas Value	Playgrounds Limitation	Playgrounds Value
746:							
Wisflat sandy loam	25	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Arburua loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
747:							
Lilten silty clay	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Grazer silty clay loam	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Arburua loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
748:							
Vaquero clay	70	Severe		Severe		Severe	
		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
Grazer silty clay loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
749:							
Grazer silty clay loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Wisflat sandy loam	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Exclose clay loam	15	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
750:							
Monvero sand	50	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Surface sand fractions >90% by wt.	0.99	Surface sand fractions >90% by wt.	0.99	Surface sand fractions >90% by wt.	0.99
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Monoridge fine sand	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Surface sand fractions 70-90% by wt.	0.98	Surface sand fractions 70-90% by wt.	0.98	Surface sand fractions 70-90% by wt.	0.98
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
752:							
Cyvar loam	45	Severe		Severe		Severe	
		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
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Surface EC 4-8 dS/m	0.00
Nodhill loam	35	Moderate		Moderate		Severe	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Permeability of .06-.6"/hr	0.50
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Dusty	0.50
753:							
Cyvar loam	30	Severe		Severe		Severe	
		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
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Surface EC 4-8 dS/m	0.00
Nodhill loam	25	Moderate		Moderate		Severe	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Slopes >6%	1.00
		Dusty	0.50	Dusty	0.50	Permeability of .06-.6"/hr	0.50
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Dusty	0.50
Pits, gypsiferous	25	Not rated		Not rated		Not rated	
755:							
Borreguero sandy loam	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
Grazer silty clay loam	25	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
757:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Borreguero sandy loam	35	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
758:							
Wisflat sandy loam	35	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Borreguero sandy loam	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35	Permeability of .06-.6"/hr	0.35
Rock outcrop	25	Not rated		Not rated		Not rated	
761:							
Atravesada gravelly sandy loam	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Surface fragments (<3") >25%	1.00
		Fragments (<3") 25-50%	0.08	Fragments (<3") 25-50%	0.08	Permeability of .06-.6”/hr	0.50
765:							
Atravesada sandy loam	50	Severe		Severe		Severe	
		Bedrock depth <20”	1.00	Bedrock depth <20”	1.00	Bedrock depth <20”	1.00
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Pits, asbestos	25	Not rated		Not rated		Not rated	
767:							
Atravesada sandy loam	50	Severe		Severe		Severe	
		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
		Permeability of .06-.6"	0.50	Permeability of .06-.6"	0.50	Permeability of .06-.6"	0.50
Pits, asbestos	25	Not rated		Not rated		Not rated	
769:							
Dumps, asbestos	55	Not rated		Not rated		Not rated	
Pits, asbestos	40	Not rated		Not rated		Not rated	

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
770:							
Roacha silty clay loam------------	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
Millsholm clay loam---------------	25	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Lilten silty clay loam------------	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
773:							
Hentine very gravelly sandy loam--	60	Severe		Severe		Severe	
		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----------------------	25	Not rated		Not rated		Not rated	
774:							
Hentine very gravelly sandy loam--	55	Severe		Severe		Severe	
		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
Franciscan gravelly sandy loam----	15	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.24	Permeability of .06-.6"/hr	0.24	Surface fragments (<3") >25%	1.00
		Fragments (<3”) 25-50%	0.16	Fragments (<3”) 25-50%	0.16	Bedrock 20-40" and slopes >2%	0.50
Rock outcrop----------------------	15	Not rated		Not rated		Not rated	
782, 783:							
Vaquero clay----------------------	45	Severe		Severe		Severe	
		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
Altamont clay---------------------	40	Severe		Severe		Severe	
		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

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
817:							
Arburua loam	88	Moderate		Moderate		Moderate	
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Slopes 2 to 6%	0.50
		Dusty	0.50	Dusty	0.50	Permeability of .06-.6"/hr	0.50
						Dusty	0.50
818:							
Arburua loam	85	Moderate		Moderate		Severe	
		Slopes 8 to 15%	0.63	Slopes 8 to 15%	0.63	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
819, 820:							
Arburua loam	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
822:							
Altamont clay	85	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
						Slopes 2 to 6%	0.98
823:							
Ayar clay	85	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00
						Slopes >6%	1.00
827:							
Ayar clay	50	Severe		Severe		Severe	
		Surface clay ≥ 40%	1.00	Surface clay ≥ 40%	1.00	Slopes >6%	1.00
		Slopes 8 to 15%	0.63	Slopes 8 to 15%	0.63	Surface clay ≥ 40%	1.00
Arburua loam	35	Moderate		Moderate		Severe	
		Slopes 8 to 15%	0.63	Slopes 8 to 15%	0.63	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
834:							
Bapos clay loam	75	Slight		Slight		Moderate	
						Slopes 2 to 6%	0.74
835:							
Pedcat loam, eroded	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		SAR >12	1.00	Dusty	0.50	Occasional flooding	0.50
		Ponding (any duration)	1.00	Surface SAR of 8-13	0.08	Dusty	0.50

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
842:							
Quinto gravelly sandy loam	35	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.15	Permeability of .06-.6"/hr	0.15	Surface fragments (<3") >25%	1.00
Millsholm clay loam	30	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Rock outcrop	20	Not rated		Not rated		Not rated	
847:							
Carranza gravelly sandy loam	85	Moderate		Moderate		Severe	
		Fragments (<3") 25-50%	0.92	Fragments (<3") 25-50%	0.92	Surface fragments (<3") >25%	1.00
						Slopes 2 to 6%	0.50
849:							
Chaqua loam	85	Moderate		Moderate		Moderate	
		Dusty	0.50	Dusty	0.50	Slopes 2 to 6%	0.74
						Dusty	0.50
851:							
Los Banos clay loam	85	Slight		Slight		Slight	
852:							
Los Banos clay loam	85	Slight		Slight		Moderate	
						Slopes 2 to 6%	0.50
853:							
Los Banos clay loam	55	Slight		Slight		Moderate	
						Slopes 2 to 6%	0.74
Pleito gravelly clay loam	30	Slight		Slight		Severe	
						Surface fragments (<3") >25%	1.00
						Slopes 2 to 6%	0.74
855:							
Pleito gravelly clay loam	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
						Surface fragments (<3") >25%	1.00

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
863:							
Vernalis loam	85	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6"/hr	0.50	Dusty	0.50	Dusty	0.50
		Dusty	0.50				
865:							
Conosta clay loam	85	Slight		Slight		Moderate	
						Slopes 2 to 6%	0.74
						Surface fragments (<3") 10-25%	0.22
870, 871:							
Wisflat sandy loam	35	Severe		Severe		Severe	
		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
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
Rock outcrop	30	Not rated		Not rated		Not rated	
Arburua loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
		Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Dusty	0.50	Dusty	0.50	Dusty	0.50
872:							
Vernalis loam	90	Severe		Moderate		Moderate	
		Flooding ≥ rare	1.00	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6"/hr	0.50	Dusty	0.50	Dusty	0.50
		Dusty	0.50			Slopes 2 to 6%	0.26
873:							
Narbaitz loam	60	Moderate		Moderate		Severe	
		Dusty	0.50	Dusty	0.50	Slopes >6%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Surface fragments (<3") 10-25%	0.78
						Dusty	0.50
Pleito gravelly clay loam	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >6%	1.00
						Surface fragments (<3") >25%	1.00

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
940:							
Milham sandy loam, organic surface	40	Severe		Severe		Severe	
		SAR >12	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
		Organic surface layer ≥4" thick	1.00	Organic surface layer ≥4" thick	1.00	Organic surface layer ≥4" thick	1.00
						Slopes 2 to 6%	0.26
Polvadero sandy loam, organic surface--------------------------	40	Severe		Severe		Severe	
		SAR >12	1.00	Surface SAR >13	1.00	Surface SAR >13	1.00
		Organic surface layer ≥4" thick	1.00	Organic surface layer ≥4" thick	1.00	Organic surface layer ≥4" thick	1.00
						Slopes 2 to 6%	0.26
941:							
Bisgani loamy sand----------------	45	Severe		Moderate		Severe	
		Flooding ≥ rare	1.00	Wetness from 12 to 30" depth	0.75	Flooding > Occasional	1.00
		Wetness from 18 to 30" depth	0.98	Frequent flooding	0.50	Wetness from 18 to 30" depth	0.98
		Surface sand fractions 70-90% by wt.	0.50	Surface sand fractions 70-90% by wt.	0.50	Surface sand fractions 70-90% by wt.	0.50
Elnido sandy loam-----------------	40	Severe		Moderate		Severe	
		Flooding ≥ rare	1.00	Wetness from 12 to 30" depth	0.75	Flooding > Occasional	1.00
		SAR >12	1.00	Frequent flooding	0.50	Wetness from 18 to 30" depth	0.98
		Wetness from 18 to 30” depth	0.98				
950:							
Pits, gravel----------------------	85	Not rated		Not rated		Not rated	
960:							
Excelsior sandy loam, sandy substratum----------------------	50	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Ponding (any duration)	1.00	Permeability of .06-.6"/hr	0.50	Permeability of .06-.6"/hr	0.50
		Permeability of .06-.6"/hr	0.50			Occasional flooding	0.50
Westhaven loam--------------------	30	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Ponding (any duration)	1.00	Dusty	0.50	Occasional flooding	0.50
		Dusty	0.50	Permeability of .06-.6"/hr	0.35	Dusty	0.50
980:							
Urban land------------------------	97	Not rated		Not rated		Not rated	

Table 16.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Limitation	Value	Limitation	Value	Limitation	Value
981:							
Sewage disposal ponds	100	Not rated		Not rated		Not rated	
982:							
Water	100	Not rated		Not rated		Not rated	

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 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 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 that is too rapid, allowing seepage in some climates.

Table 17.--Recreational Development (Part 2)

(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 rock fragments are reported on a weight basis. An explanation of the rating criteria and 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		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
101:							
Armona loam, partially drained----	85	Slight		Slight		Severe	
						SAR >12	1.00
						Surface EC 4-6 dS/m	0.00
107:							
Anela very gravelly sandy loam----	85	Slight		Slight		Severe	
						Fragments (gravel size) >50%	1.00
						AWC <2" to 40"	0.99
						Fragments >3" 5 to 30%	0.01
115:							
Bolfar loam, drained--------------	85	Slight		Slight		Slight	
120:							
Altaslough clay loam--------------	85	Slight		Slight		Severe	
						SAR >12	1.00
130:							
Gepford clay----------------------	85	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	SAR >12	1.00
						Surface clay ≥40%	1.00
282:							
Tachi clay------------------------	91	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
						SAR >12	1.00
284:							
Lillis clay-----------------------	85	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
						SAR >12	1.00
						AWC <2” to 40”	1.00
285:							
Tranquillity clay, saline-sodic---	60	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
						SAR >12	1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
285:							
Tranquillity clay, saline-sodic, wet	25	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	SAR >12	1.00
						Surface clay ≥40%	1.00
286:							
Tranquillity clay, saline-sodic, wet	85	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	SAR >12	1.00
						Surface clay ≥40%	1.00
311:							
Bisgani sandy loam, drained	85	Slight		Slight		Moderate	
						AWC 2-4" to 40"	0.49
320:							
Elnido sandy loam, drained	85	Slight		Slight		Severe	
						SAR >12	1.00
325:							
Palazzo sandy loam, drained	85	Slight		Slight		Slight	
375:							
Lethent silt loam	85	Moderate		Moderate		Severe	
		Dusty	0.50	Dusty	0.50	SAR >12	1.00
						AWC <2” to 40”	1.00
376:							
Agnal silty clay	90	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
						Surface EC >8 dSm	1.00
						SAR >12	1.00
404:							
Milham sandy loam	55	Slight		Slight		Slight	
Guijarral sandy loam	30	Severe		Slight		Moderate	
		K factor >.35 and slopes >8%	1.00			Slopes 8 to 15%	0.16
405:							
Polvadero sandy loam	55	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			SAR >12	1.00
						Slopes 8 to 15%	0.16

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
405:							
Guijarral sandy loam	30	Severe		Slight		Moderate	
		K factor >.35 and slopes >8%	1.00			Slopes 8 to 15%	0.16
406:							
Guijarral sandy loam	85	Slight		Slight		Slight	
412:							
Yribarren clay loam	85	Slight		Slight		Slight	
414:							
Dospalos clay loam, drained	85	Slight		Slight		Slight	
415:							
Dospalos clay, drained	85	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
425, 426:							
Kimberlina sandy loam	85	Slight		Slight		Slight	
434:							
Lethent clay loam, wet	85	Slight		Slight		Severe	
						SAR >12	1.00
						Surface EC 4-6 dS/m	0.00
435:							
Lethent clay loam	90	Slight		Slight		Severe	
						SAR >12	1.00
436:							
Panoche loam	85	Moderate		Moderate		Slight	
		Dusty	0.50	Dusty	0.50		
437:							
Panoche sandy loam	85	Slight		Slight		Slight	
438:							
Panoche loam	85	Moderate		Moderate		Slight	
		Dusty	0.50	Dusty	0.50		
442:							
Panoche clay loam	85	Slight		Slight		Slight	
445:							
Excelsior sandy loam	85	Slight		Slight		Slight	

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
447:							
Excelsior sandy loam, sandy substratum	85	Slight		Slight		Slight	
448:							
Excelsior loamy sand, sandy substratum, eroded	88	Moderate Surface sand fractions 70-90% by wt.	 0.88	Moderate Surface sand fractions 70-90% by wt.	 0.88	Slight	
451:							
Milham sandy loam	85	Slight		Slight		Slight	
452:							
Milham sandy loam	89	Slight		Slight		Slight	
453:							
Milham sandy loam	85	Slight		Slight		Slight	
454, 455:							
Polvadero sandy loam	85	Slight		Slight		Severe SAR >12	 1.00
459:							
Ciervo clay	80	Severe Surface clay ≥40%	 1.00	Severe Surface clay ≥40%	 1.00	Slight	
461:							
Ciervo clay, saline-sodic, wet	80	Severe Surface clay ≥40%	 1.00	Severe Surface clay ≥40%	 1.00	Severe SAR >12 Surface EC >8 dSm	 1.00 1.00
462:							
Ciervo clay, saline-sodic, wet	50	Severe Surface clay ≥40%	 1.00	Severe Surface clay ≥40%	 1.00	Severe SAR >12 Surface EC >8 dSm	 1.00 1.00
Ciervo clay, saline-sodic	30	Severe Surface clay ≥40%	 1.00	Severe Surface clay ≥40%	 1.00	Severe SAR >12	 1.00
466:							
Paver clay loam	85	Slight		Slight		Slight	
468:							
Deldota clay, partially drained	85	Severe Surface clay ≥40%	 1.00	Severe Surface clay ≥40%	 1.00	Severe Surface clay ≥40%	 1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
470:							
Chateau clay, partially drained	85	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	SAR >12	1.00
						Surface EC >8 dSm	1.00
						Surface clay ≥40%	1.00
472:							
Wekoda clay, partially drained	85	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
474:							
Westhaven loam	85	Moderate		Moderate		Slight	
		Dusty	0.50	Dusty	0.50		
475:							
Posochanet clay loam, saline-sodic, wet	88	Slight		Slight		Severe	
						SAR >12	1.00
476:							
Posochanet clay loam, saline-sodic	88	Slight		Slight		Severe	
						SAR >12	1.00
477:							
Westhaven clay loam	85	Slight		Slight		Slight	
478:							
Cerini sandy loam	85	Slight		Slight		Slight	
479:							
Cerini clay loam	85	Slight		Slight		Slight	
480:							
Calflax clay loam, saline-sodic	85	Slight		Slight		Severe	
						SAR >12	1.00
						Surface EC 4-6 dS/m	0.00
481:							
Cerini clay loam	85	Slight		Slight		Slight	
482:							
Calflax clay loam, saline-sodic, wet	85	Slight		Slight		Severe	
						SAR >12	1.00
						Surface EC 4-6 dS/m	0.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
488, 489:							
Wasco sandy loam	85	Slight		Slight		Slight	
490:							
Cerini sandy loam, subsided	85	Slight		Slight		Slight	
491:							
Cerini clay loam, subsided	85	Slight		Slight		Slight	
492:							
Panoche loam, subsided	85	Moderate		Moderate		Slight	
		Dusty	0.50	Dusty	0.50		
493:							
Panoche clay loam, subsided	85	Slight		Slight		Slight	
587:							
Mugatu fine sandy loam	85	Slight		Slight		Slight	
588:							
Mugatu fine sandy loam	85	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
		Slopes 15-25%	0.18				
590:							
Cerini sandy loam	30	Slight		Slight		Slight	
Anela very gravelly sandy loam	30	Slight		Slight		Severe	
						Fragments (gravel size) >50%	1.00
						AWC <2” to 40”	0.99
						Occasional flooding	0.80
Fluvaquents, saline-sodic	20	Moderate		Moderate		Severe	
		Frequent flooding	0.50	Frequent flooding	0.50	Surface EC >8 dSm	1.00
		Wetness from 12 to 24" depth	0.18	Wetness from 12 to 24" depth	0.18	SAR >12	1.00
						AWC <2” to 40”	1.00
620:							
Delgado sandy loam, eroded	85	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.02	Bedrock depth <20”	1.00
		Surface sand fractions 70-90% by wt.	0.02			AWC <2” to 40”	1.00
						Slopes 8 to 15%	0.16

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
621:							
Delgado sandy loam, eroded	85	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.02	Bedrock depth <20”	1.00
		Slopes 15-25%	0.92			Slopes >15%	1.00
		Surface sand fractions 70-90% by wt.	0.02			AWC <2” to 40”	1.00
640:							
Kettleman clay loam, eroded	35	Severe		Slight		Moderate	
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.71
						Slopes 8 to 15%	0.16
Delgado sandy loam, eroded	30	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.02	Bedrock depth <20”	1.00
						AWC <2” to 40”	1.00
		Surface sand fractions 70-90% by wt.	0.02			Slopes 8 to 15%	0.16
Mercey loam, eroded	20	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth <20”	0.99
						AWC 2-4” to 40”	0.20
		Dusty	0.50			Slopes 8 to 15%	0.16
641:							
Mercey loam	35	Severe		Moderate		Moderate	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.90
						Slopes 8 to 15%	0.16
		Dusty	0.50			AWC 2-4” to 40”	0.01
Delgado sandy loam	30	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.02	Bedrock depth <20”	1.00
						AWC <2” to 40”	1.00
		Surface sand fractions 70-90% by wt.	0.02			Slopes 8 to 15%	0.16
Kettleman clay loam	20	Severe		Slight		Moderate	
		K factor >.35 and slopes >8*	1.00			Bedrock depth 20 to 40"	0.29
						Slopes 8 to 15%	0.16
642:							
Mercey loam, eroded	35	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
						Bedrock depth <20”	0.99
		Slopes 15-25%	0.92			AWC 2-4” to 40”	0.20
		Dusty	0.50				

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
642:							
Delgado sandy loam, eroded	30	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.02	Bedrock depth <20”	1.00
		Slopes 15-25%	0.92			Slopes >15%	1.00
		Surface sand fractions 70-90% by wt.	0.02			AWC <2” to 40”	1.00
Kettleman clay loam, eroded	20	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
		Slopes 15-25%	0.92			Bedrock depth 20 to 40”	0.71
643:							
Mercey loam	35	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
		Slopes 15-25%	0.82			Bedrock depth 20 to 40”	0.90
		Dusty	0.50			AWC 2-4” to 40”	0.01
Delgado sandy loam	30	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.02	Bedrock depth <20”	1.00
		Slopes 15-25%	0.82			Slopes >15%	1.00
		Surface sand fractions 70-90% by wt.	0.02			AWC <2” to 40”	1.00
Kettleman clay loam	20	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
		Slopes 15-25%	0.82			Bedrock depth 20 to 40”	0.29
644:							
Mercey loam, eroded	35	Severe		Severe		Severe	
		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”	0.99
		Dusty	0.50			AWC 2-4” to 40”	0.20
Kettleman clay loam, eroded	30	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.71

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
644:							
Delgado sandy loam, eroded	20	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.02	Slopes >15%	1.00
		Surface sand fractions 70-90% by wt.	0.02			AWC <2” to 40”	1.00
645:							
Delgado sandy loam	35	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.02	Slopes >15%	1.00
		Surface sand fractions 70-90% by wt.	0.02			AWC <2” to 40”	1.00
Mercey loam	30	Severe		Severe		Severe	
		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”	0.01
Kettleman clay loam	20	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.29
670:							
Badland	35	Not rated		Not rated		Not rated	
Kettleman clay loam	25	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Slopes 25 to 40%	0.56	Slopes >15%	1.00
		Slopes >25%	1.00			Bedrock depth 20 to 40”	0.29
Mercey loam	25	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
		Slopes 15-25%	0.82			Bedrock depth 20 to 40”	0.90
		Dusty	0.50			AWC 2-4” to 40”	0.01
680:							
Arburua loam	45	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
		Slopes >25%	1.00	Slopes 25 to 40%	0.44	Bedrock depth 20 to 40”	0.71
		Dusty	0.50				

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
680:							
Morenogulch parachannery silty clay----------------------------	40	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Slopes >15%	1.00
						AWC <2” to 40”	1.00
		Surface clay ≥40%	1.00				
704:							
Franciscan gravelly sandy loam----	85	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.80
						AWC 2-4” to 40”	0.63
705:							
Roacha silty clay loam------------	85	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.06
706:							
Sagaser loam---------------------	85	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50		
		Dusty	0.50				
709:							
Sagaser loam---------------------	50	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Dusty	0.50		
		Dusty	0.50				
Gaviota sandy loam---------------	20	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Borreguero sandy loam------------	15	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Limitation	Value	Off-road motorcycle trails: Limitation	Value	Lawns, landscaping, and golf fairways: Limitation	Value
710:							
Monoridge fine sand	45	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.98	AWC <2” to 40”	1.00
		Surface sand fractions 70-90% by wt.	0.98			Bedrock depth 20 to 40”	0.84
Exclose clay loam	20	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00				
Badland	15	Not rated		Not rated		Not rated	
711:							
Currymountain loam	45	Severe		Severe		Severe	
		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”	0.01
Wisflat sandy loam	20	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Borreguero sandy loam	20	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
712:							
Altamont clay	40	Severe		Severe		Severe	
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Slopes >15%	1.00
		Surface clay ≥40%	1.00	Slopes 25 to 40%	0.22	Surface clay ≥40%	1.00
		Slopes >25%	1.00				
Roacha silty clay loam	25	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.06
Borreguero sandy loam	20	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
713:							
Currymountain loam----------------	45	Severe		Severe		Severe	
		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” to 40”	1.00
						Bedrock depth <20”	0.99
		Dusty	0.50				
Rock outcrop----------------------	20	Not rated		Not rated		Not rated	
Quinto gravelly sandy loam--------	20	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
714:							
Gaviota sandy loam----------------	45	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Borreguero sandy loam-------------	25	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Rock outcrop----------------------	15	Not rated		Not rated		Not rated	
715:							
Belgarra clay---------------------	55	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
Wisflat sandy loam----------------	30	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
717:							
Belgarra clay---------------------	35	Severe		Severe		Severe	
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
						Slopes >15%	1.00
		Surface clay ≥40%	1.00				
		Slopes 15-25%	0.92				

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
717:							
Arburua loam	30	Severe		Severe		Severe	
		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"	0.71
		Dusty	0.50				
Morenogulch parachannery silty clay	15	Severe		Severe		Severe	
		Slopes >25%	1.00	Surface clay ≥40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						AWC <2” to 40”	1.00
		Surface clay ≥40%	1.00				
718:							
Nodhill loam	35	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
						Bedrock depth 20 to 40”	0.65
		Slopes 15-25%	0.92				
		Dusty	0.50				
Wisflat sandy loam	35	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
719:							
Nodhill loam	40	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
						Bedrock depth 20 to 40”	0.65
		Slopes 15-25%	0.92				
		Dusty	0.50				
Arburua loam	25	Severe		Severe		Severe	
		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"	0.71
		Dusty	0.50				
Wisflat sandy loam	15	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
720:							
Exclose clay loam	40	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Slopes >15%	 1.00
Wisflat sandy loam	30	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Bedrock depth <20″ Slopes >15% AWC <2″ to 40″	 1.00 1.00 1.00
Morenogulch parachannery silty clay	15	Severe Slopes >25% K factor >.35 and slopes >8% Surface clay ≥40%	 1.00 1.00 1.00	Severe Slopes >40% Surface clay ≥40%	 1.00 1.00	Severe Bedrock depth <20″ Slopes >15% AWC <2″ to 40″	 1.00 1.00 1.00
722:							
Exclose clay loam	40	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Slopes >15%	 1.00
Wisflat sandy loam	30	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Bedrock depth <20″ Slopes >15% AWC <2″ to 40″	 1.00 1.00 1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
723:							
Exclose clay loam	40	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Slopes >15%	 1.00
Wisflat sandy loam	25	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Bedrock depth <20″ Slopes >15% AWC <2″ to 40″	 1.00 1.00 1.00
Grazer silty clay loam	20	Severe K factor >.35 and slopes >8% Slopes >25%	 1.00 1.00	Moderate Slopes 25 to 40%	 0.44	Severe Slopes >15%	 1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
725:							
Gewter clay	85	Severe		Severe		Severe	
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
		Surface clay ≥40%	1.00			Slopes >15%	1.00
		Slopes 15-25%	0.92			Bedrock depth 20 to 40”	0.95
727:							
Reliz channery loam	40	Severe		Severe		Severe	
		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” to 40”	1.00
Gewter loam	30	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
						Bedrock depth 20 to 40"	0.84
						AWC 2-4" to 40"0 to 40"	0.43
Rock outcrop	15	Not rated		Not rated		Not rated	
728:							
Climara clay	85	Severe		Severe		Severe	
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Slopes >15%	1.00
		Surface clay ≥40%	1.00	Slopes 25 to 40%	0.22	Surface clay ≥40%	1.00
		Slopes >25%	1.00			Bedrock depth 20 to 40”	0.00
733:							
Hentine very gravelly sandy loam	50	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00			Fragments (gravel size) >50%	1.00
Climara clay	35	Severe		Severe		Severe	
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Slopes >15%	1.00
		Surface clay ≥40%	1.00	Slopes 25 to 40%	0.22	Surface clay ≥40%	1.00
		Slopes >25%	1.00			Bedrock depth 20 to 40”	0.00
735:							
Getrail clay	35	Severe		Severe		Severe	
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
		Surface clay ≥40%	1.00	Slopes 25 to 40%		Slopes >15%	1.00
		Slopes >25%	1.00				

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
735:							
Vernado sandy loam	20	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Slopes >15% Bedrock depth 20 to 40" AWC 2-4" to 40"	 1.00 0.54 0.47
Rock outcrop	20	Not rated		Not rated		Not rated	
737:							
Grazer silty clay loam	35	Severe K factor >.35 and slopes >8% Slopes >25%	 1.00 1.00	Moderate Slopes 25 to 40%	 0.22	Severe Slopes >15%	 1.00
Badland	30	Not rated		Not rated		Not rated	
Wisflat sandy loam	20	Severe K factor >.35 and slopes >8% Slopes >25%	 1.00 1.00	Moderate Slopes 25 to 40%	 0.22	Severe Bedrock depth <20” Slopes >15% AWC <2” to 40”	 1.00 1.00 1.00
738:							
Grazer silty clay loam	35	Severe K factor >.35 and slopes >8%	 1.00	Slight		Severe Slopes >15%	 1.00
Belgarra clay	30	Severe Surface clay ≥40% K factor >.35 and slopes >8	 1.00 1.00	Severe Surface clay ≥40%	 1.00	Severe Surface clay ≥40% Slopes >15%	 1.00 1.00
Arburua loam	20	Severe Slopes >25% K factor >.35 and slopes >8 Dusty	 1.00 1.00 0.50	Severe Slopes >40% Dusty	 1.00 0.50	Severe Slopes >15% Bedrock depth 20 to 40"	 1.00 0.71
739:							
Domengine loam	40	Severe Slopes >25% K factor >.35 and slopes >8% Dusty	 1.00 1.00 0.50	Severe Slopes >40% Dusty	 1.00 0.50	Severe Slopes >15% Bedrock depth 20 to 40"	 1.00 0.00
Wisflat sandy loam	30	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Bedrock depth <20” Slopes >15% AWC <2” to 40”	 1.00 1.00 1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
739:							
Rock outcrop	15	Not rated		Not rated		Not rated	
740:							
Domengine loam	45	Severe		Severe		Severe	
		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"	0.00
		Dusty	0.50				
Lilten silty clay loam	25	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00				
Rock outcrop	15	Not rated		Not rated		Not rated	
741:							
Anela very gravelly sandy loam	50	Slight		Slight		Severe	
						Fragments (gravel size) >50%	1.00
						AWC <2” to 40”	0.99
						Occasional flooding	0.80
Vernalis loam	35	Moderate		Moderate		Slight	
		Dusty	0.50	Dusty	0.50		
742:							
Millsholm clay loam	40	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC 2-4" to 40"	0.99
Wisflat sandy loam	25	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Lilten silty clay loam	20	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00				
743:							
Millsholm clay loam	50	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC 2-4" to 40"	0.99

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
743:							
Borreguero sandy loam	35	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
744:							
Lilten silty clay loam	50	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00				
Millsholm clay loam	35	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC 2-4" to 40"	0.99
745:							
Grazer silty clay loam	45	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
		Slopes 15-25%	0.32				
Wisflat sandy loam	25	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Arburua loam	15	Severe		Severe		Severe	
		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"	0.71
		Dusty	0.50				
746:							
Rock outcrop, sandstone and shale	40	Not rated		Not rated		Not rated	
Wisflat sandy loam	25	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Arburua loam	20	Severe		Severe		Severe	
		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"	0.71
		Dusty	0.50				

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
747:							
Lilten silty clay	35	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00				
Grazer silty clay loam	30	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
		Slopes 15-25%	0.92				
Arburua loam	20	Severe		Severe		Severe	
		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"	0.71
		Dusty	0.50				
748:							
Vaquero clay	70	Severe		Severe		Severe	
		Slopes >25%	1.00	Surface clay ≥40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Slopes >40%	1.00	Surface clay ≥40%	1.00
						Bedrock depth 20 to 40”	0.06
		Surface clay ≥40%	1.00				
Grazer silty clay loam	20	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
		Slopes >25%	1.00				
749:							
Grazer silty clay loam	40	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00				
Wisflat sandy loam	30	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Exclose clay loam	15	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00				

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
750:							
Monvero sand	50	Severe		Severe		Severe	
		K factor >.35 and slopes >8%	1.00	Surface sand fractions > 90% by wt.	0.99	Slopes >15%	1.00
		Surface sand fractions >90% by wt.	0.99			AWC 2-4” to 40”	0.85
		Slopes 15-25%	0.92			Loamy coarse sand surface	0.50
Monoridge fine sand	35	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Surface sand fractions 70-90% by wt.	0.98	AWC <2” to 40”	1.00
		Surface sand fractions 70-90% by wt.	0.98			Bedrock depth 20 to 40”	0.84
752:							
Cyvar loam	45	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Depth to pan <20”	1.00
		Dusty	0.50			Calcium carbonate >40%	1.00
						AWC 2-4" to 40"	0.81
Nodhill loam	35	Severe		Moderate		Moderate	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.65
		Dusty	0.50			Slopes 8 to 15%	0.16
753:							
Cyvar loam	30	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Depth to pan <20”	1.00
		Dusty	0.50			Calcium carbonate >40%	1.00
						AWC 2-4" to 40"	0.81
Nodhill loam	25	Severe		Moderate		Moderate	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.65
		Dusty	0.50			Slopes 8 to 15%	0.16
Pits, gypsiferous	25	Not rated		Not rated		Not rated	
755:							
Borreguero sandy loam	30	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
755:							
Grazer silty clay loam	25	Severe K factor >.35 and slopes >8% Slopes 15-25%	 1.00 0.92	Slight		Severe Slopes >15%	 1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
757:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Borreguero sandy loam	35	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Bedrock depth <20” Slopes >15% AWC <2” to 40”	 1.00 1.00 1.00
758:							
Wisflat sandy loam	35	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Bedrock depth <20” Slopes >15% AWC <2” to 40”	 1.00 1.00 1.00
Borreguero sandy loam	30	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Bedrock depth <20” Slopes >15% AWC <2” to 40”	 1.00 1.00 1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
761:							
Atravesada gravelly sandy loam	85	Severe Slopes >25% K factor >.35 and slopes >8%	 1.00 1.00	Severe Slopes >40%	 1.00	Severe Slopes >15% Bedrock depth <20” AWC 2-4" to 40"	 1.00 0.99 0.97
765:							
Atravesada sandy loam	50	Severe K factor >.35 and slopes >8% Slopes 15-25%	 1.00 0.02	Slight		Severe Bedrock depth <20” AWC <2” to 40”	 1.00 1.00
Pits, asbestos	25	Not rated		Not rated		Not rated	

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
767:							
Atravesada sandy loam	50	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
Pits, asbestos	25	Not rated		Not rated		Not rated	
769:							
Dumps, asbestos	55	Not rated		Not rated		Not rated	
Pits, asbestos	40	Not rated		Not rated		Not rated	
770:							
Roacha silty clay loam	40	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.65
Millsholm clay loam	25	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC 2-4" to 40"	0.99
Lilten silty clay loam	20	Severe		Moderate		Severe	
		Slopes >25%	1.00	Slopes 25 to 40%	0.78	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00				
773:							
Hentine very gravelly sandy loam	60	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00			Fragments (gravel size) >50%	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
774:							
Hentine very gravelly sandy loam	55	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00	Surface fragments <3" >65%	1.00	Slopes >15%	1.00
		Surface fragments <3" >65%	1.00			Fragments (gravel size)	1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
774:							
Franciscan gravelly sandy loam----	15	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00			Bedrock depth 20 to 40"	0.80
						AWC 2-4" to 40"	0.63
Rock outcrop----------------------	15	Not rated		Not rated		Not rated	
782:							
Vaquero clay----------------------	45	Severe		Severe		Severe	
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Slopes >15%	1.00
				Slopes 25 to 40%	0.22	Surface clay ≥40%	1.00
		Surface clay ≥40%	1.00			Bedrock depth 20 to 40”	0.06
		Slopes >25%	1.00				
Altamont clay---------------------	40	Severe		Severe		Severe	
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Slopes >15%	1.00
				Slopes 25 to 40%	0.22	Surface clay ≥40%	1.00
		Surface clay ≥40%	1.00				
		Slopes >25%	1.00				
783:							
Vaquero clay----------------------	45	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
						Bedrock depth 20 to 40”	0.06
		Surface clay ≥40%	1.00				
Altamont clay---------------------	40	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Slopes >15%	1.00
		K factor >.35 and slopes >8%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
		Surface clay ≥40%	1.00				
817:							
Arburua loam----------------------	88	Moderate		Moderate		Moderate	
		Dusty	0.50	Dusty	0.50	Bedrock depth 20 to 40"	0.71
818:							
Arburua loam----------------------	85	Severe		Moderate		Moderate	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.71
						Slopes 8 to 15%	0.63
		Dusty	0.50				

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
819:							
Arburua loam	85	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
		Slopes 15-25%	0.82			Bedrock depth 20 to 40”	0.71
		Dusty	0.50				
820:							
Arburua loam	85	Severe		Severe		Severe	
		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"	0.71
		Dusty	0.50				
822:							
Altamont clay	85	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
823:							
Ayar clay	85	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
827:							
Ayar clay	50	Severe		Severe		Severe	
		Surface clay ≥40%	1.00	Surface clay ≥40%	1.00	Surface clay ≥40%	1.00
		K factor >.35 and slopes >8%	1.00			Slopes 8 to 15%	0.63
Arburua loam	35	Severe		Moderate		Moderate	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Bedrock depth 20 to 40"	0.71
		Dusty	0.50			Slopes 8 to 15%	0.63
834:							
Bapos clay loam	75	Slight		Slight		Slight	
835:							
Pedcat loam, eroded	85	Severe		Severe		Severe	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Dusty	0.50	Dusty	0.50	SAR >12	1.00
						Occasional flooding	0.80
842:							
Quinto gravelly sandy loam	35	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
842:							
Millsholm clay loam	30	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC 2-4" to 40"	0.99
Rock outcrop	20	Not rated		Not rated		Not rated	
847:							
Carranza gravelly sandy loam	85	Slight		Slight		Moderate	
						Fragments (gravel size) 25-50%	0.92
849:							
Chaqua loam	85	Moderate		Moderate		Slight	
		Dusty	0.50	Dusty	0.50		
851, 852:							
Los Banos clay loam	85	Slight		Slight		Slight	
853:							
Los Banos clay loam	55	Slight		Slight		Slight	
Pleito gravelly clay loam	30	Slight		Slight		Moderate	
						Fragments (gravel size) 25-50%	0.00
855:							
Pleito gravelly clay loam	85	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
		Slopes 15-25%	0.92			Fragments (gravel size) 25-50%	0.00
863:							
Vernalis loam	85	Moderate		Moderate		Slight	
		Dusty	0.50	Dusty	0.50		
865:							
Conosta clay loam	85	Slight		Slight		Moderate	
						Bedrock depth 20 to 40"	0.29

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
870:							
Wisflat sandy loam	35	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			Bedrock depth <20”	1.00
		Slopes 15-25%	0.92			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Rock outcrop	30	Not rated		Not rated		Not rated	
Arburua loam	20	Severe		Moderate		Severe	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes >15%	1.00
						Bedrock depth 20 to 40"	0.71
		Slopes 15-25%	0.92				
		Dusty	0.50				
871:							
Wisflat sandy loam	35	Severe		Severe		Severe	
		Slopes >25%	1.00	Slopes >40%	1.00	Bedrock depth <20”	1.00
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						AWC <2” to 40”	1.00
Rock outcrop	30	Not rated		Not rated		Not rated	
Arburua loam	20	Severe		Severe		Severe	
		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"	0.71
		Dusty	0.50				
872:							
Vernalis loam	90	Moderate		Moderate		Slight	
		Dusty	0.50	Dusty	0.50		
873:							
Narbaitz loam	60	Severe		Moderate		Moderate	
		K factor >.35 and slopes >8%	1.00	Dusty	0.50	Slopes 8 to 15%	0.16
						AWC 2-4” to 40”	0.04
		Dusty	0.50				
Pleito gravelly clay loam	30	Severe		Slight		Severe	
		K factor >.35 and slopes >8%	1.00			Slopes >15%	1.00
						Fragments (gravel size) 25-50%	0.00
		Slopes >25%	1.00				

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
940:							
Milham sandy loam, organic surface	40	Severe		Severe		Severe	
		Organic surface layer ≥4" thick	1.00	Organic surface layer ≥4" thick	1.00	SAR >12	1.00
						AWC <2” to 40”	1.00
						Organic surface layer ≥4" thick	1.00
Polvadero sandy loam, organic surface	40	Severe		Severe		Severe	
		Organic surface layer ≥4" thick	1.00	Organic surface layer ≥4" thick	1.00	SAR >12	1.00
						AWC <2” to 40”	1.00
						Organic surface layer ≥4" thick	1.00
941:							
Bisgani loamy sand	45	Moderate		Moderate		Moderate	
		Frequent flooding	0.50	Frequent flooding	0.50	Frequent flooding	0.90
		Surface sand fractions 70-90% by wt.	0.50	Surface sand fractions 70-90% by wt.	0.50	AWC 2-4" to 40"	0.86
		Wetness from 12 to 24" depth	0.44	Wetness from 12 to 24" depth	0.44	Wetness from 12 to 24” depth	0.44
Elnido sandy loam	40	Moderate		Moderate		Severe	
		Frequent flooding	0.50	Frequent flooding	0.50	SAR >12	1.00
		Wetness from 12 to 24" depth	0.44	Wetness from 12 to 24" depth	0.44	Frequent flooding	0.90
						Wetness from 12 to 24" depth	0.44
950:							
Pits, gravel	85	Not rated		Not rated		Not rated	
960:							
Excelsior sandy loam, sandy substratum	50	Severe		Severe		Severe	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
						Occasional flooding	0.80
Westhaven loam	30	Severe		Severe		Severe	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Dusty	0.50	Dusty	0.50	Occasional flooding	0.80
980:							
Urban land	97	Not rated		Not rated		Not rated	

Table 17.--Recreational Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Lawns, landscaping, and golf fairways	
		Limitation	Value	Limitation	Value	Limitation	Value
981:							
Sewage disposal ponds-------------	100	Not rated		Not rated		Not rated	
982:							
Water-----------------------------	100	Not rated		Not rated		Not rated	

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 18.--Building Site Development (Part 1)

(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 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	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
101:							
Armona loam, partially drained----	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.22	Wetness from 2.5' to 6' depth	0.35	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
107:							
Anela very gravelly sandy loam----	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
115:							
Bolfar loam, drained--------------	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.22			Shrink-swell (LEP 3-6)	0.22
120:							
Altaslough clay loam--------------	85	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78
130:							
Gepford clay----------------------	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Wetness from 2.5' to 6' depth	0.35		
282:							
Tachi clay------------------------	91	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Wetness from 2.5' to 6' depth	0.35		
284:							
Lillis clay-----------------------	85	Severe		Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Wetness from 2.5' to 6' depth	0.35		

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
285:							
Tranquillity clay, saline-sodic	60	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6)	 1.00
Tranquillity clay, saline-sodic, wet	25	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6) Wetness from 2.5' to 6' depth	 1.00 0.35	Severe Shrink-swell (LEP >6)	 1.00
286:							
Tranquillity clay, saline-sodic, wet	85	Severe Flooding ≥ rare Shrink-swell (LEP >6)	 1.00 1.00	Severe Flooding ≥ rare Shrink-swell (LEP >6) Wetness from 2.5' to 6' depth	 1.00 1.00 0.35	Severe Flooding ≥ rare Shrink-swell (LEP >6)	 1.00 1.00
311:							
Bisgani sandy loam, drained	85	Severe Flooding ≥ rare	 1.00	Severe Flooding ≥ rare	 1.00	Severe Flooding ≥ rare	 1.00
320:							
Elnido sandy loam, drained	85	Severe Flooding ≥ rare	 1.00	Severe Flooding ≥ rare	 1.00	Severe Flooding ≥ rare	 1.00
325:							
Palazzo sandy loam, drained	85	Severe Flooding ≥ rare	 1.00	Severe Flooding ≥ rare Shrink-swell (LEP 3-6)	 1.00 0.22	Severe Flooding ≥ rare	 1.00
375:							
Lethent silt loam	85	Slight		Slight		Slight	
376:							
Agnal silty clay	90	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6) Wetness from 2.5' to 6' depth	 1.00 0.16	Severe Shrink-swell (LEP >6)	 1.00
404:							
Milham sandy loam	55	Moderate Shrink-swell (LEP 3-6)	 0.22	Slight		Moderate Slopes are from 4 to 8% Shrink-swell (LEP 3-6)	 0.74 0.22
Guijarral sandy loam	30	Moderate Slopes 8 to 15%	 0.16	Moderate Slopes 8 to 15%	 0.16	Severe Slopes >8%	 1.00

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
405:							
Polvadero sandy loam	55	Moderate		Moderate		Severe	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes >8%	1.00
Guijarral sandy loam	30	Moderate		Moderate		Severe	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes >8%	1.00
406:							
Guijarral sandy loam	85	Slight		Slight		Slight	
412:							
Yribarren clay loam	85	Severe		Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
414:							
Dospalos clay loam, drained	85	Severe		Moderate		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP >6)	1.00
415:							
Dospalos clay, drained	85	Severe		Moderate		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP >6)	1.00
425, 426:							
Kimberlina sandy loam	85	Slight		Slight		Slight	
434:							
Lethent clay loam, wet	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78
				Wetness from 2.5' to 6' depth	0.35		
435:							
Lethent clay loam	90	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78
436:							
Panoche loam	85	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
437:							
Panoche sandy loam	85	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
438:							
Panoche loam	85	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
442:							
Panoche clay loam	85	Moderate Shrink-swell (LEP 3-6)	 0.22	Moderate Shrink-swell (LEP 3-6)	 0.22	Moderate Shrink-swell (LEP 3-6)	 0.22
445:							
Excelsior sandy loam	85	Slight		Slight		Slight	
447:							
Excelsior sandy loam, sandy substratum	85	Severe Flooding ≥ rare	 1.00	Severe Flooding ≥ rare	 1.00	Severe Flooding ≥ rare	 1.00
448:							
Excelsior loamy sand, sandy substratum, eroded	88	Slight		Slight		Slight	
451:							
Milham sandy loam	85	Moderate Shrink-swell (LEP 3-6)	 0.22	Slight		Moderate Shrink-swell (LEP 3-6)	 0.22
452:							
Milham sandy loam	89	Moderate Shrink-swell (LEP 3-6)	 0.22	Slight		Moderate Shrink-swell (LEP 3-6)	 0.22
453:							
Milham sandy loam	85	Moderate Shrink-swell (LEP 3-6)	 0.22	Slight		Moderate Slopes are from 4 to 8% Shrink-swell (LEP 3-6)	 0.74 0.22
454, 455:							
Polvadero sandy loam	85	Slight		Slight		Slight	
459:							
Ciervo clay	80	Severe Shrink-swell (LEP >6)	 1.00	Moderate Shrink-swell (LEP 3-6)	 0.78	Severe Shrink-swell (LEP >6)	 1.00
461:							
Ciervo clay, saline-sodic, wet	80	Severe Flooding ≥ rare Shrink-swell (LEP >6)	 1.00 1.00	Severe Flooding ≥ rare Shrink-swell (LEP 3-6) Wetness from 2.5' to 6' depth	 1.00 0.78 0.35	Severe Flooding ≥ rare Shrink-swell (LEP >6)	 1.00 1.00
462:							
Ciervo clay, saline-sodic, wet	50	Severe Shrink-swell (LEP >6)	 1.00	Moderate Shrink-swell (LEP 3-6) Wetness from 2.5' to 6' depth	 0.78 0.35	Severe Shrink-swell (LEP >6)	 1.00

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
462:							
Ciervo clay, saline-sodic---------	30	Severe		Moderate		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP >6)	1.00
466:							
Paver clay loam-------------------	85	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
468:							
Deldota clay, partially drained---	85	Severe		Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Wetness from 2.5' to 6' depth	0.47		
470:							
Chateau clay, partially drained---	85	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78
				Wetness from 2.5' to 6' depth	0.47		
472:							
Wekoda clay, partially drained----	85	Severe		Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Wetness <2.5’ depth	1.00	Shrink-swell (LEP >6)	1.00
		Wetness from 18 to 30" depth	0.39	Shrink-swell (LEP >6)	1.00	Wetness from 18 to 30" depth	0.39
474:							
Westhaven loam--------------------	85	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
475:							
Posochanet clay loam, saline-sodic, wet-----------------------	88	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.22	Wetness from 2.5' to 6' depth	0.35	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
476:							
Posochanet clay loam, saline-sodic	88	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
477:							
Westhaven clay loam---------------	85	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
478:							
Cerini sandy loam-----------------	85	Moderate		Slight		Moderate	
		Shrink-swell (LEP 3-6)	0.78			Shrink-swell (LEP 3-6)	0.78

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
479:							
Cerini clay loam	85	Moderate		Slight		Moderate	
		Shrink-swell (LEP 3-6)	0.78			Shrink-swell (LEP 3-6)	0.78
480:							
Calflax clay loam, saline-sodic	85	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.78
481:							
Cerini clay loam	85	Moderate		Slight		Moderate	
		Shrink-swell (LEP 3-6)	0.78			Shrink-swell (LEP 3-6)	0.78
						Slopes are from 4 to 8%	0.02
482:							
Calflax clay loam, saline-sodic, wet	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.78	Wetness from 2.5' to 6' depth	0.35	Shrink-swell (LEP 3-6)	0.78
				Shrink-swell (LEP 3-6)	0.22		
488, 489:							
Wasco sandy loam	85	Slight		Slight		Slight	
490:							
Cerini sandy loam, subsided	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.78			Shrink-swell (LEP 3-6)	0.78
491:							
Cerini clay loam, subsided	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.78			Shrink-swell (LEP 3-6)	0.78
492:							
Panoche loam, subsided	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
493:							
Panoche clay loam, subsided	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
587:							
Mugatu fine sandy loam	85	Slight		Slight		Slight	

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
588:							
Mugatu fine sandy loam	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
590:							
Cerini sandy loam	30	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.78			Shrink-swell (LEP 3-6)	0.78
Anela, very gravelly sandy loam	30	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
				Wetness from 2.5' to 6' depth	0.03		
Fluvaquents, saline-sodic	20	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Wetness from 18 to 30" depth	0.88	Wetness <2.5’ depth	1.00	Wetness from 18 to 30" depth	0.88
620:							
Delgado sandy loam, eroded	85	Severe		Severe		Severe	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Bedrock (hard) <20” depth	1.00
621:							
Delgado sandy loam, eroded	85	Severe		Severe		Severe	
		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
640:							
Kettleman clay loam, eroded	35	Moderate		Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.71	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
				Slopes 8 to 15%	0.16		
Delgado sandy loam, eroded	30	Severe		Severe		Severe	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Bedrock (hard) <20” depth	1.00
Mercey loam, eroded	20	Moderate		Severe		Severe	
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) <20” depth	0.99	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
				Slopes 8 to 15%	0.16		

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
641:							
Mercey loam	35	Moderate		Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.90	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
				Slopes 8 to 15%	0.16		
Delgado sandy loam	30	Severe		Severe		Severe	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Bedrock (hard) <20” depth	1.00
Kettleman clay loam	20	Moderate		Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.29	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
				Slopes 8 to 15%	0.16		
642:							
Mercey loam, eroded	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) <20” depth	0.99	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
Delgado sandy loam, eroded	30	Severe		Severe		Severe	
		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
Kettleman clay loam, eroded	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.71	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
643:							
Mercey loam	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.90	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
Delgado sandy loam	30	Severe		Severe		Severe	
		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
Kettleman clay loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitation	Value	Dwellings with basements: Limitation	Value	Small commercial buildings: Limitation	Value
644:							
Mercey loam, eroded	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) <20” depth	0.99	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
Kettleman clay loam, eroded	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.71	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
Delgado sandy loam, eroded	20	Severe		Severe		Severe	
		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
645:							
Delgado sandy loam	35	Severe		Severe		Severe	
		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
Mercey loam	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.90	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
Kettleman clay loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
670:							
Badland	35	Not rated		Not rated		Not rated	
Kettleman clay loam	25	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
Mercey loam	25	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.90	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements Limitation	Value	Dwellings with basements Limitation	Value	Small commercial buildings Limitation	Value
680:							
Arburua loam	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
Morenogulch parachannery silty clay	40	Severe		Severe		Severe	
		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
704:							
Franciscan gravelly sandy loam	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) from 20 to 40"	0.79	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.79
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LRP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
705:							
Roacha silty clay loam	85	Severe		Severe		Severe	
		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"	0.06		
706:							
Sagaser loam	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
709:							
Sagaser loam	50	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Gaviota sandy loam	20	Severe		Severe		Severe	
		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
Borreguero sandy loam	15	Severe		Severe		Severe	
		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 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
710:							
Monoridge fine sand	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
				Bedrock (soft) from 20 to 40"	0.84		
Exclose clay loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Badland	15	Not rated		Not rated		Not rated	
711:							
Currymountain loam	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.90	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
Wisflat sandy loam	20	Severe		Severe		Severe	
		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
Borreguero sandy loam	20	Severe		Severe		Severe	
		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
712:							
Altamont clay	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP >6)	1.00
Roacha silty clay loam	25	Severe		Severe		Severe	
		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"	0.06		
Borreguero sandy loam	20	Severe		Severe		Severe	
		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
713:							
Currymountain loam	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Fragments (>3") 25 to 50%	0.63	Bedrock (soft) <20” depth	0.99	Fragments (>3") 25 to 50%	0.63
		Shrink-swell (LEP 3-6)	0.00	Fragments (>3") 25 to 50%	0.63	Shrink-swell (LEP 3-6)	0.00

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
713:							
Rock outcrop	20	Not rated		Not rated		Not rated	
Quinto gravelly sandy loam	20	Severe		Severe		Severe	
		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
714:							
Gaviota sandy loam	45	Severe		Severe		Severe	
		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
Borreguero sandy loam	25	Severe		Severe		Severe	
		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
Rock outcrop	15	Not rated		Not rated		Not rated	
715:							
Belgarra clay	55	Severe		Severe		Severe	
		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
Wisflat sandy loam	30	Severe		Severe		Severe	
		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
717:							
Belgarra clay	35	Severe		Severe		Severe	
		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
Arburua loam	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
Morenogulch parachannery silty clay	15	Severe		Severe		Severe	
		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

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
718:							
Nodhill loam	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.64	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
Wisflat sandy loam	35	Severe		Severe		Severe	
		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	
719:							
Nodhill loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.64	Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
Arburua loam	25	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
Wisflat sandy loam	15	Severe		Severe		Severe	
		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
720:							
Exclose clay loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Wisflat sandy loam	30	Severe		Severe		Severe	
		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
Morenogulch parachannery silty clay	15	Severe		Severe		Severe	
		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

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
722:							
Exclose clay loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Wisflat sandy loam	30	Severe		Severe		Severe	
		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	
723:							
Exclose clay loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Wisflat sandy loam	25	Severe		Severe		Severe	
		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
Grazer silty clay loam	20	Severe		Severe		Severe	
		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
725:							
Gewter clay	85	Severe		Severe		Severe	
		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"	0.95		
727:							
Reliz channery loam	40	Severe		Severe		Severe	
		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)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Gewter loam	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Bedrock (soft) from 20 to 40"	0.84	Shrink-swell (LEP 3-6)	0.78
				Shrink-swell (LEP 3-6)	0.78		
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
728:							
Climara clay	85	Severe		Severe		Severe	
		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"	0.00	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.00
733:							
Hentine very gravelly sandy loam	50	Severe		Severe		Severe	
		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)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Climara clay	35	Severe		Severe		Severe	
		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"	0.00	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.00
735:							
Getrail clay	35	Severe		Severe		Severe	
		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
Vernado sandy loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) from 20 to 40"	0.54	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.54
Rock outcrop	20	Not rated		Not rated		Not rated	
737:							
Grazer silty clay loam	35	Severe		Severe		Severe	
		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	30	Not rated		Not rated		Not rated	
Wisflat sandy loam	20	Severe		Severe		Severe	
		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
738:							
Grazer silty clay loam	35	Severe		Severe		Severe	
		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

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
738:							
Belgarra clay	30	Severe		Severe		Severe	
		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
Arburua loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40″ depth	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
739:							
Domengine loam	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
				Bedrock (soft) from 20 to 40"	0.00		
Wisflat sandy loam	30	Severe		Severe		Severe	
		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	
740:							
Domengine loam	45	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
				Bedrock (soft) from 20 to 40"	0.00		
Lilten silty clay loam	25	Severe		Severe		Severe	
		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	
741:							
Anela very gravelly sandy loam	50	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
				Wetness from 2.5' to 6' depth	0.03		
Vernalis loam	35	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
742:							
Millsholm clay loam	40	Severe		Severe		Severe	
		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
Wisflat sandy loam	25	Severe		Severe		Severe	
		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
Lilten silty clay loam	20	Severe		Severe		Severe	
		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
743:							
Millsholm clay loam	50	Severe		Severe		Severe	
		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
Borreguero sandy loam	35	Severe		Severe		Severe	
		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
744:							
Lilten silty clay loam	50	Severe		Severe		Severe	
		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
Millsholm clay loam	35	Severe		Severe		Severe	
		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
745:							
Grazer silty clay loam	45	Severe		Severe		Severe	
		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
Wisflat sandy loam	25	Severe		Severe		Severe	
		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 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
745:							
Arburua loam	15	Severe		Severe		Severe	
		Slopes >15%	1.00	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes >15%	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
746:							
Rock outcrop, sandstone and shale	40	Not rated		Not rated		Not rated	
Wisflat sandy loam	25	Severe		Severe		Severe	
		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
Arburua loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
747:							
Lilten silty clay	35	Severe		Severe		Severe	
		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
Grazer silty clay loam	30	Severe		Severe		Severe	
		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
Arburua loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
748:							
Vaquero clay	70	Severe		Severe		Severe	
		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"	0.06		
Grazer silty clay loam	20	Severe		Severe		Severe	
		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 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
749:							
Grazer silty clay loam	40	Severe		Severe		Severe	
		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
Wisflat sandy loam	30	Severe		Severe		Severe	
		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
Exclose clay loam	15	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
750:							
Monvero sand	50	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
Monoridge fine sand	35	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
				Bedrock (soft) from 20 to 40"	0.84		
752:							
Cyvar loam	45	Severe		Severe		Severe	
		Pan (thick) <20” depth	1.00	Pan (thick) <40” depth	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Pan (thick) <20” depth	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Shrink-swell (LEP 3-6)	0.22
Nodhill loam	35	Moderate		Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.64	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
				Slopes 8 to 15%	0.16		
753:							
Cyvar loam	30	Severe		Severe		Severe	
		Pan (thick) <20” depth	1.00	Pan (thick) <40” depth	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Pan (thick) <20” depth	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Shrink-swell (LEP 3-6)	0.22
Nodhill loam	25	Moderate		Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.64	Slopes >8%	1.00
		Slopes 8 to 15%	0.16			Shrink-swell (LEP 3-6)	0.22
				Shrink-swell (LEP 3-6)	0.22		
				Slopes 8 to 15%	0.16		
Pits, gypsiferous	25	Not rated		Not rated		Not rated	

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
755:							
Borreguero sandy loam	30	Severe		Severe		Severe	
		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
Grazer silty clay loam	25	Severe		Severe		Severe	
		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	20	Not rated		Not rated		Not rated	
757:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Borreguero sandy loam	35	Severe		Severe		Severe	
		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
758:							
Wisflat sandy loam	35	Severe		Severe		Severe	
		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
Borreguero sandy loam	30	Severe		Severe		Severe	
		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
Rock outcrop	25	Not rated		Not rated		Not rated	
761:							
Atravesada gravelly sandy loam	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.00	Bedrock (soft) <20" depth	0.99	Shrink-swell (LEP 3-6)	0.00
765:							
Atravesada sandy loam	50	Severe		Severe		Severe	
		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
		Shrink-swell (LEP 3-6)	0.00			Shrink-swell (LEP 3-6)	0.00
Pits, asbestos	25	Not rated		Not rated		Not rated	
767:							
Atravesada sandy loam	50	Severe		Severe		Severe	
		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)	0.00			Shrink-swell (LEP 3-6)	0.00

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
767:							
Pits, asbestos	25	Not rated		Not rated		Not rated	
769:							
Dumps, asbestos	55	Not rated		Not rated		Not rated	
Pits, asbestos	40	Not rated		Not rated		Not rated	
770:							
Roacha silty clay loam	40	Severe		Severe		Severe	
		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"	0.64		
Millsholm clay loam	25	Severe		Severe		Severe	
		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
Lilten silty clay loam	20	Severe		Severe		Severe	
		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
773:							
Hentine very gravelly sandy loam	60	Severe		Severe		Severe	
		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)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Rock outcrop	25	Not rated		Not rated		Not rated	
774:							
Hentine very gravelly sandy loam	55	Severe		Severe		Severe	
		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)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Franciscan gravelly sandy loam	15	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Bedrock (hard) from 20 to 40"	0.79	Bedrock (hard) <40” depth	1.00	Bedrock (hard) from 20 to 40"	0.79
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
782, 783:							
Vaquero clay	45	Severe		Severe		Severe	
		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"	0.06		
Altamont clay	40	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP >6)	1.00
817:							
Arburua loam	88	Moderate		Severe		Moderate	
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
				Bedrock (soft) from 20 to 40”	0.71	Slopes are from 4 to 8%	0.02
818:							
Arburua loam	85	Moderate		Severe		Severe	
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.63	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71	Bedrock (hard) from 20 to 40"	0.29
819, 820:							
Arburua loam	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
822:							
Altamont clay	85	Severe		Moderate		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP >6)	1.00
						Slopes are from 4 to 8%	0.50
823:							
Ayar clay	85	Severe		Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes are from 4 to 8%	0.74
827:							
Ayar clay	50	Severe		Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.63	Slopes 8 to 15%	0.63	Shrink-swell (LEP >6)	1.00

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
827:							
Arburua loam	35	Moderate Shrink-swell (LEP 3-6) Slopes 8 to 15% Bedrock (hard) from 20 to 40"	 0.78 0.63 0.29	Severe Bedrock (hard) <40” depth Shrink-swell (LEP 3-6) Bedrock (soft) from 20 to 40"	 1.00 0.78 0.71	Severe Slopes >8% Shrink-swell (LEP 3-6) Bedrock (hard) from 20 to 40"	 1.00 0.78 0.29
834:							
Bapos clay loam	75	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6) Slopes are from 4 to 8%	 1.00 0.26
835:							
Pedcat loam, eroded	85	Severe Ponding (any duration) Flooding ≥ rare	 1.00 1.00	Severe Ponding (any duration) Flooding ≥ rare	 1.00 1.00	Severe Ponding (any duration) Flooding ≥ rare	 1.00 1.00
842:							
Quinto gravelly sandy loam	35	Severe Bedrock (soft) <20” depth Slopes >15% Bedrock (hard) <20” depth	 1.00 1.00 1.00	Severe Slopes >15% Bedrock (hard) <40” depth Bedrock (soft) <20” depth	 1.00 1.00 1.00	Severe Bedrock (soft) <20” depth Slopes >8% Bedrock (hard) <20” depth	 1.00 1.00 1.00
Millsholm clay loam	30	Severe Bedrock (soft) <20” depth Slopes >15% Bedrock (hard) <20” depth	 1.00 1.00 1.00	Severe Slopes >15% Bedrock (hard) <40” depth Bedrock (soft) <20” depth	 1.00 1.00 1.00	Severe Bedrock (soft) <20” depth Slopes >8% Bedrock (hard) <20” depth	 1.00 1.00 1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
847:							
Carranza gravelly sandy loam	85	Moderate Shrink-swell (LEP 3-6)	 0.22	Moderate Shrink-swell (LEP 3-6)	 0.22	Moderate Shrink-swell (LEP 3-6) Slopes are from 4 to 8%	 0.22 0.02
849:							
Chaqua loam	85	Slight		Slight		Moderate Slopes are from 4 to 8%	 0.26
851:							
Los Banos clay loam	85	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6)	 1.00
852:							
Los Banos clay loam	85	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6)	 1.00	Severe Shrink-swell (LEP >6) Slopes are from 4 to 8%	 1.00 0.02

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Limitation	Value	Dwellings with basements: Limitation	Value	Small commercial buildings: Limitation	Value
853:							
Los Banos clay loam	55	Severe		Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
						Slopes are from 4 to 8%	0.26
Pleito gravelly clay loam	30	Moderate		Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Slopes are from 4 to 8%	0.26
						Shrink-swell (LEP 3-6)	0.22
855:							
Pleito gravelly clay loam	85	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
863:							
Vernalis loam	85	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78
865:							
Conosta clay loam	85	Severe		Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00	Shrink-swell (LEP >6)	1.00
				Bedrock (soft) from 20 to 40"	0.29	Slopes are from 4 to 8%	0.26
870, 871:							
Wisflat sandy loam	35	Severe		Severe		Severe	
		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	30	Not rated		Not rated		Not rated	
Arburua loam	20	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40" depth	1.00	Shrink-swell (LEP 3-6)	0.78
		Bedrock (hard) from 20 to 40"	0.29	Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) from 20 to 40"	0.29
872:							
Vernalis loam	90	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78	Shrink-swell (LEP 3-6)	0.78
873:							
Narbaitz loam	60	Moderate		Moderate		Severe	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes >8%	1.00

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
873:							
Pleito gravelly clay loam	30	Severe		Severe		Severe	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >8%	1.00
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
940:							
Milham sandy loam, organic surface	40	Severe		Moderate		Severe	
		Organic matter (PT, OL, or OH)	1.00	Shrink-swell (LEP 3-6)	0.22	Organic matter (PT, OL, or OH)	1.00
		Shrink-swell (LEP 3-6)	0.22			Shrink-swell (LEP 3-6)	0.22
Polvadero sandy loam, organic surface	40	Severe		Moderate		Severe	
		Organic matter (PT, OL, or OH)	1.00	Shrink-swell (LEP 3-6)	0.22	Organic matter (PT, OL, or OH)	1.00
		Shrink-swell (LEP 3-6)	0.22			Shrink-swell (LEP 3-6)	0.22
941:							
Bisgani loamy sand	45	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Wetness from 18 to 30" depth	0.98	Wetness <2.5’ depth	1.00	Wetness from 18 to 30" depth	0.98
Elnido sandy loam	40	Severe		Severe		Severe	
		Flooding ≥ rare	1.00	Flooding ≥ rare	1.00	Flooding ≥ rare	1.00
		Wetness from 18 to 30" depth	0.98	Wetness <2.5’ depth	1.00	Wetness from 18 to 30" depth	0.98
950:							
Pits, gravel	85	Not rated		Not rated		Not rated	
960:							
Excelsior sandy loam, sandy substratum	50	Severe		Severe		Severe	
		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
Westhaven loam	30	Severe		Severe		Severe	
		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
		Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22	Shrink-swell (LEP 3-6)	0.22
980:							
Urban land	97	Not rated		Not rated		Not rated	

Table 18.--Building Site Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Limitation	Value	Limitation	Value	Limitation	Value
981:							
Sewage disposal ponds	100	Not rated		Not rated		Not rated	
982:							
Water	100	Not rated		Not rated		Not rated	

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 potential 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

Table 19.--Building Site Development (Part 2)

(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 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	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
101:					
Armona loam, partially drained	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Wetness from 2.5' to 6' depth	0.35
		Flooding = rare	0.50	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		
107:					
Anela very gravelly sandy loam	85	Moderate		Severe	
		Flooding = rare	0.50	Caving potential	1.00
				Bulk density >1.8 g/cc	0.50
115:					
Bolfar loam, drained	85	Moderate		Moderate	
		AASHTO GI 5-8 (soil strength)	0.78	Low caving potential	0.10
		Flooding = rare	0.50		
		Shrink-swell (LEP 3-6)	0.22		
120:					
Altaslough clay loam	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
130:					
Gepford clay	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.92
		Flooding = rare	0.50	Wetness from 2.5' to 6' depth	0.35
282:					
Tachi clay	91	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Clay > 60%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Flooding = rare	0.50	Wetness from 2.5' to 6' depth	0.35
284:					
Lillis clay	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Clay > 60%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
				Wetness from 2.5' to 6' depth	0.35

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
285:					
Tranquillity clay, saline-sodic	60	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.88
Tranquillity clay, saline-sodic, wet	25	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.76
				Wetness from 2.5' to 6' depth	0.35
286:					
Tranquillity clay, saline-sodic, wet	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.76
		Flooding = rare	0.50	Wetness from 2.5' to 6' depth	0.35
311:					
Bisgani sandy loam, drained	85	Moderate		Severe	
		Flooding = rare	0.50	Caving potential	1.00
320:					
Elnido sandy loam, drained	85	Moderate		Severe	
		Flooding = rare	0.50	Caving potential	1.00
325:					
Palazzo sandy loam, drained	85	Moderate		Moderate	
		Flooding = rare	0.50	Low caving potential	0.10
375:					
Lethent silt loam	85	Moderate		Moderate	
		AASHTO GI 5-8 (soil strength)	0.22	Clay from 40 to 60%	0.59
				Low caving potential	0.10
376:					
Agnal silty clay	90	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Clay from 40 to 60%	0.82
		Shrink-swell (LEP >6)	1.00	Wetness from 2.5' to 6' depth	0.16
				Low caving potential	0.10
404:					
Milham sandy loam	55	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Guijarral sandy loam	30	Moderate		Severe	
		Slopes 8 to 15%	0.16	Caving potential	1.00
				Slopes 8 to 15%	0.16

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
405:					
Polvadero sandy loam	55	Moderate		Moderate	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16
				Low caving potential	0.10
Guijarral sandy loam	30	Moderate		Severe	
		Slopes 8 to 15%	0.16	Caving potential	1.00
				Slopes 8 to 15%	0.16
406:					
Guijarral sandy loam	85	Slight		Severe	
				Caving potential	1.00
412:					
Yribarren clay loam	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.08
414:					
Dospalos clay loam, drained	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay > 60%	0.99
415:					
Dospalos clay, drained	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay > 60%	0.99
425, 426:					
Kimberlina sandy loam	85	Slight		Moderate	
				Low caving potential	0.10
434:					
Lethent clay loam, wet	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Wetness from 2.5' to 6' depth	0.35
		Shrink-swell (LEP 3-6)	0.78	Low caving potential	0.10
		Flooding = rare	0.50		
435:					
Lethent clay loam	90	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
436:					
Panoche loam	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
437:					
Panoche sandy loam	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		
438:					
Panoche loam	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		
442:					
Panoche clay loam	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		
445:					
Excelsior sandy loam	85	Slight		Moderate	
				Low caving potential	0.10
447:					
Excelsior sandy loam, sandy substratum	85	Moderate		Severe	
		Flooding = rare	0.50	Caving potential	1.00
448:					
Excelsior loamy sand, sandy substratum, eroded	88	Slight		Severe	
				Caving potential	1.00
451:					
Milham sandy loam	85	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
452:					
Milham sandy loam	89	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
453:					
Milham sandy loam	85	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
454, 455:					
Polvadero sandy loam	85	Slight		Moderate	
				Low caving potential	0.10
459:					
Ciervo clay	80	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
461:					
Ciervo clay, saline-sodic, wet	80	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Wetness from 2.5' to 6' depth	0.35
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.24
		Flooding = rare	0.50	Low caving potential	0.10
462:					
Ciervo clay, saline-sodic, wet	50	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Wetness from 2.5' to 6' depth	0.35
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.24
				Low caving potential	0.10
Ciervo clay, saline-sodic	30	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
466:					
Paver clay loam	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		
468:					
Deldota clay, partially drained	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Wetness from 2.5' to 6' depth	0.47
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.12
				Low caving potential	0.10
470:					
Chateau clay, partially drained	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Clay from 40 to 60%	0.76
		Shrink-swell (LEP 3-6)	0.78	Wetness from 2.5' to 6' depth	0.47
				Low caving potential	0.10
472:					
Wekoda clay, partially drained	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Wetness < 2.5' depth	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		Wetness from 12 to 30" depth	0.19	Clay from 40 to 60%	0.88
474:					
Westhaven loam	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP 3-6)	0.22		

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
475:					
Posochanet clay loam, saline-sodic, wet------------------------	88	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Wetness from 2.5' to 6' depth	0.35
		Flooding = rare	0.50	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		
476:					
Posochanet clay loam, saline-sodic	88	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		
477:					
Westhaven clay loam---------------	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP 3-6)	0.22		
478:					
Cerini sandy loam-----------------	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
479:					
Cerini clay loam------------------	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
480:					
Calflax clay loam, saline-sodic---	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
481:					
Cerini clay loam------------------	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
482:					
Calflax clay loam, saline-sodic,	85	Severe		Moderate	
wet------------------------------	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Wetness from 2.5' to 6' depth	0.35
		Shrink-swell (LEP 3-6)	0.78	Low caving potential	0.10
		Flooding = rare	0.50		
488, 489:					
Wasco sandy loam------------------	85	Slight		Moderate	
				Low caving potential	0.10

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
490:					
Cerini sandy loam, subsided-------	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
		Flooding = rare	0.50		
491:					
Cerini clay loam, subsided--------	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
		Flooding = rare	0.50		
492:					
Panoche loam, subsided------------	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Flooding = rare	0.50		
		Shrink-swell (LEP 3-6)	0.22		
493:					
Panoche clay loam, subsided-------	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Flooding = rare	0.50		
		Shrink-swell (LEP 3-6)	0.22		
587:					
Mugatu fine sandy loam------------	85	Slight		Severe	
				Caving potential	1.00
588:					
Mugatu fine sandy loam------------	85	Severe		Severe	
		Slopes <15%	1.00	Caving potential	1.00
				Slopes <15%	1.00
590:					
Cerini sandy loam-----------------	30	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
		Flooding = rare	0.50		
Anela very gravelly sandy loam----	30	Severe		Severe	
		Flooding ≥ occasional	1.00	Caving potential	1.00
				Very frequent flooding	0.50
				Bulk density >1.8 g/cc	0.50
Fluvaquents, saline-sodic---------	20	Severe		Severe	
		Flooding ≥ occasional	1.00	Wetness < 2.5' depth	1.00
		Wetness from 12 to 30" depth	0.56	Caving potential	1.00
				Very frequent flooding	0.50

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
620:					
Delgado sandy loam, eroded--------	85	Severe		Severe	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16
				Low caving potential	0.10
621:					
Delgado sandy loam, eroded--------	85	Severe		Severe	
		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
640:					
Kettleman clay loam, eroded-------	35	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.71
		Shrink-swell (LEP 3-6)	0.22	Slopes 8 to 15%	0.16
		Slopes 8 to 15%	0.16	Low caving potential	0.10
Delgado sandy loam, eroded--------	30	Severe		Severe	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16
				Low caving potential	0.10
Mercey loam, eroded---------------	20	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) <20” depth	0.99
		Shrink-swell (LEP 3-6)	0.22	Slopes 8 to 15%	0.16
		Slopes 8 to 15%	0.16	Low caving potential	0.10
641:					
Mercey loam-----------------------	35	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.90
		Shrink-swell (LEP 3-6)	0.22	Slopes 8 to 15%	0.16
		Slopes 8 to 15%	0.16	Low caving potential	0.10
Delgado sandy loam----------------	30	Severe		Severe	
		Bedrock (hard) <20” depth	1.00	Bedrock (hard) <40” depth	1.00
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16
				Low caving potential	0.10
Kettleman clay loam---------------	20	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.29
		Shrink-swell (LEP 3-6)	0.22	Slopes 8 to 15%	0.16
		Slopes 8 to 15%	0.16	Low caving potential	0.10
642:					
Mercey loam, eroded---------------	35	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) <20” depth	0.99
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
642:					
Delgado sandy loam, eroded	30	Severe		Severe	
		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
Kettleman clay loam, eroded	20	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.71
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
643:					
Mercey loam	35	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.90
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Delgado sandy loam	30	Severe		Severe	
		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
Kettleman clay loam	20	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.29
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
644:					
Mercey loam, eroded	35	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) <20” depth	0.99
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Kettleman clay loam, eroded	30	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.71
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Delgado sandy loam, eroded	20	Severe		Severe	
		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
645:					
Delgado sandy loam	35	Severe		Severe	
		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

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
645:					
Mercey loam	30	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.90
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Kettleman clay loam	20	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.29
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
670:					
Badland	35	Not rated		Not rated	
Kettleman clay loam	25	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.29
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Mercey loam	25	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.90
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
680:					
Arburua loam	45	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes <15%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
Morenogulch parachannery silty clay	40	Severe		Severe	
		AASHTO GI >8 (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
704:					
Franciscan gravelly sandy loam	85	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (hard) from 20 to 40"	0.79	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
705:					
Roacha silty clay loam	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.32

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
706:					
Sagaser loam	85	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		
709:					
Sagaser loam	50	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22		
Gaviota sandy loam	20	Severe		Severe	
		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
Borreguero sandy loam	15	Severe		Severe	
		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
710:					
Monoridge fine sand	45	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
				Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.84
Exclose clay loam	20	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
		AASHTO GI 5-8 (soil strength)	0.22		
Badland	15	Not rated		Not rated	
711:					
Currymountain loam	45	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.90
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Wisflat sandy loam	20	Severe		Severe	
		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 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
711:					
Borreguero sandy loam	20	Severe		Severe	
		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
712:					
Altamont clay	40	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.12
Roacha silty clay loam	25	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.32
Borreguero sandy loam	20	Severe		Severe	
		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
713:					
Currymountain loam	45	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Fragments (>3") 25 to 50%	0.63	Bedrock (soft) <20” depth	0.99
		Shrink-swell (LEP 3-6)	0.00	Fragments (>3") 25 to 50%	0.63
Rock outcrop	20	Not rated		Not rated	
Quinto gravelly sandy loam	20	Severe		Severe	
		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
714:					
Gaviota sandy loam	45	Severe		Severe	
		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
Borreguero sandy loam	25	Severe		Severe	
		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
Rock outcrop	15	Not rated		Not rated	

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
715:					
Belgarra clay	55	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Wisflat sandy loam	30	Severe		Severe	
		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
717:					
Belgarra clay	35	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Arburua loam	30	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes <15%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
Morenogulch parachannery silty clay	15	Severe		Severe	
		AASHTO GI >8 (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
718:					
Nodhill loam	35	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.64
Wisflat sandy loam	35	Severe		Severe	
		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	
719:					
Nodhill loam	40	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.64

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
719:					
Arburua loam	25	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes <15%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
Wisflat sandy loam	15	Severe		Severe	
		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
720:					
Exclose clay loam	40	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
		AASHTO GI 5-8 (soil strength)	0.22		
Wisflat sandy loam	30	Severe		Severe	
		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
Morenogulch parachannery silty clay	15	Severe		Severe	
		AASHTO GI >8 (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
722:					
Exclose clay loam	40	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
		AASHTO GI 5-8 (soil strength)	0.22		
Wisflat, sandy loam	30	Severe		Severe	
		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	
723:					
Exclose clay loam	40	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
		AASHTO GI 5-8 (soil strength)	0.22		

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
723:					
Wisflat sandy loam	25	Severe		Severe	
		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
Grazer silty clay loam	20	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
725:					
Gewter clay	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Clay > 60%	1.00
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) from 20 to 40"	0.95
727:					
Reliz channery loam	40	Severe		Severe	
		Slopes <15%	1.00	Bedrock (soft) <20” depth	1.00
		Bedrock (soft) <20” depth	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Gewter loam	30	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.84
		Shrink-swell (LEP 3-6)	0.78	Clay from 40 to 60%	0.50
Rock outcrop	15	Not rated		Not rated	
728:					
Climara clay	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Bedrock (hard) <40” depth	1.00
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
733:					
Hentine very gravelly sandy loam	50	Severe		Severe	
		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)	0.22	Low caving potential	0.10
Climara clay	35	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Bedrock (hard) <40” depth	1.00
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
735:					
Getrail clay	35	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay > 60%	1.00
Vernado sandy loam	20	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (hard) from 20 to 40"	0.54	Slopes <15%	1.00
				Low caving potential	0.10
Rock outcrop	20	Not rated		Not rated	
737:					
Grazer silty clay loam	35	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Badland	30	Not rated		Not rated	
Wisflat sandy loam	20	Severe		Severe	
		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
738:					
Grazer silty clay loam	35	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.24
		Slopes <15%	1.00	Low caving potential	0.10
Belgarra clay	30	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Arburua loam	20	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes <15%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
739:					
Domengine loam	40	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.00

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
739:					
Wisflat sandy loam	30	Severe		Severe	
		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	
740:					
Domengine loam	45	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.22	Bedrock (soft) from 20 to 40"	0.00
Lilten silty clay loam	25	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00		
Rock outcrop	15	Not rated		Not rated	
741:					
Anela very gravelly sandy loam	50	Severe		Severe	
		Flooding ≥ occasional	1.00	Caving potential	1.00
				Very frequent flooding	0.50
				Bulk density >1.8 g/cc	0.50
Vernalis loam	35	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
		Flooding = rare	0.50		
742:					
Millsholm clay loam	40	Severe		Severe	
		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
Wisflat sandy loam	25	Severe		Severe	
		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
Lilten silty clay loam	20	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00		

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
743:					
Millsholm clay loam	50	Severe		Severe	
		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
Borreguero sandy loam	35	Severe		Severe	
		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
744:					
Lilten silty clay loam	50	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00		
Millsholm clay loam	35	Severe		Severe	
		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
745:					
Grazer silty clay loam	45	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.24
		Slopes <15%	1.00	Low caving potential	0.10
Wisflat sandy loam	25	Severe		Severe	
		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
Arburua loam	15	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes <15%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
746:					
Rock outcrop, sandstone and shale	40	Not rated		Not rated	
Wisflat sandy loam	25	Severe		Severe	
		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 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
746:					
Arburua loam	20	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40" depth	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes <15%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
747:					
Lilten silty clay	35	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00		
Grazer silty clay loam	30	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Arburua loam	20	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40" depth	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes <15%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
748:					
Vaquero clay	70	Severe		Severe	
		AASHTO GI >8 (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
Grazer silty clay loam	20	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
749:					
Grazer silty clay loam	40	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Wisflat sandy loam	30	Severe		Severe	
		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
Exclose clay loam	15	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
		AASHTO GI 5-8 (soil strength)	0.22		

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
750:					
Monvero sand	50	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
				Caving potential	1.00
Monoridge fine sand	35	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
				Caving potential	1.00
				Bedrock (soft) from 20 to 40"	0.84
752:					
Cyvar loam	45	Severe		Severe	
		Pan (thick) <20” depth	1.00	Pan (thick) <40” depth	1.00
		AASHTO GI >8 (soil strength)	1.00	Slopes 8 to 15%	0.16
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Nodhill loam	35	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Caving potential	1.00
		Slopes 8 to 15%	0.16	Bedrock (soft) from 20 to 40"	0.64
				Slopes 8 to 15%	0.16
753:					
Cyvar loam	30	Severe		Severe	
		Pan (thick) <20” depth	1.00	Pan (thick) <40” depth	1.00
		AASHTO GI >8 (soil strength)	1.00	Slopes 8 to 15%	0.16
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Nodhill loam	25	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Caving potential	1.00
		Slopes 8 to 15%	0.16	Bedrock (soft) from 20 to 40"	0.64
				Slopes 8 to 15%	0.16
Pits, gypsiferous	25	Not rated		Not rated	
755:					
Borreguero sandy loam	30	Severe		Severe	
		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
Grazer silty clay loam	25	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Clay from 40 to 60%	0.24
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Rock outcrop	20	Not rated		Not rated	

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
757:					
Rock outcrop	50	Not rated		Not rated	
Borreguero sandy loam	35	Severe		Severe	
		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
758:					
Wisflat sandy loam	35	Severe		Severe	
		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
Borreguero sandy loam	30	Severe		Severe	
		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
Rock outcrop	25	Not rated		Not rated	
761:					
Atravesada gravelly sandy loam	85	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.00	Caving potential	1.00
				Bedrock (soft) <20" depth	0.99
765:					
Atravesada sandy loam	50	Severe		Severe	
		Bedrock (soft) <20" depth	1.00	Bedrock (soft) <20" depth	1.00
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.00	Low caving potential	0.10
Pits, asbestos	25	Not rated		Not rated	
767:					
Atravesada sandy loam	50	Severe		Severe	
		Slopes <15%	1.00	Bedrock (soft) <20" depth	1.00
		Bedrock (soft) <20" depth	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.00	Low caving potential	0.10
Pits, asbestos	25	Not rated		Not rated	
769:					
Dumps, asbestos	55	Not rated		Not rated	
Pits, asbestos	40	Not rated		Not rated	

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
770:					
Roacha silty clay loam	40	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Bedrock (soft) from 20 to 40"	0.64
Millsholm clay loam	25	Severe		Severe	
		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
Lilten silty clay loam	20	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Low caving potential	0.10
		Shrink-swell (LEP >6)	1.00		
773:					
Hentine very gravelly sandy loam	60	Severe		Severe	
		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)	0.22	Low caving potential	0.10
Rock outcrop	25	Not rated		Not rated	
774:					
Hentine very gravelly sandy loam	55	Severe		Severe	
		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)	0.22	Low caving potential	0.10
Franciscan gravelly sandy loam	15	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Bedrock (hard) from 20 to 40"	0.79	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Rock outcrop	15	Not rated		Not rated	
782, 783:					
Vaquero clay	45	Severe		Severe	
		AASHTO GI >8 (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
Altamont clay	40	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Slopes <15%	1.00
		Slopes <15%	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.12

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
817:					
Arburua loam	88	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
				Low caving potential	0.10
818:					
Arburua loam	85	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00
		Slopes 8 to 15%	0.63	Bedrock (soft) from 20 to 40"	0.71
		Bedrock (hard) from 20 to 40"	0.29	Slopes 8 to 15%	0.63
819, 820:					
Arburua loam	85	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes <15%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
822:					
Altamont clay	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.12
823:					
Ayar clay	85	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00		
827:					
Ayar clay	50	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Slopes 8 to 15%	0.63
		Slopes 8 to 15%	0.63		
Arburua loam	35	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.78	Bedrock (hard) <40” depth	1.00
		Slopes 8 to 15%	0.63	Bedrock (soft) from 20 to 40"	0.71
		Bedrock (hard) from 20 to 40"	0.29	Slopes 8 to 15%	0.63
834:					
Bapos clay loam	75	Severe		Severe	
		AASHTO GI >8 (soil strength)	1.00	Caving potential	1.00
		Shrink-swell (LEP >6)	1.00	Clay from 40 to 60%	0.18
835:					
Pedcat loam, eroded	85	Severe		Severe	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Flooding ≥ occasional	1.00	Very frequent flooding	0.50
				Low caving potential	0.10

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
842:					
Quinto gravelly sandy loam	35	Severe		Severe	
		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
Millsholm clay loam	30	Severe		Severe	
		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	
847:					
Carranza gravelly sandy loam	85	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Caving potential	1.00
849:					
Chaqua loam	85	Slight		Moderate	
				Low caving potential	0.10
851, 852:					
Los Banos clay loam	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Clay from 40 to 60%	0.12
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
853:					
Los Banos clay loam	55	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Clay from 40 to 60%	0.12
		Shrink-swell (LEP >6)	1.00	Low caving potential	0.10
Pleito gravelly clay loam	30	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Caving potential	1.00
855:					
Pleito gravelly clay loam	85	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Caving potential	1.00
863:					
Vernalis loam	85	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
		Flooding = rare	0.50		

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
865:					
Conosta clay loam	85	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Caving potential	1.00
		AASHTO GI >8 (soil strength)	1.00	Bedrock (soft) from 20 to 40"	0.29
				Clay from 40 to 60%	0.02
870, 871:					
Wisflat sandy loam	35	Severe		Severe	
		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	30	Not rated		Not rated	
Arburua loam	20	Severe		Severe	
		Slopes <15%	1.00	Bedrock (hard) <40” depth	1.00
		Shrink-swell (LEP 3-6)	0.78	Slopes <15%	1.00
		Bedrock (hard) from 20 to 40"	0.29	Bedrock (soft) from 20 to 40"	0.71
872:					
Vernalis loam	90	Severe		Moderate	
		AASHTO GI >8 (soil strength)	1.00	Low caving potential	0.10
		Shrink-swell (LEP 3-6)	0.78		
		Flooding = rare	0.50		
873:					
Narbaitz loam	60	Moderate		Severe	
		Slopes 8 to 15%	0.16	Caving potential	1.00
				Clay > 60%	0.99
				Slopes 8 to 15%	0.16
Pleito gravelly clay loam	30	Severe		Severe	
		Slopes <15%	1.00	Slopes <15%	1.00
		Shrink-swell (LEP 3-6)	0.22	Caving potential	1.00
940:					
Milham sandy loam, organic surface	40	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
Polvadero sandy loam, organic surface	40	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.22	Low caving potential	0.10
941:					
Bisgani loamy sand	45	Severe		Severe	
		Flooding ≥ occasional	1.00	Wetness < 2.5' depth	1.00
		Wetness from 12 to 30" depth	0.75	Caving potential	1.00
				Very frequent flooding	0.50

Table 19.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations	
		Limitation	Value	Limitation	Value
941:					
Elnido sandy loam	40	Severe		Severe	
		Flooding ≥ occasional	1.00	Wetness < 2.5' depth	1.00
		Wetness from 12 to 30" depth	0.75	Caving potential	1.00
				Very frequent flooding	0.50
950:					
Pits, gravel	85	Not rated		Not rated	
960:					
Excelsior sandy loam, sandy substratum	50	Severe		Severe	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Flooding ≥ occasional	1.00	Caving potential	1.00
				Very frequent flooding	0.50
Westhaven loam	30	Severe		Severe	
		Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Flooding ≥ occasional	1.00	Caving potential	1.00
		AASHTO GI >8 (soil strength)	1.00	Very frequent flooding	0.50
980:					
Urban land	97	Not rated		Not rated	
981:					
Sewage disposal ponds	100	Not rated		Not rated	
982:					
Water	100	Not rated		Not rated	

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 20.--Sanitary Facilities (Part 1)

(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 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	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
101:					
Armona loam, partially drained	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Wetness from 4 to 6' depth	0.84	Wetness from 3.5 to 5' depth	0.17
		Flooding = rare	0.50		
107:					
Anela very gravelly sandy loam	85	Moderate		Severe	
		Flooding = rare	0.50	Permeability >2”/hr (seepage)	1.00
				Flooding = rare	0.50
115:					
Bolfar loam, drained	85	Moderate		Moderate	
		Ksat between .6 and 2"/hr	0.98	Flooding = rare	0.50
		Flooding = rare	0.50	Permeability .6-2"/hr (some seepage)	0.32
120:					
Altaslough clay loam	85	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
130:					
Gepford clay	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Wetness from 4 to 6' depth	0.84	Wetness from 3.5 to 5' depth	0.17
		Flooding = rare	0.50		
282:					
Tachi clay	91	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Wetness from 4 to 6' depth	0.84	Wetness from 3.5 to 5' depth	0.17
		Flooding = rare	0.50		
284:					
Lillis clay	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Wetness from 3.5 to 5' depth	0.17
		Wetness from 4 to 6' depth	0.84		
285:					
Tranquillity clay, saline-sodic	60	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
285:					
Tranquillity clay, saline-sodic, wet	25	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Wetness from 3.5 to 5' depth	0.17
		Wetness from 4 to 6' depth	0.84		
286:					
Tranquillity clay, saline-sodic, wet	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Wetness from 4 to 6' depth	0.84	Wetness from 3.5 to 5' depth	0.17
		Flooding = rare	0.50		
311:					
Bisgani sandy loam, drained	85	Severe		Severe	
		Ksat >6”/hr (seepage and poor filter)	1.00	Permeability >2”/hr (seepage)	1.00
				Flooding = rare	0.50
		Flooding = rare	0.50		
320:					
Elnido sandy loam, drained	85	Severe		Severe	
		Ksat >6”/hr (seepage and poor filter)	1.00	Permeability >2”/hr (seepage)	1.00
				Flooding = rare	0.50
		Flooding = rare	0.50		
325:					
Palazzo sandy loam, drained	85	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Permeability >2”/hr (seepage)	1.00
		Flooding = rare	0.50	Flooding = rare	0.50
375:					
Lethent silt loam	85	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
376:					
Agnal silty clay	90	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
		Wetness from 4 to 6' depth	0.43		
404:					
Milham sandy loam	55	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Permeability >2”/hr (seepage)	1.00
				Slopes 2 to 8%	0.83
Guijarral sandy loam	30	Severe		Severe	
		Ksat >6”/hr (seepage and poor filter)	1.00	Permeability >2”/hr (seepage)	1.00
				Slopes >8%	1.00
		Slopes 8 to 15%	0.16		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
405:					
Polvadero sandy loam	55	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Permeability .6-2"/hr (some seepage)	0.32
Guijarral sandy loam	30	Severe		Severe	
		Ksat >6”/hr (seepage and poor filter)	1.00	Permeability >2”/hr (seepage)	1.00
				Slopes >8%	1.00
		Slopes 8 to 15%	0.16		
406:					
Guijarral sandy loam	85	Severe		Severe	
		Ksat >6”/hr (seepage and poor filter)	1.00	Permeability >2”/hr (seepage)	1.00
				Slopes 2 to 8%	0.17
412:					
Yribarren clay loam	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Permeability .6-2"/hr (some seepage)	0.02
414:					
Dospalos clay loam, drained	85	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
415:					
Dospalos clay, drained	85	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
425:					
Kimberlina sandy loam	85	Slight		Severe	
				Permeability >2”/hr (seepage)	1.00
426:					
Kimberlina sandy loam	85	Slight		Severe	
				Permeability >2”/hr (seepage)	1.00
				Slopes 2 to 8%	0.17
434:					
Lethent clay loam, wet	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Wetness from 4 to 6' depth	0.84	Wetness from 3.5 to 5' depth	0.17
		Flooding = rare	0.50		
435:					
Lethent clay loam	90	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
436:					
Panoche loam	85	Moderate Ksat between .6 and 2"/hr	 0.68	Moderate Permeability .6-2"/hr (some seepage)	 0.68
437:					
Panoche sandy loam	85	Moderate Ksat between .6 and 2"/hr	 0.68	Moderate Permeability .6-2"/hr (some seepage)	 0.68
438:					
Panoche loam	85	Moderate Ksat between .6 and 2"/hr	 0.68	Moderate Permeability .6-2"/hr (some seepage) Slopes 2 to 8%	 0.68 0.17
442:					
Panoche clay loam	85	Moderate Ksat between .6 and 2"/hr	 0.68	Moderate Permeability .6-2"/hr (some seepage)	 0.68
445:					
Excelsior sandy loam	85	Moderate Ksat between .6 and 2"/hr	 0.32	Severe Permeability >2”/hr (seepage)	 1.00
447:					
Excelsior sandy loam, sandy substratum	85	Severe Ksat >6”/hr (seepage and poor filter) Flooding = rare Ksat between .6 and 2"/hr	 1.00 0.50 0.32	Severe Permeability >2”/hr (seepage) Flooding = rare	 1.00 0.50
448:					
Excelsior loamy sand, sandy substratum, eroded	88	Severe Ksat >6”/hr (seepage and poor filter) Ksat between .6 and 2"/hr	 1.00 0.32	Severe Permeability >2”/hr (seepage)	 1.00
451:					
Milham sandy loam	85	Severe Ksat <.6"/hr (slow perc)	 1.00	Severe Permeability >2”/hr (seepage)	 1.00
452:					
Milham sandy loam	89	Severe Ksat <.6"/hr (slow perc)	 1.00	Severe Permeability >2”/hr (seepage) Slopes 2 to 8%	 1.00 0.17

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
453:					
Milham sandy loam	85	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Permeability >2"/hr (seepage)	1.00
				Slopes 2 to 8%	0.83
454:					
Polvadero sandy loam	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Permeability .6-2"/hr (some seepage)	0.32
455:					
Polvadero sandy loam	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Permeability .6-2"/hr (some seepage)	0.32
				Slopes 2 to 8%	0.17
459:					
Ciervo clay	80	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
461:					
Ciervo clay, saline-sodic, wet	80	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Wetness from 4 to 6' depth	0.84	Wetness from 3.5 to 5' depth	0.17
		Flooding = rare	0.50		
462:					
Ciervo clay, saline-sodic, wet	50	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Wetness from 3.5 to 5' depth	0.17
		Wetness from 4 to 6' depth	0.84		
Ciervo clay, saline-sodic	30	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
466:					
Paver clay loam	85	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
468:					
Deldota clay, partially drained	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Wetness from 3.5 to 5' depth	0.39
		Wetness from 4 to 6' depth	0.94		
470:					
Chateau clay, partially drained	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Wetness from 3.5 to 5' depth	0.39
		Wetness from 4 to 6' depth	0.94		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
472:					
Wekoda clay, partially drained----	85	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Wetness < 3.5' depth	1.00
		Wetness <4' depth	1.00		
474:					
Westhaven loam--------------------	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Permeability .6-2"/hr (some seepage)	0.08
475:					
Posochanet clay loam, saline-sodic, wet----------------------	88	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Wetness from 4 to 6' depth	0.84	Wetness from 3.5 to 5' depth	0.17
		Flooding = rare	0.50		
476:					
Posochanet clay loam, saline-sodic	88	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
477:					
Westhaven clay loam---------------	85	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
478:					
Cerini sandy loam-----------------	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Permeability .6-2"/hr (some seepage)	0.08
479:					
Cerini clay loam------------------	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Permeability .6-2"/hr (some seepage)	0.08
480:					
Calflax clay loam, saline-sodic---	85	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
481:					
Cerini clay loam------------------	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Slopes 2 to 8%	0.33
				Permeability .6-2"/hr (some seepage)	0.08

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
482:					
Calflax clay loam, saline-sodic, wet	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Wetness from 4 to 6' depth	0.84	Wetness from 3.5 to 5' depth	0.17
		Flooding = rare	0.50		
488:					
Wasco sandy loam	85	Slight		Severe	
				Permeability >2"/hr (seepage)	1.00
489:					
Wasco sandy loam	85	Slight		Severe	
				Permeability >2"/hr (seepage)	1.00
				Slopes 2 to 8%	0.17
490:					
Cerini sandy loam, subsided	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Flooding = rare	0.50	Slopes 2 to 8%	0.17
				Permeability .6-2"/hr (some seepage)	0.08
491:					
Cerini clay loam, subsided	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Flooding = rare	0.50	Slopes 2 to 8%	0.17
				Permeability .6-2"/hr (some seepage)	0.08
492:					
Panoche loam, subsided	85	Moderate		Moderate	
		Ksat between .6 and 2"/hr	0.68	Permeability .6-2"/hr (some seepage)	0.68
		Flooding = rare	0.50	Flooding = rare	0.50
				Slopes 2 to 8%	0.17
493:					
Panoche clay loam, subsided	85	Moderate		Moderate	
		Ksat between .6 and 2"/hr	0.68	Permeability .6-2"/hr (some seepage)	0.68
		Flooding = rare	0.05	Flooding = rare	0.50
				Slopes 2 to 8%	0.17
587:					
Mugatu fine sandy loam	85	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Permeability >2"/hr (seepage)	1.00
		Ksat >6"/hr (seepage and poor filter)	1.00	Slopes 2 to 8%	0.17

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
588:					
Mugatu fine sandy loam------------	85	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Permeability >2"/hr (seepage)	1.00
		Ksat >6"/hr (seepage and poor filter)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
590:					
Cerini sandy loam-----------------	30	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Flooding = rare	0.50
		Flooding = rare	0.50	Permeability .6-2"/hr (some seepage)	0.08
Anela very gravelly sandy loam----	30	Severe		Severe	
		Flooding ≥ occasional	1.00	Flooding ≥ occasional	1.00
		Wetness from 4 to 6' depth	0.08	Permeability >2"/hr (seepage)	1.00
Fluvaquents, saline-sodic---------	20	Severe		Severe	
		Flooding ≥ occasional	1.00	Wetness < 3.5' depth	1.00
		Ksat <.6"/hr (slow perc)	1.00	Flooding ≥ occasional	1.00
		Wetness <4' depth	1.00		
620:					
Delgado sandy loam, eroded--------	85	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Impermeable above 24"	1.00	Permeability >2"/hr (seepage)	1.00
		Slopes 8 to 15%	0.16	Slopes >8%	1.00
621:					
Delgado sandy loam, eroded--------	85	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
640:					
Kettleman clay loam, eroded-------	35	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (soft) <40" depth	1.00
		Ksat between .6 and 2"/hr	0.92	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Permeability .6-2"/hr (some seepage)	0.08
Delgado sandy loam, eroded--------	30	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Impermeable above 24"	1.00	Permeability >2"/hr (seepage)	1.00
		Slopes 8 to 15%	0.16	Slopes >8%	1.00

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
640:					
Mercey loam, eroded	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16		
641:					
Mercey loam	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16		
Delgado sandy loam	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Impermeable above 24"	1.00	Permeability >2”/hr (seepage)	1.00
		Slopes 8 to 15%	0.16	Slopes >8%	1.00
Kettleman clay loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.92	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Permeability .6-2"/hr (some seepage)	0.08
642:					
Mercey loam, eroded	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Delgado sandy loam, eroded	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Kettleman clay loam, eroded	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat between .6 and 2"/hr	0.92	Permeability .6-2"/hr (some seepage)	0.08
643:					
Mercey loam	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
643:					
Delgado sandy loam	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00	Permeability >2”/hr (seepage)	1.00
Kettleman clay loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat between .6 and 2"/hr	0.92	Permeability .6-2"/hr (some seepage)	0.08
644:					
Mercey loam, eroded	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Kettleman clay loam, eroded	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat between .6 and 2"/hr	0.92	Permeability .6-2"/hr (some seepage)	0.08
Delgado sandy loam, eroded	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
645:					
Delgado sandy loam	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00	Permeability >2”/hr (seepage)	1.00
Mercey loam	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
Kettleman clay loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat between .6 and 2"/hr	0.92	Permeability .6-2"/hr (some seepage)	0.08

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
670:					
Badland	35	Not rated		Not rated	
Kettleman clay loam	25	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat between .6 and 2"/hr	0.92	Permeability .6-2"/hr (some seepage)	0.08
Mercey loam	25	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
680:					
Arburua loam	45	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
Morenogulch parachannery silty clay	40	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
704:					
Franciscan gravelly sandy loam	85	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
705:					
Roacha silty clay loam	85	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
706:					
Sagaser loam	85	Severe		Severe	
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) from 40 to 60"	0.42
		Depth to bedrock 40-72”	0.78		
709:					
Sagaser loam	50	Severe		Severe	
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) from 40 to 60"	0.42
		Depth to bedrock 40-72”	0.78		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
709:					
Gaviota sandy loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Borreguero sandy loam	15	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
710:					
Monoridge fine sand	45	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat >6”/hr (seepage and poor filter)	1.00	Permeability >2”/hr (seepage)	1.00
Exclose clay loam	20	Severe		Severe	
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
Badland	15	Not rated		Not rated	
711:					
Currymountain loam	45	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
Wisflat sandy loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Borreguero sandy loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
712:					
Altamont clay	40	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.13
		Depth to bedrock 40-72”	0.59		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
712:					
Roacha silty clay loam	25	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Borreguero sandy loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
713:					
Currymountain loam	45	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00	Fragments (>3") > 35%	1.00
Rock outcrop	20	Not rated		Not rated	
Quinto gravelly sandy loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
714:					
Gaviota sandy loam	45	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Borreguero sandy loam	25	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Rock outcrop	15	Not rated		Not rated	
715:					
Belgarra clay	55	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Wisflat sandy loam	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
717:					
Belgarra clay	35	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Arburua loam	30	Severe		Severe	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40″ depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
Morenogulch parachannery silty clay	15	Severe		Severe	
		Depth to bedrock <40″	1.00	Bedrock (soft) <40″ depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
718:					
Nodhill loam	35	Severe		Severe	
		Depth to bedrock <40″	1.00	Bedrock (soft) <40″ depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat between .6 and 2"/hr	0.92	Permeability .6-2"/hr (some seepage)	0.08
Wisflat sandy loam	35	Severe		Severe	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40″ depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Rock outcrop	15	Not rated		Not rated	
719:					
Nodhill loam	40	Severe		Severe	
		Depth to bedrock <40″	1.00	Bedrock (soft) <40″ depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat between .6 and 2"/hr	0.92	Permeability .6-2"/hr (some seepage)	0.08
Arburua loam	25	Severe		Severe	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40″ depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
Wisflat sandy loam	15	Severe		Severe	
		Depth to bedrock <40″	1.00	Bedrock (hard) <40″ depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40″ depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
720:					
Exclose clay loam	40	Severe		Severe	
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
Wisflat sandy loam	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Morenogulch parachannery silty clay	15	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
722:					
Exclose clay loam	40	Severe		Severe	
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
Wisflat sandy loam	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Rock outcrop	15	Not rated		Not rated	
723:					
Exclose clay loam	40	Severe		Severe	
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
Wisflat sandy loam	25	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Grazer silty clay loam	20	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.71
		Depth to bedrock 40-72”	0.89		
725:					
Gewter clay	85	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
727:					
Reliz channery loam	40	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Gewter loam	30	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	High organic matter (PT) in 50-150cm	1.00
Rock outcrop	15	Not rated		Not rated	
728:					
Climara clay	85	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (hard) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
733:					
Hentine very gravelly sandy loam	50	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Climara clay	35	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (hard) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
735:					
Getrail clay	35	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.93
		Depth to bedrock 40-72”	0.98		
Vernado sandy loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
				Permeability >2”/hr (seepage)	1.00
Rock outcrop	20	Not rated		Not rated	
737:					
Grazer silty clay loam	35	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.71
		Depth to bedrock 40-72”	0.89		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
737:					
Badland	30	Not rated		Not rated	
Wisflat sandy loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
738:					
Grazer silty clay loam	35	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.71
		Depth to bedrock 40-72”	0.89		
Belgarra clay	30	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Arburua loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
739:					
Domengine loam	40	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat between .6 and 2"/hr	0.98	Permeability .6-2"/hr (some seepage)	0.32
Wisflat sandy loam	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Rock outcrop	15	Not rated		Not rated	
740:					
Domengine loam	45	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat between .6 and 2"/hr	0.98	Permeability .6-2"/hr (some seepage)	0.32
Lilten silty clay loam	25	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.99
		Depth to bedrock <40”	1.00		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields Limitation	Value	Sewage lagoons Limitation	Value
740:					
Rock outcrop	15	Not rated		Not rated	
741:					
Anela very gravelly sandy loam	50	Severe		Severe	
		Flooding ≥ occasional	1.00	Flooding ≥ occasional	1.00
		Wetness from 4 to 6' depth	0.08	Permeability >2”/hr (seepage)	1.00
Vernalis loam	35	Moderate		Moderate	
		Ksat between .6 and 2"/hr	0.82	Permeability .6-2"/hr (some seepage)	0.50
		Flooding = rare	0.50	Flooding = rare	0.50
				Slopes 2 to 8%	0.17
742:					
Millsholm clay loam	40	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Wisflat sandy loam	25	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Lilten silty clay loam	20	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.99
		Depth to bedrock <40”	1.00		
743:					
Millsholm clay loam	50	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Borreguero sandy loam	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
744:					
Lilten silty clay loam	50	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.99
		Depth to bedrock <40”	1.00		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
744:					
Millsholm clay loam	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
745:					
Grazer silty clay loam	45	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.71
		Depth to bedrock 40-72”	0.89		
Wisflat sandy loam	25	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Arburua loam	15	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
746:					
Rock outcrop, sandstone and shale	40	Not rated		Not rated	
Wisflat sandy loam	25	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Arburua loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
747:					
Lilten silty clay	35	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.99
		Depth to bedrock <40”	1.00		
Grazer silty clay loam	30	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.71
		Depth to bedrock 40-72”	0.89		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
747:					
Arburua loam	20	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
748:					
Vaquero clay	70	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Grazer silty clay loam	20	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.71
		Depth to bedrock 40-72”	0.89		
749:					
Grazer silty clay loam	40	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.71
		Depth to bedrock 40-72”	0.89		
Wisflat sandy loam	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Exclose clay loam	15	Severe		Severe	
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
750:					
Monvero sand	50	Severe		Severe	
		Slopes >15%	1.00	Slopes >8%	1.00
				Permeability >2”/hr (seepage)	1.00
Monoridge fine sand	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat >6”/hr (seepage and poor filter)	1.00	Permeability >2”/hr (seepage)	1.00
752:					
Cyvar loam	45	Severe		Severe	
		Depth to pan <40”	1.00	Depth to pan <40”	1.00
		Slopes 8 to 15%	0.16	Slopes >8%	1.00

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitation	Value	Sewage lagoons: Limitation	Value
752:					
Nodhill loam	35	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (soft) <40" depth	1.00
		Ksat between .6 and 2"/hr	0.92	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Permeability .6-2"/hr (some seepage)	0.08
753:					
Cyvar loam	30	Severe		Severe	
		Depth to pan <40"	1.00	Depth to pan <40"	1.00
		Slopes 8 to 15%	0.16	Slopes >8%	1.00
Nodhill loam	25	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (soft) <40" depth	1.00
		Ksat between .6 and 2"/hr	0.92	Slopes >8%	1.00
		Slopes 8 to 15%	0.16	Permeability .6-2"/hr (some seepage)	0.08
Pits, gypsiferous	25	Not rated		Not rated	
755:					
Borreguero sandy loam	30	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (soft) <40" depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Grazer silty clay loam	25	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.71
		Depth to bedrock 40-72"	0.89		
Rock outcrop	20	Not rated		Not rated	
757:					
Rock outcrop	50	Not rated		Not rated	
Borreguero sandy loam	35	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (soft) <40" depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
758:					
Wisflat sandy loam	35	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40" depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields Limitation	Value	Sewage lagoons Limitation	Value
758:					
Borreguero sandy loam-------------	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Rock outcrop----------------------	25	Not rated		Not rated	
761:					
Atravesada gravelly sandy loam----	85	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00	Permeability .6-2"/hr (some seepage)	0.32
765:					
Atravesada sandy loam-------------	50	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	High organic matter (PT) in 50-150cm	1.00
Pits, asbestos--------------------	25	Not rated		Not rated	
767:					
Atravesada sandy loam-------------	50	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (soft) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00	High organic matter (PT) in 50-150cm	1.00
Pits, asbestos--------------------	25	Not rated		Not rated	
769:					
Dumps, asbestos-------------------	55	Not rated		Not rated	
Pits, asbestos--------------------	40	Not rated		Not rated	
770:					
Roacha silty clay loam------------	40	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
770:					
Millsholm clay loam	25	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Lilten silty clay loam	20	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.99
		Depth to bedrock <40”	1.00		
773:					
Hentine very gravelly sandy loam	60	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Rock outcrop	25	Not rated		Not rated	
774:					
Hentine very gravelly sandy loam	55	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Impermeable above 24"	1.00		
Franciscan gravelly sandy loam	15	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
Rock outcrop	15	Not rated		Not rated	
782, 783:					
Vaquero clay	45	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) <40” depth	1.00
		Depth to bedrock <40”	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
Altamont clay	40	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00	Bedrock (soft) from 40 to 60"	0.13
		Depth to bedrock 40-72”	0.59		
817:					
Arburua loam	88	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.50	Bedrock (soft) <40” depth	1.00
				Permeability .6-2"/hr (some seepage)	0.50

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
818:					
Arburua loam	85	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes 8 to 15%	0.63	Bedrock (soft) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
819, 820:					
Arburua loam	85	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
822:					
Altamont clay	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Slopes 2 to 8%	0.67
		Depth to bedrock 40-72”	0.59	Bedrock (soft) from 40 to 60"	0.13
823:					
Ayar clay	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Slopes 2 to 8%	0.83
		Depth to bedrock 40-72”	0.30		
827:					
Ayar clay	50	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.63		
		Depth to bedrock 40-72”	0.30		
Arburua loam	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes 8 to 15%	0.63	Bedrock (soft) <40” depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
834:					
Bapos clay loam	75	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Slopes 2 to 8%	0.50
835:					
Pedcat loam, eroded	85	Severe		Severe	
		Flooding ≥ occasional	1.00	Ponding (any duration)	1.00
		Ksat <.6"/hr (slow perc)	1.00	Flooding ≥ occasional	1.00
		Ponding (any duration)	1.00		
842:					
Quinto gravelly sandy loam	35	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Limitation	Value	Limitation	Value
842:					
Millsholm clay loam	30	Severe		Severe	
		Depth to bedrock <40”	1.00	Bedrock (hard) <40” depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40” depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Rock outcrop	20	Not rated		Not rated	
847:					
Carranza gravelly sandy loam	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Permeability .6-2"/hr (some seepage)	0.50
				Slopes 2 to 8%	0.33
849:					
Chaqua loam	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) from 40 to 60"	0.71
		Depth to bedrock 40-72”	0.89	Slopes 2 to 8%	0.50
				Permeability .6-2"/hr (some seepage)	0.18
851:					
Los Banos clay loam	85	Severe		Slight	
		Ksat <.6"/hr (slow perc)	1.00		
852:					
Los Banos clay loam	85	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Slopes 2 to 8%	0.33
853:					
Los Banos clay loam	55	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Slopes 2 to 8%	0.50
Pleito gravelly clay loam	30	Severe		Moderate	
		Ksat <.6"/hr (slow perc)	1.00	Slopes 2 to 8%	0.50
855:					
Pleito gravelly clay loam	85	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes >15%	1.00		
863:					
Vernalis loam	85	Moderate		Moderate	
		Ksat between .6 and 2"/hr	0.82	Permeability .6-2"/hr (some seepage)	0.50
		Flooding = rare	0.50	Flooding = rare	0.50

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Limitation	Value	Sewage lagoons: Limitation	Value
865:					
Conosta clay loam	85	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Bedrock (soft) <40" depth	1.00
		Depth to bedrock <40"	1.00	Slopes 2 to 8%	0.50
870, 871:					
Wisflat sandy loam	35	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40" depth	1.00
		Impermeable above 24"	1.00	Slopes >8%	1.00
Rock outcrop	30	Not rated		Not rated	
Arburua loam	20	Severe		Severe	
		Depth to bedrock <40"	1.00	Bedrock (hard) <40" depth	1.00
		Slopes >15%	1.00	Bedrock (soft) <40" depth	1.00
		Ksat between .6 and 2"/hr	0.50	Slopes >8%	1.00
872:					
Vernalis loam	90	Moderate		Moderate	
		Ksat between .6 and 2"/hr	0.82	Permeability .6-2"/hr (some seepage)	0.50
		Flooding = rare	0.50	Flooding = rare	0.50
				Slopes 2 to 8%	0.17
873:					
Narbaitz loam	60	Severe		Severe	
		Ksat <.6"/hr (slow perc)	1.00	Slopes >8%	1.00
		Slopes 8 to 15%	0.16		
Pleito gravelly clay loam	30	Severe		Severe	
		Slopes >15%	1.00	Slopes >8%	1.00
		Ksat <.6"/hr (slow perc)	1.00		
940:					
Milham sandy loam, organic surface	40	Slight		Severe	
				Permeability >2"/hr (seepage)	1.00
				High organic matter (PT) at 50-150 cm	1.00
				Slopes 2 to 8%	0.17
Polvadero sandy loam, organic surface	40	Slight		Severe	
				Permeability >2"/hr (seepage)	1.00
				High organic matter (PT) at 50-150 cm	1.00
				Slopes 2 to 8%	0.17

Table 20.--Sanitary Facilities (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields Limitation	Value	Sewage lagoons Limitation	Value
941:					
Bisgani loamy sand	45	Severe		Severe	
		Flooding ≥ occasional	1.00	Flooding ≥ occasional	1.00
		Wetness <4’ depth	1.00	Permeability >2”/hr (seepage)	1.00
		Ksat >6”/hr (seepage and poor filter)	1.00		
Elnido sandy loam	40	Severe		Severe	
		Flooding ≥ occasional	1.00	Flooding ≥ occasional	1.00
		Wetness <4’ depth	1.00	Permeability >2”/hr (seepage)	1.00
		Ksat >6”/hr (seepage and poor filter)	1.00	Wetness from 3.5 to 5' depth	0.96
950:					
Pits, gravel	85	Not rated		Not rated	
960:					
Excelsior sandy loam, sandy substratum	50	Severe		Severe	
		Flooding ≥ occasional	1.00	Ponding (any duration)	1.00
		Ponding (any duration)	1.00	Flooding ≥ occasional	1.00
		Ksat >6”/hr (seepage and poor filter)	1.00	Permeability >2”/hr (seepage)	1.00
Westhaven loam	30	Severe		Severe	
		Flooding ≥ occasional	1.00	Ponding (any duration)	1.00
		Ponding (any duration)	1.00	Flooding ≥ occasional	1.00
		Ksat <.6"/hr (slow perc)	1.00	Permeability .6-2"/hr (some seepage)	0.08
980:					
Urban land	97	Not rated		Not rated	
981:					
Sewage disposal ponds	100	Not rated		Not rated	
982:					
Water	100	Not rated		Not rated	

The interpretation for *septic tanks 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 rapid, 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 rapid, allowing seepage.

Table 21.--Sanitary Facilities (Part 2)

(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 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	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
101:							
Armona loam, partially drained----	85	Severe		Severe		Poor	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00	SAR >13 and not aridic climate	1.00
		SAR >13 and not aridic climate	1.00	Rare flooding	0.40	Silt or clay textures from 10-60"	0.50
		Rare flooding	0.50			Clay loam, silty clay, silty clay loam	0.50
107:							
Anela very gravelly sandy loam----	85	Moderate		Severe		Poor	
		Rare flooding	0.50	Seepage in 20-40" depth	1.00	Fragments (<75 mm) >50%	1.00
				Rare flooding	0.40	Permeability >2.0 in/hr	0.50
115:							
Bolfar loam, drained--------------	85	Moderate		Moderate		Good	
		Rare flooding	0.50	Rare flooding	0.40		
120:							
Altaslough clay loam--------------	85	Severe		Moderate		Poor	
		SAR >13 and not aridic climate	1.00	Very rare flooding	0.20	SAR >13 and not aridic climate	1.00
		Clay loam, silty clay, silty clay loam	0.50			Silt or clay textures from 10-60"	0.50
						Clay loam, silty clay, silty clay loam	0.50
130:							
Gepford clay----------------------	85	Severe		Severe		Poor	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00	Rare flooding	0.40	Packing (OL, OH, CH, or MH)	1.00
		SAR >13 and not aridic climate	1.00			Clay or silty clay	1.00
282:							
Tachi clay------------------------	91	Severe		Severe		Poor	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00	Rare flooding	0.40	Packing (OL, OH, CH, or MH)	1.00
		SAR >13 and not aridic climate	1.00			Clay or silty clay	1.00

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
284:							
Lillis clay	85	Severe		Severe		Poor	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00	SAR >13 and not aridic climate	1.00
		SAR >13 and not aridic climate	1.00	Very rare flooding	0.20	EC >16 dS/m and not arid	1.00
		Clay or silty clay	1.00			Silty clay or clay 10-60"	1.00
285:							
Tranquillity clay, saline-sodic	60	Severe		Moderate		Poor	
		Clay or silty clay	1.00	Very rare flooding	0.20	Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
						Clay or silty clay	1.00
Tranquillity clay, saline-sodic, wet	25	Severe		Severe		Poor	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00	SAR >13 and not aridic climate	1.00
		SAR >13 and not aridic climate	1.00	Very rare flooding	0.20	Silty clay or clay 10-60”	1.00
		Clay or silty clay	1.00			Packing (OL, OH, CH, or MH)	1.00
286:							
Tranquillity clay, saline-sodic, wet	85	Severe		Severe		Poor	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00	SAR >13 and not aridic climate	1.00
		SAR >13 and not aridic climate	1.00	Rare flooding	0.40	Silty clay or clay 10-60”	1.00
		Clay or silty clay	1.00			Packing (OL, OH, CH, or MH)	1.00
311:							
Bisgani sandy loam, drained	85	Severe		Severe		Poor	
		Sandy textures (cos, s, fs, lcos, or vfs)	1.00	Seepage in 20-40" depth	1.00	Texture of s, fs, cos, sg	1.00
		Seepage in bottom layer	1.00	Rare flooding	0.40	Permeability >2.0 in/hr	1.00
		Rare flooding	0.50				
320:							
Elnido sandy loam, drained	85	Severe		Severe		Poor	
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	SAR >13 and not aridic climate	1.00
		SAR >13 and not aridic climate	1.00	Rare flooding	0.40	Permeability >2.0 in/hr	0.04
		Rare flooding	0.50				
325:							
Palazzo sandy loam, drained	85	Moderate		Severe		Fair	
		Rare flooding	0.50	Seepage in 20-40" depth	1.00	Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, silty clay loam	0.50	Rare flooding	0.40	Clay loam, silty clay, silty clay loam	0.50

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
375:							
Lethent silt loam	85	Severe		Moderate		Good	
		EC >16 dS/m	1.00	Very rare flooding	0.20		
376:							
Agnal silty clay	90	Severe		Moderate		Poor	
		Wetness <6’ depth	1.00	Very rare flooding	0.20	Packing (OL, OH, CH, or MH)	1.00
		EC >16 dS/m	1.00				
404:							
Milham sandy loam	55	Slight		Slight		Fair	
						Permeability >2.0 in/hr	0.63
Guijarral sandy loam	30	Moderate		Moderate		Poor	
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50	Slopes 8 to 15%	0.16	Permeability >2.0 in/hr	1.00
		Slopes 8 to 15%	0.16			Texture of lcos, ls, lfs, vfs	0.50
						Slopes 8 to 15%	0.16
405:							
Polvadero sandy loam	55	Moderate		Moderate		Fair	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16
						Permeability >2.0 in/hr	0.00
Guijarral sandy loam	30	Moderate		Moderate		Poor	
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50	Slopes 8 to 15%	0.16	Permeability >2.0 in/hr	1.00
		Slopes 8 to 15%	0.16			Texture of lcos, ls, lfs, vfs	0.50
						Slopes 8 to 15%	0.16
406:							
Guijarral sandy loam	85	Moderate		Slight		Poor	
		Sandy textures (cosl, ls, lfs, or lvfs)	0.50			Permeability >2.0 in/hr	1.00
						Texture of lcos, ls, lfs, vfs	0.50
						Fragments (<75 mm) 25-50%	0.01
412:							
Yribarren clay loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
414:							
Dospalos clay loam, drained	85	Moderate		Moderate		Poor	
		Clay loam, silty clay, silty clay loam	0.50	Very rare flooding	0.20	Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
						Clay loam, silty clay, silty clay loam	0.50

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
415:							
Dospalos clay, drained	85	Moderate		Moderate		Poor	
		Clay loam, silty clay, silty clay loam	0.50	Very rare flooding	0.20	Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
						Clay loam, silty clay, silty clay loam	0.50
425, 426:							
Kimberlina sandy loam	85	Slight		Moderate		Fair	
				Very rare flooding	0.20	Permeability >2.0 in/hr	0.31
434:							
Lethent clay loam, wet	85	Severe		Severe		Good	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00		
		Rare flooding	0.50	Rare flooding	0.40		
435:							
Lethent clay loam	90	Slight		Moderate		Good	
				Very rare flooding	0.20		
436:							
Panoche loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
437:							
Panoche sandy loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
438:							
Panoche loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
442:							
Panoche clay loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
445:							
Excelsior sandy loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
447:							
Excelsior sandy loam, sandy substratum	85	Moderate		Moderate		Good	
		Rare flooding	0.50	Rare flooding	0.40		
448:							
Excelsior loamy sand, sandy substratum	88	Slight		Moderate		Good	
				Very rare flooding	0.20		

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
451:							
Milham sandy loam	85	Slight		Moderate		Fair	
				Very rare flooding	0.20	Permeability >2.0 in/hr	0.63
452:							
Milham sandy loam	89	Slight		Slight		Fair	
						Permeability >2.0 in/hr	0.63
453:							
Milham sandy loam	85	Slight		Slight		Fair	
						Permeability >2.0 in/hr	0.63
454:							
Polvadero sandy loam	85	Slight		Moderate		Fair	
				Very rare flooding	0.20	Permeability >2.0 in/hr	0.00
455:							
Polvadero sandy loam	85	Slight		Slight		Fair	
						Permeability >2.0 in/hr	0.00
459:							
Ciervo clay	80	Slight		Moderate		Poor	
				Very rare flooding	0.20	Packing (OL, OH, CH, or MH)	1.00
461:							
Ciervo clay, saline-sodic, wet	80	Severe		Severe		Poor	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00	Packing (OL, OH, CH, or MH)	1.00
		Rare flooding	0.50	Rare flooding	0.40		
462:							
Ciervo clay, saline-sodic, wet	50	Severe		Severe		Poor	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00	Packing (OL, OH, CH, or MH)	1.00
				Very rare flooding	0.20		
Ciervo clay, saline-sodic	30	Slight		Moderate		Poor	
				Very rare flooding	0.20	Packing (OL, OH, CH, or MH)	1.00
466:							
Paver clay loam	85	Moderate		Moderate		Fair	
		Clay loam, silty clay, silty clay loam	0.50	Very rare flooding	0.20	Silt or clay textures from 10-60"	0.50
						Clay loam, silty clay, silty clay loam	0.50
468:							
Deldota clay, partially drained	85	Severe		Severe		Poor	
		Wetness <6’ depth	1.00	Wetness <5’ depth	1.00	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00	Very rare flooding	0.20	Packing (OL, OH, CH, or MH)	1.00
						Clay or silty clay	1.00

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
470:							
Chateau clay, partially drained	85	Severe		Severe		Poor	
		Wetness <6' depth	1.00	Wetness <5' depth	1.00	Packing (OL, OH, CH, or MH)	1.00
		SAR >13 and not aridic climate	1.00	Very rare flooding	0.20	SAR >13 and not aridic climate	1.00
		Clay loam, silty clay, silty clay loam	0.50			EC > 16mmhos and not arid	0.88
472:							
Wekoda clay, partially drained	85	Severe		Severe		Poor	
		Wetness <6' depth	1.00	Wetness <5' depth	1.00	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00	Very rare flooding	0.20	Packing (OL, OH, CH, or MH)	1.00
						Clay or silty clay	1.00
474:							
Westhaven loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
475:							
Posochanet clay loam, saline-sodic, wet	88	Severe		Severe		Good	
		Wetness <6' depth	1.00	Wetness <5' depth	1.00		
		Rare flooding	0.50	Rare flooding	0.40		
476:							
Posochanet clay loam, saline-sodic	88	Slight		Moderate		Good	
				Very rare flooding	0.20		
477:							
Westhaven clay loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
478:							
Cerini sandy loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
479:							
Cerini clay loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
480:							
Calflax clay loam, saline-sodic	85	Slight		Moderate		Good	
				Very rare flooding	0.20		
481:							
Cerini clay loam	85	Slight		Moderate		Good	
				Very rare flooding	0.20		

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
482:							
Calflax clay loam, saline-sodic, wet	85	Severe		Severe		Good	
		Wetness <6' depth	1.00	Wetness <5' depth	1.00		
		Rare flooding	0.50	Rare flooding	0.40		
488, 489:							
Wasco sandy loam	85	Slight		Moderate		Fair	
				Very rare flooding	0.20	Permeability >2.0 in/hr	0.31
490:							
Cerini sandy loam, subsided	85	Moderate		Moderate		Good	
		Rare flooding	0.50	Rare flooding	0.40		
491:							
Cerini clay loam, subsided	85	Moderate		Moderate		Good	
		Rare flooding	0.50	Rare flooding	0.40		
492:							
Panoche loam, subsided	85	Moderate		Moderate		Good	
		Rare flooding	0.50	Rare flooding	0.40		
493:							
Panoche clay loam, subsided	85	Moderate		Moderate		Good	
		Rare flooding	0.50	Rare flooding	0.40		
587:							
Mugatu fine sandy loam	85	Slight		Slight		Fair	
						Permeability >2.0 in/hr	0.63
588:							
Mugatu fine sandy loam	85	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
						Permeability >2.0 in/hr	0.63
590:							
Cerini sandy loam	30	Moderate		Moderate		Good	
		Rare flooding	0.50	Rare flooding	0.40		
Anela very gravelly sandy loam	30	Severe		Severe		Poor	
		Flooding ≥ occasional	1.00	Seepage in 20-40" depth	1.00	Fragments (<75 mm) >50%	1.00
		Wetness <6' depth	1.00	Occasional flooding	0.60	Permeability >2.0 in/hr	0.50
Fluvaquents, saline-sodic	20	Severe		Severe		Poor	
		Flooding ≥ occasional	1.00	Wetness <5' depth	1.00	SAR >13 and not aridic climate	1.00
		Wetness <6' depth	1.00	Frequent flooding	0.80	Wetness <18" depth	1.00

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
620:							
Delgado sandy loam, eroded	85	Severe		Moderate		Poor	
		Lithic or paralithic bedrock <72"	1.00	Slopes 8 to 15%	0.16	Depth to bedrock <40"	1.00
		Slopes 8 to 15%	0.16			Slopes 8 to 15%	0.16
						Permeability >2.0 in/hr	0.09
621:							
Delgado sandy loam, eroded	85	Severe		Severe		Poor	
		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
						Permeability >2.0 in/hr	0.09
640:							
Kettleman clay loam, eroded	35	Severe		Severe		Poor	
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
		Clay loam, silty clay, silty clay loam	0.50	Slopes 8 to 15%	0.16	Silt or clay textures from 10-60"	0.50
		Slopes 8 to 15%	0.16			Clay loam, silty clay, silty clay loam	0.50
Delgado sandy loam, eroded	30	Severe		Moderate		Poor	
		Lithic or paralithic bedrock <72"	1.00	Slopes 8 to 15%	0.16	Depth to bedrock <40"	1.00
		Slopes 8 to 15%	0.16			Slopes 8 to 15%	0.16
						Permeability >2.0 in/hr	0.09
Mercey loam, eroded	20	Severe		Moderate		Poor	
		Lithic or paralithic bedrock <72"	1.00	Slopes 8 to 15%	0.16	Depth to bedrock <40"	1.00
		Slopes 8 to 15%	0.16			Slopes 8 to 15%	0.16
641:							
Mercey loam	35	Severe		Moderate		Poor	
		Lithic or paralithic bedrock <72"	1.00	Slopes 8 to 15%	0.16	Depth to bedrock <40"	1.00
		Slopes 8 to 15%	0.16			Slopes 8 to 15%	0.16
Delgado sandy loam	30	Severe		Moderate		Poor	
		Lithic or paralithic bedrock <72"	1.00	Slopes 8 to 15%	0.16	Depth to bedrock <40"	1.00
		Slopes 8 to 15%	0.16			Slopes 8 to 15%	0.16
						Permeability >2.0 in/hr	0.09
Kettleman clay loam	20	Severe		Severe		Poor	
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
		Clay loam, silty clay, silty clay loam	0.50	Slopes 8 to 15%	0.16	Silt or clay textures from 10-60"	0.50
		Slopes 8 to 15%	0.16			Clay loam, silty clay, silty clay loam	0.50

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
642:							
Mercey loam, eroded	35	Severe		Severe		Poor	
		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
Delgado sandy loam, eroded	30	Severe		Severe		Poor	
		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
						Permeability >2.0 in/hr	0.09
Kettleman clay loam, eroded	20	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50
643:							
Mercey loam	35	Severe		Severe		Poor	
		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
Delgado sandy loam	30	Severe		Severe		Poor	
		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
						Permeability >2.0 in/hr	0.09
Kettleman clay loam	20	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50
644:							
Mercey loam, eroded	35	Severe		Severe		Poor	
		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
Kettleman clay loam, eroded	30	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
644:							
Delgado sandy loam, eroded	20	Severe		Severe		Poor	
		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
						Permeability >2.0 in/hr	0.09
645:							
Delgado sandy loam	35	Severe		Severe		Poor	
		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
						Permeability >2.0 in/hr	0.09
Mercey loam	30	Severe		Severe		Poor	
		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
Kettleman clay loam	20	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50
670:							
Badland	35	Not rated		Not rated		Not rated	
Kettleman clay loam	25	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50
Mercey loam	25	Severe		Severe		Poor	
		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
680:							
Arburua loam	45	Severe		Severe		Poor	
		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 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
680:							
Morenogulch parachannery silty clay-----------------------------	40	Severe		Severe		Poor	
		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
704:							
Franciscan gravelly sandy loam----	85	Severe		Severe		Poor	
		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%	0.07
705:							
Roacha silty clay loam------------	85	Severe		Severe		Poor	
		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				
706:							
Sagaser loam----------------------	85	Severe		Severe		Poor	
		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, silty clay loam	0.50			Clay loam, silty clay, silty clay loam	0.50
709:							
Sagaser loam----------------------	50	Severe		Severe		Poor	
		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, silty clay loam	0.50			Clay loam, silty clay, silty clay loam	0.50
Gaviota sandy loam----------------	20	Severe		Severe		Poor	
		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	0.31
		Seepage in bottom layer	1.00				
Borreguero sandy loam-------------	15	Severe		Severe		Poor	
		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 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
710:							
Monoridge fine sand	45	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40”	1.00
		Lithic or paralithic bedrock <72”	1.00	Seepage in 20-40" depth	1.00	Slopes >15%	1.00
		Sandy textures (cos, s, fs, lcos, or vfs)	1.00	Bedrock depth <40”	1.00	Texture of s, fs, cos, sg	1.00
Exclose clay loam	20	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
Badland	15	Not rated		Not rated		Not rated	
711:							
Currymountain loam	45	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50
Wisflat sandy loam	20	Severe		Severe		Poor	
		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	0.50
Borreguero sandy loam	20	Severe		Severe		Poor	
		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
712:							
Altamont clay	40	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00			Packing (OL, OH, CH, or MH)	1.00
						Depth to bedrock from 40-60"	0.14
Roacha silty clay loam	25	Severe		Severe		Poor	
		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
Borreguero sandy loam	20	Severe		Severe		Poor	
		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 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
713:							
Currymountain loam----------------	45	Severe		Severe		Poor	
		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 (3-10") > 35%	1.00			Fragments (>3”) 25-50%	0.63
Rock outcrop----------------------	20	Not rated		Not rated		Not rated	
Quinto gravelly sandy loam--------	20	Severe		Severe		Poor	
		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%	0.16
714:							
Gaviota sandy loam----------------	45	Severe		Severe		Poor	
		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	0.31
Borreguero sandy loam-------------	25	Severe		Severe		Poor	
		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	
715:							
Belgarra clay---------------------	55	Severe		Severe		Poor	
		Clay or silty clay	1.00	Slopes >15%	1.00	Silty clay or clay 10-60"	1.00
		Slopes >15%	1.00			Packing (OL, OH, CH, or MH)	1.00
						Clay or silty clay	1.00
Wisflat sandy loam----------------	30	Severe		Severe		Poor	
		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	0.50
717:							
Belgarra clay---------------------	35	Severe		Severe		Poor	
		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 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
717:							
Arburua loam	30	Severe		Severe		Poor	
		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
Morenogulch parachannery silty clay	15	Severe		Severe		Poor	
		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
718:							
Nodhill loam	35	Severe		Severe		Poor	
		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
Wisflat sandy loam	35	Severe		Severe		Poor	
		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				
Rock outcrop	15	Not rated		Not rated		Not rated	
719:							
Nodhill loam	40	Severe		Severe		Poor	
		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
Arburua loam	25	Severe		Severe		Poor	
		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
Wisflat sandy loam	15	Severe		Severe		Poor	
		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				
720:							
Exclose clay loam	40	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
720:							
Wisflat sandy loam	30	Severe		Severe		Poor	
		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	0.50
Morenogulch parachannery silty clay	15	Severe		Severe		Poor	
		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
722:							
Exclose clay loam	40	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
Wisflat sandy loam	30	Severe		Severe		Poor	
		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	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
723:							
Exclose clay loam	40	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
Wisflat sandy loam	25	Severe		Severe		Poor	
		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	0.50
Grazer silty clay loam	20	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.71	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00			Packing (OL, OH, CH, or MH)	1.00
725:							
Gewter clay	85	Severe		Severe		Poor	
		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

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
727:							
Reliz channery loam	40	Severe		Severe		Poor	
		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
		Clay loam, silty clay, silty clay loam	0.50			Slopes >15%	1.00
Gewter loam	30	Severe		Severe		Poor	
		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
Rock outcrop	15	Not rated		Not rated		Not rated	
728:							
Climara clay	85	Severe		Severe		Poor	
		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
733:							
Hentine very gravelly sandy loam	50	Severe		Severe		Poor	
		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
		Clay loam, silty clay, silty clay loam	0.50			Slopes >15%	1.00
Climara clay	35	Severe		Severe		Poor	
		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
735:							
Getrail clay	35	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00			Packing (OL, OH, CH, or MH)	1.00
						Depth to bedrock from 40-60"	0.94
Vernado sandy loam	20	Severe		Severe		Poor	
		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	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	0.31
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
737:							
Grazer silty clay loam------------	35	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.71	Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
		Clay or silty clay	1.00				
Badland---------------------------	30	Not rated		Not rated		Not rated	
Wisflat sandy loam----------------	20	Severe		Severe		Poor	
		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				
738:							
Grazer silty clay loam------------	35	Severe		Severe		Poor	
		Lithic or paralithic bedrock <72”	1.00	Slopes >15%	1.00	Silty clay or clay 10-60"	1.00
				Bedrock depth from 40-60”	0.71	Packing (OL, OH, CH, or MH)	1.00
		Clay or silty clay	1.00			Clay or silty clay	1.00
		Slopes >15%	1.00				
Belgarra clay---------------------	30	Severe		Severe		Poor	
		Clay or silty clay	1.00	Slopes >15%	1.00	Silty clay or clay 10-60"	1.00
		Slopes >15%	1.00			Packing (OL, OH, CH, or MH)	1.00
						Clay or silty clay	1.00
Arburua loam----------------------	20	Severe		Severe		Poor	
		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
739:							
Domengine loam--------------------	40	Severe		Severe		Poor	
		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, silty clay loam	0.50				
Wisflat sandy loam----------------	30	Severe		Severe		Poor	
		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				
Rock outcrop----------------------	15	Not rated		Not rated		Not rated	

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
740:							
Domengine loam	45	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50
Lilten silty clay loam	25	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.99	Packing (OL, OH, CH, or MH)	1.00
		Clay loam, silty clay, silty clay loam	0.50			Depth to bedrock from 40-60”	0.99
Rock outcrop	15	Not rated		Not rated		Not rated	
741:							
Anela very gravelly sandy loam	50	Severe		Severe		Poor	
		Flooding ≥ occasional	1.00	Seepage in 20-40" depth	1.00	Fragments (<75 mm) >50%	1.00
		Wetness <6’ depth	1.00	Occasional flooding	0.60	Permeability >2.0 in/hr	0.50
Vernalis loam	35	Moderate		Moderate		Fair	
		Rare flooding	0.50	Rare flooding	0.40	Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, silty clay loam	0.50			Clay loam, silty clay, silty clay loam	0.50
742:							
Millsholm clay loam	40	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50
Wisflat sandy loam	25	Severe		Severe		Poor	
		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	0.50
Lilten silty clay loam	20	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.99	Packing (OL, OH, CH, or MH)	1.00
		Clay loam, silty clay, silty clay loam	0.50			Depth to bedrock from 40-60”	0.99

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
743:							
Millsholm clay loam	50	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60″	0.50
Borreguero sandy loam	35	Severe		Severe		Poor	
		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
744:							
Lilten silty clay loam	50	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72″	1.00	Bedrock depth from 40-60"	0.99	Packing (OL, OH, CH, or MH)	1.00
		Clay loam, silty clay, silty clay loam	0.50			Depth to bedrock from 40-60″	0.99
Millsholm clay loam	35	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60″	0.50
745:							
Grazer silty clay loam	45	Severe		Severe		Poor	
		Lithic or paralithic bedrock <72″	1.00	Slopes >15%	1.00	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00	Bedrock depth from 40-60″	0.71	Packing (OL, OH, CH, or MH)	1.00
		Slopes >15%	1.00			Clay or silty clay	1.00
Wisflat sandy loam	25	Severe		Severe		Poor	
		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	0.50
Arburua loam	15	Severe		Severe		Poor	
		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

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
746:							
Rock outcrop, sandstone and shale	40	Not rated		Not rated		Not rated	
Wisflat sandy loam	25	Severe		Severe		Poor	
		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	0.50
Arburua loam	20	Severe		Severe		Poor	
		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
747:							
Lilten silty clay	35	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.99	Packing (OL, OH, CH, or MH)	1.00
		Clay loam, silty clay, silty clay loam	0.50			Depth to bedrock from 40-60”	0.99
Grazer silty clay loam	30	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.71	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00			Packing (OL, OH, CL, or MH)	1.00
Arburua loam	20	Severe		Severe		Poor	
		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
748:							
Vaquero clay	70	Severe		Severe		Poor	
		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
Grazer silty clay loam	20	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.71	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00			Packing (OL, OH, CH, or MH)	1.00

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
749:							
Grazer silty clay loam	40	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth from 40-60"	0.71	Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
		Clay or silty clay	1.00				
Wisflat sandy loam	30	Severe		Severe		Poor	
		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				
Exclose clay loam	15	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
750:							
Monvero sand	50	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Seepage in bottom layer	1.00	Seepage in 20-40" depth	1.00	Texture of lcos, ls, lfs, vfs	0.50
		Sandy textures (cosl, ls lfs, or lvfs)	0.50			Permeability >2.0 in/hr	0.31
Monoridge fine sand	35	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Depth to bedrock <40"	1.00
		Lithic or paralithic bedrock <72"	1.00	Seepage in 20-40" depth	1.00	Slopes >15%	1.00
				Bedrock depth <40"	1.00	Texture of s, fs, cos, sg	1.00
		Sandy textures (cos, s, fs, lcos, or vfs)	1.00				
752:							
Cyvar loam	45	Severe		Severe		Poor	
		Depth to thick cemented pan	1.00	Depth to pan <40"	1.00	Depth to pan <40"	1.00
		Clay loam, silty clay, silty clay loam	0.50	Slopes 8 to 15%	0.16	Silt or clay textures from 10-60"	0.50
		Slopes 8 to 15%	0.16			Clay loam, silty clay, silty clay loam	0.50
Nodhill loam	35	Severe		Severe		Poor	
		Lithic or paralithic bedrock <72"	1.00	Bedrock depth <40"	1.00	Depth to bedrock <40"	1.00
		Slopes 8 to 15%	0.16				

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
753:							
Cyvar loam	30	Severe		Severe		Poor	
		Depth to thick cemented pan	1.00	Depth to pan <40”	1.00	Depth to pan <40”	1.00
		Clay loam, silty clay, silty clay loam	0.50	Slopes 8 to 15%	0.16	Silt or clay textures from 10-60"	0.50
		Slopes 8 to 15%	0.16			Clay loam, silty clay, silty clay loam	0.50
Nodhill loam	25	Severe		Severe		Poor	
		Lithic or paralithic bedrock <72”	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	Slopes 8 to 15%	0.16
Pits, gypsiferous	25	Not rated		Not rated		Not rated	
755:							
Borreguero sandy loam	30	Severe		Severe		Poor	
		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
Grazer silty clay loam	25	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.71	Silty clay or clay 10-60"	1.00
		Clay or silty clay	1.00			Packing (OL, OH, CH, or MH)	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
757:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Borreguero sandy loam	35	Severe		Severe		Poor	
		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
758:							
Wisflat sandy loam	35	Severe		Severe		Poor	
		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	0.50
Borreguero sandy loam	30	Severe		Severe		Poor	
		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 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
758:							
Rock outcrop	25	Not rated		Not rated		Not rated	
761:							
Atravesada gravelly sandy loam	85	Severe		Severe		Poor	
		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
765:							
Atravesada sandy loam	50	Severe		Severe		Poor	
		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
Pits, asbestos	25	Not rated		Not rated		Not rated	
767:							
Atravesada sandy loam	50	Severe		Severe		Poor	
		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
Pits, asbestos	25	Not rated		Not rated		Not rated	
769:							
Dumps, asbestos	55	Not rated		Not rated		Not rated	
Pits, asbestos	40	Not rated		Not rated		Not rated	
770:							
Roacha silty clay loam	40	Severe		Severe		Poor	
		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
Millsholm clay loam	25	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
770:							
Lilten silty clay loam------------	20	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.99	Packing (OL, OH, CH, or MH)	1.00
		Clay loam, silty clay, silty clay loam	0.50			Depth to bedrock from 40-60”	0.99
773:							
Hentine very gravelly sandy loam--	60	Severe		Severe		Poor	
		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
		Clay loam, silty clay, silty clay loam	0.50			Slopes >15%	1.00
Rock outcrop----------------------	25	Not rated		Not rated		Not rated	
774:							
Hentine very gravelly sandy loam--	55	Severe		Severe		Poor	
		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
		Clay loam, silty clay, silty clay loam	0.50			Slopes >15%	1.00
Franciscan gravelly sandy loam----	15	Severe		Severe		Poor	
		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%	0.07
Rock outcrop----------------------	15	Not rated		Not rated		Not rated	
782, 783:							
Vaquero clay----------------------	45	Severe		Severe		Poor	
		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
Altamont clay---------------------	40	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
		Lithic or paralithic bedrock <72”	1.00			Packing (OL, OH, CH, or MH)	1.00
						Depth to bedrock from 40-60"	0.14
817:							
Arburua loam----------------------	88	Severe		Severe		Poor	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
818:							
Arburua loam	85	Severe		Severe		Poor	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
		Slopes 8 to 15%	0.63	Slopes 8 to 15%	0.63	Slopes 8 to 15%	0.63
819, 820:							
Arburua loam	85	Severe		Severe		Poor	
		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
822:							
Altamont clay	85	Severe		Slight		Poor	
		Lithic or paralithic bedrock <72”	1.00			Packing (OL, OH, CH, or MH)	1.00
						Depth to bedrock from 40-60"	0.14
823:							
Ayar clay	85	Severe		Slight		Poor	
		Lithic or paralithic bedrock <72”	1.00			Packing (OL, OH, CH, or MH)	1.00
827:							
Ayar clay	50	Severe		Moderate		Poor	
		Lithic or paralithic bedrock <72”	1.00	Slopes 8 to 15%	0.63	Packing (OL, OH, CH, or MH)	1.00
		Slopes 8 to 15%	0.63			Slopes 8 to 15%	0.63
Arburua loam	35	Severe		Severe		Poor	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth <40”	1.00	Depth to bedrock <40”	1.00
		Slopes 8 to 15%	0.63	Slopes 8 to 15%	0.63	Slopes 8 to 15%	0.63
834:							
Bapos clay loam	75	Severe		Slight		Poor	
		Clay or silty clay	1.00			Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
						Clay or silty clay	1.00
835:							
Pedcat loam, eroded	85	Severe		Severe		Poor	
		Flooding ≥ occasional	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Ponding (any duration)	1.00	Occasional flooding	0.60	SAR >13 and not aridic climate	1.00
		SAR >13 and not aridic climate	1.00				

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
842:							
Quinto gravelly sandy loam	35	Severe		Severe		Poor	
		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%	0.16
Millsholm clay loam	30	Severe		Severe		Poor	
		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, silty clay loam	0.50			Silt or clay textures from 10-60”	0.50
Rock outcrop	20	Not rated		Not rated		Not rated	
847:							
Carranza gravelly sandy loam	85	Slight		Slight		Fair	
						Fragments (<75 mm) 25-50%	0.85
849:							
Chaqua loam	85	Severe		Moderate		Fair	
		Lithic or paralithic bedrock <72”	1.00	Bedrock depth from 40-60"	0.71	Depth to bedrock from 40-60"	0.71
851, 852:							
Los Banos clay loam	85	Severe		Slight		Poor	
		Clay or silty clay	1.00			Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
						Clay or silty clay	1.00
853:							
Los Banos clay loam	55	Severe		Slight		Poor	
		Clay or silty clay	1.00			Silty clay or clay 10-60"	1.00
						Packing (OL, OH, CH, or MH)	1.00
						Clay or silty clay	1.00
Pleito gravelly clay loam	30	Slight		Slight		Fair	
						Fragments (<75 mm) 25-50%	0.05
855:							
Pleito gravelly clay loam	85	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.05

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
863:							
Vernalis loam	85	Moderate		Moderate		Fair	
		Rare flooding	0.50	Rare flooding	0.40	Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, silty clay loam	0.50			Clay loam, silty clay, silty clay loam	0.50
865:							
Conosta clay loam	85	Severe		Severe		Poor	
		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			Clay or silty clay	1.00
870, 871:							
Wisflat sandy loam	35	Severe		Severe		Poor	
		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				
Rock outcrop	30	Not rated		Not rated		Not rated	
Arburua loam	20	Severe		Severe		Poor	
		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
872:							
Vernalis loam	90	Moderate		Moderate		Fair	
		Rare flooding	0.50	Rare flooding	0.40	Silt or clay textures from 10-60"	0.50
		Clay loam, silty clay, silty clay loam	0.50			Clay loam, silty clay, silty clay loam	0.50
873:							
Narbaitz loam	60	Moderate		Moderate		Fair	
		Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16	Slopes 8 to 15%	0.16
Pleito gravelly clay loam	30	Severe		Severe		Poor	
		Slopes >15%	1.00	Slopes >15%	1.00	Slopes >15%	1.00
						Fragments (<75 mm) 25-50%	0.05

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
940:							
Milham sandy loam, organic surface	40	Severe		Slight		Poor	
		Organic matter (PT, OL or OH)	1.00			Organic matter (PT)	1.00
						Permeability >2.0 in/hr	0.63
Polvadero sandy loam, organic surface	40	Severe		Slight		Poor	
		Organic matter (PT, OL or OH)	1.00			Organic matter (PT)	1.00
						Permeability >2.0 in/hr	0.00
941:							
Bisgani loamy sand	45	Severe		Severe		Poor	
		Flooding ≥ occasional	1.00	Wetness <5’ depth	1.00	Texture of s, fs, cos, sg	1.00
		Wetness <6’ depth	1.00	Seepage in 20-40" depth	1.00	Permeability >2.0 in/hr	1.00
		Sandy textures (cos, s, fs, lcos, or vfs)	1.00	Frequent flooding	0.80	Wetness <18” depth	1.00
Elnido sandy loam	40	Severe		Severe		Poor	
		Flooding ≥ occasional	1.00	Wetness <5’ depth	1.00	SAR >13 and not aridic climate	1.00
		Wetness <6’ depth	1.00	Seepage in 20-40” depth	1.00		
		Seepage in bottom layer	1.00	Frequent flooding	0.80	Wetness <18” depth	1.00
						Permeability >2.0 in/hr	0.04
950:							
Pits, gravel	85	Not rated		Not rated		Not rated	
960:							
Excelsior sandy loam, sandy substratum	50	Severe		Severe		Poor	
		Flooding ≥ occasional	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Ponding (any duration)	1.00	Occasional flooding	0.60		
Westhaven loam	30	Severe		Severe		Poor	
		Flooding ≥ occasional	1.00	Ponding (any duration)	1.00	Ponding (any duration)	1.00
		Ponding (any duration)	1.00	Occasional flooding	0.60		
980:							
Urban land	97	Not rated		Not rated		Not rated	

Table 21.--Sanitary Facilities (Part 2)--Continued

Map symbol and soil name	of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Limitation	Value	Limitation	Value	Limitation	Value
981:							
Sewage disposal ponds	100	Not rated		Not rated		Not rated	
982:							
Water	100	Not rated		Not rated		Not rated	

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, equal to, 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 22.--Construction Materials (Part 1)

(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. A value of 0.00 indicates an absolute limitation 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 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 a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101:							
Armona loam, partially drained	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
107:							
Anela very gravelly sandy loam	85	Fair source		Fair source		Poor source	
		Thickest layer a possible source	0.25	Thickest a layer possible source	0.10	Bulk density >1.8 in upper 20" depth	0.00
		Bottom layer a possible source	0.50	Bottom layer a possible source	0.26	Hard to reclaim	0.00
						Rock fragment content	0.00
						Sand fractions 75-85%	0.68
115:							
Bolfar loam, drained	85	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		
120:							
Altaslough clay loam	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
						Calcium carbonates 15-40%	0.92
130:							
Gepford clay	85	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	SAR >13	0.00
						EC 4 to 8 dS/m	0.50
282:							
Tachi clay	91	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	SAR >13	0.00

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
284:							
Lillis clay	85	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	SAR >13	0.00
						EC >8 dS/m	0.00
285:							
Tranquillity clay, saline-sodic	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	SAR 4 to 13	0.98
Tranquillity clay, saline-sodic, wet	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	SAR >13	0.00
						EC >8 dS/m	0.00
286:							
Tranquillity clay, saline-sodic, wet	85	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	SAR >13	0.00
						EC >8 dS/m	0.00
311:							
Bisgani sandy loam, drained	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.04	Sand fractions >85%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.12		
320:							
Elnido sandy loam, drained	85	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.02	SAR 4 to 13	0.40
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.11		
325:							
Palazzo sandy loam, drained	85	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.90
		Thickest layer not a source due to fines or thin layer	0.00	Thickest a layer possible source	0.02		

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
375:							
Lethent silt loam-------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
						Clay >40%	0.00
376:							
Agnal silty clay--------	90	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	SAR >13	0.00
						EC >8 dS/m	0.00
404:							
Milham sandy loam-------	55	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.03		
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.09		
Guijarral sandy loam----	30	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.03	Rock fragment content	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.08	Slope 8 to 12%	0.84
						Hard to reclaim	0.92
405:							
Polvadero sandy loam----	55	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.01	SAR >13	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.03	Calcium carbonates 15-40%	0.46
						Slope 8 to 12%	0.84
Guijarral sandy loam----	30	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.03	Rock fragment content	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.08	Slope 8 to 12%	0.84
						Hard to reclaim	0.92
406:							
Guijarral sandy loam----	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.03	Rock fragment content	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.08	Hard to reclaim	0.92

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
412:							
Yribarren clay loam-----	85	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	SAR 4 to 13	0.78
414:							
Dospalos clay loam, drained----------------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40%	0.08
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
415:							
Dospalos clay, drained--	85	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		
425, 426:							
Kimberlina sandy loam---	85	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.04	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Thickest a layer possible source	0.04		
434:							
Lethent clay loam, wet--	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.60
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay 27 to 40%	0.98
435:							
Lethent clay loam-------	90	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40%	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
436:							
Panoche loam------------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.00		
437:							
Panoche sandy loam------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.00		

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
438:							
Panoche loam	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.00		
442:							
Panoche clay loam	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.00		
445:							
Excelsior sandy loam	85	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Thickest a layer possible source	0.02		
447:							
Excelsior sandy loam, sandy substratum	85	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.08		
448:							
Excelsior loamy sand, sandy substratum, eroded	88	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.90
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.10		
451:							
Milham sandy loam	85	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.03		
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.09		
452:							
Milham sandy loam	89	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.03		
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.09		

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
453:							
Milham sandy loam	85	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.03		
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.09		
454, 455:							
Polvadero sandy loam	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.01	SAR >13	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.03	Calcium carbonates 15-40%	0.46
459:							
Ciervo clay	80	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	SAR 4 to 13	0.98
461:							
Ciervo clay, saline-sodic, wet	80	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	SAR >13	0.00
						EC >8 dS/m	0.00
462:							
Ciervo clay, saline-sodic, wet	50	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	SAR >13	0.00
						EC >8 dS/m	0.00
Ciervo clay, saline-sodic	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	SAR 4 to 13	0.98
466:							
Paver clay loam	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40%	0.68
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
468:							
Deldota clay, partially drained	85	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		
470:							
Chateau clay, partially drained	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
						Clay 27 to 40%	0.08
472:							
Wekoda clay, partially drained	85	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	Saturation from 1 to 3'	0.53
						SAR 4 to 13	0.60
474:							
Westhaven loam	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.78
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
475:							
Posochanet clay loam, saline-sodic, wet	88	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
476:							
Posochanet clay loam, saline-sodic	88	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	EC 4 to 8 dS/m	0.12
477:							
Westhaven clay loam	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.78
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
478:							
Cerini sandy loam-------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay 27 to 40%	0.98
479:							
Cerini clay loam--------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay 27 to 40%	0.98
480:							
Calflax clay loam, saline-sodic-----------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40%	0.08
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.98
481:							
Cerini clay loam--------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay 27 to 40%	0.98
482:							
Calflax clay loam, saline-sodic, wet------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40%	0.08
		Thickest layer not a source	0.00	Thickest layer not a source	0.00	EC 4 to 8 dS/m	0.50
		due to fines or thin layer				SAR 4 to 13	0.90
488, 489:							
Wasco sandy loam--------	85	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.02		
		Thickest layer not a source due to fines or thin layer	0.00	Thickest a layer possible source	0.02		
490:							
Cerini sandy loam, subsided---------------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay 27 to 40%	0.98

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
491:							
Cerini clay loam, subsided	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay 27 to 40%	0.98
492:							
Panoche loam, subsided	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.00		
493:							
Panoche clay loam, subsided	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.00		
587, 588:							
Mugatu fine sandy loam	85	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	Hard to reclaim	0.00
		Bottom layer not a source	0.00	Bottom layer a possible source	0.58	SAR 4 to 13	0.60
						Clay 27 to 40%	0.68
						EC 4 to 8 dS/m	0.88
590:							
Cerini sandy loam	30	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Clay 27 to 40%	0.98
Anela very gravelly sandy loam	30	Fair source		Fair source		Poor source	
		Thickest layer a possible source	0.25	Thickest a layer possible source	0.10	Bulk density >1.8 in upper 20" depth	0.00
		Bottom layer a possible source	0.50	Bottom layer a possible source	0.26	Hard to reclaim	0.00
						Rock fragment content	0.00
						Sand fractions 75-85%	0.68
Fluvaquents, saline-sodic	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	SAR >13	0.00
		Bottom layer not a source	0.00	Bottom layer a possible source	0.10	EC >8 dS/m	0.00
						Rock fragment content	0.00
						Hard to reclaim	0.12
						Saturation from 1 to 3'	0.24
						Sand fractions 75-85%	0.92

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
620:							
Delgado sandy loam, eroded-----------------	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest 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	Bottom layer a possible source	0.08	Slope 8 to 12%	0.84
						Sand fractions 75-85%	0.86
621:							
Delgado sandy loam, eroded-----------------	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	0.08	Depth to bedrock <20"	0.00
						Sand fractions 75-85%	0.86
640:							
Kettleman clay loam, eroded-----------------	35	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"	0.38
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.78
						Slope 8 to 12%	0.84
						Clay 27 to 40%	0.98
Delgado sandy loam, eroded-----------------	30	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest 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	Bottom layer a possible source	0.08	Slope 8 to 12%	0.84
						Sand fractions 75-85%	0.86
Mercey loam, eroded-----	20	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"	0.06
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12%	0.84
						SAR 4 to 13	0.98
641:							
Mercey loam-------------	35	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"	0.22
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12%	0.84
						SAR 4 to 13	0.98
Delgado sandy loam-- ---	30	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest 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	Bottom layer a possible source	0.08	Slope 8 to 12%	0.84
						Sand fractions 75-85%	0.86
Kettleman clay loam-----	20	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"	0.62
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.78
						Slope 8 to 12%	0.84
						Clay 27 to 40%	0.98

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
642:							
Mercey loam, eroded	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"	0.06
						SAR 4 to 13	0.98
Delgado sandy loam, eroded	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	0.08	Depth to bedrock <20"	0.00
						Sand fractions 75-85%	0.86
Kettleman clay loam, eroded	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"	0.38
						SAR 4 to 13	0.78
						Clay 27 to 40%	0.98
643:							
Mercey loam	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"	0.22
						SAR 4 to 13	0.98
Delgado sandy loam	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	0.08	Depth to bedrock <20"	0.00
						Sand fractions 75-85%	0.86
Kettleman clay loam	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"	0.62
						SAR 4 to 13	0.78
						Clay 27 to 40%	0.98
644:							
Mercey loam, eroded	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"	0.06
						SAR 4 to 13	0.98
Kettleman clay loam, eroded	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 to 40"	0.38
						SAR 4 to 13	0.78
						Clay 27 to 40%	0.98

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
644:							
Delgado sandy loam, eroded	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	0.08	Depth to bedrock <20"	0.00
						Sand fractions 75-85%	0.86
645:							
Delgado sandy loam	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	0.08	Depth to bedrock <20"	0.00
						Sand fractions 75-85%	0.86
Mercey loam	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 to 40"	0.22
						SAR 4 to 13	0.98
Kettleman clay loam	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"	0.62
						SAR 4 to 13	0.78
						Clay 27 to 40%	0.98
670:							
Badland	35	Not rated		Not rated		Not rated	
Kettleman clay loam	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 to 40"	0.62
						SAR 4 to 13	0.78
						Clay 27 to 40%	0.98
Mercey loam	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 to 40"	0.22
						SAR 4 to 13	0.98
680:							
Arburua loam	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 to 40"	0.38
						Rock fragment content	0.88

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
680:							
Morenogulch parachannery silty clay	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
						Clay >40%	0.00
						pH from 4.5 to 6.5	0.41
704:							
Franciscan gravelly sandy loam-------------	85	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"	0.32
705:							
Roacha silty clay loam--	85	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"	0.82
						Rock fragment content	0.88
706:							
Sagaser loam------------	85	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 27 to 40%	0.68
709:							
Sagaser loam------------	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 27 to 40%	0.68
Gaviota sandy loam------	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	0.04	Depth to bedrock <20"	0.00
Borreguero sandy loam---	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	0.88

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
710:							
Monoridge fine sand-----	45	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.17	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest a layer possible source	0.17	Sand fractions >85%	0.00
						Depth to bedrock 20 to 40"	0.28
Exclose clay loam-------	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	Clay 27 to 40%	0.82
Badland-----------------	15	Not rated		Not rated		Not rated	
711:							
Currymountain loam------	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 to 40"	0.22
						Clay 27 to 40%	0.82
						Rock fragment content	0.88
Wisflat sandy loam------	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	0.95
Borreguero sandy loam---	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	0.04	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
712:							
Altamont clay-----------	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
Roacha silty clay loam--	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
						Depth to bedrock 20 to 40"	0.82
						Rock fragment content	0.88
Borreguero sandy loam---	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	0.04	Depth to bedrock <20"	0.00
						Rock fragment content	0.88

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
713:							
Currymountain loam	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	Rock fragment content	0.00
						Depth to bedrock 20 to 40"	0.06
Rock outcrop	20	Not rated		Not rated		Not rated	
Quinto gravelly sandy loam	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"	0.00
						Rock fragment content	0.12
714:							
Gaviota sandy loam	45	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
Borreguero sandy loam	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	0.04	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
Rock outcrop	15	Not rated		Not rated		Not rated	
715:							
Belgarra clay	55	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
Wisflat sandy loam	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	0.95
717:							
Belgarra clay	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
Arburua loam	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 to 40"	0.38
						Rock fragment content	0.88

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
717:							
Morenogulch parachannery silty clay	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 >40%	0.00
						pH from 4.5 to 6.5	0.41
718:							
Nodhill loam	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	0.00
						Depth to bedrock 20 to 40"	0.42
						SAR 4 to 13	0.98
Wisflat sandy loam	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	0.03	Depth to bedrock <20"	0.00
						Rock fragment content	0.95
Rock outcrop	15	Not rated		Not rated		Not rated	
719:							
Nodhill loam	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"	0.42
						SAR 4 to 13	0.98
Arburua loam	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 to 40"	0.38
						Rock fragment content	0.88
Wisflat sandy loam	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	0.03	Depth to bedrock <20"	0.00
						Rock fragment content	0.95
720:							
Exclose clay loam	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 27 to 40%	0.82
Wisflat sandy loam	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	0.95

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
720:							
Morenogulch parachannery silty clay	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 >40%	0.00
						pH from 4.5 to 6.5	0.41
722:							
Exclose clay loam-------	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 27 to 40%	0.82
Wisflat sandy loam------	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	0.95
Rock outcrop------------	15	Not rated		Not rated		Not rated	
723:							
Exclose clay loam-------	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 27 to 40%	0.82
Wisflat sandy loam------	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	0.03	Depth to bedrock <20"	0.00
						Rock fragment content	0.95
Grazer silty clay loam--	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	Clay >40%	0.00
725:							
Gewter clay-------------	85	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"	0.16
						pH from 4.5 to 6.5	0.59

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
727:							
Reliz channery loam	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	0.62	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20"	0.00
						pH from 4.5 to 6.5	0.32
						Clay 27 to 40%	0.68
Gewter loam	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	0.00
						Depth to bedrock 20 to 40"	0.28
						pH from 4.5 to 6.5	0.41
Rock outcrop	15	Not rated		Not rated		Not rated	
728:							
Climara clay	85	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"	0.98
733:							
Hentine very gravelly sandy loam	50	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"	0.00
Climara clay	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"	0.98
735:							
Getrail clay	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
Vernado sandy loam	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	0.02	Depth to bedrock 20 to 40"	0.48
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
737:							
Grazer silty clay loam	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
Badland	30	Not rated		Not rated		Not rated	
Wisflat sandy loam	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	0.95
738:							
Grazer silty clay loam	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	Slope >15%	0.00
Belgarra clay	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
Arburua loam	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"	0.38
						Rock fragment content	0.88
739:							
Domengine loam	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 27 to 40%	0.98
						Depth to bedrock 20 to 40"	0.98
Wisflat sandy loam	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	0.95
Rock outcrop	15	Not rated		Not rated		Not rated	
740:							
Domengine loam	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 27 to 40%	0.98
						Depth to bedrock 20 to 40"	0.98

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
740:							
Lilten silty clay loam	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 27 to 40%	0.18
Rock outcrop	15	Not rated		Not rated		Not rated	
741:							
Anela very gravelly sandy loam	50	Fair source		Fair source		Poor source	
		Thickest layer a possible source	0.25	Thickest a layer possible source	0.10	Bulk density >1.8 in upper 20" depth	0.00
		Bottom layer a possible source	0.50	Bottom layer a possible source	0.26	Hard to reclaim	0.00
						Rock fragment content	0.00
						Sand fractions 75-85%	0.68
Vernalis loam	35	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		
742:							
Millsholm clay loam	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
						Clay 27 to 40%	0.98
Wisflat sandy loam	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	0.03	Depth to bedrock <20"	0.00
						Rock fragment content	0.95
Lilten silty clay loam	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	Clay 27 to 40%	0.18
743:							
Millsholm clay loam	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"	0.00
						Clay 27 to 40%	0.98
Borreguero sandy loam	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	0.88

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
744:							
Lilten silty clay loam	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 27 to 40%	0.18
Millsholm clay loam	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
						Clay 27 to 40%	0.98
745:							
Grazer silty clay loam	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 >15%	0.00
Wisflat sandy loam	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	0.03	Depth to bedrock <20"	0.00
						Rock fragment content	0.95
Arburua loam	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"	0.38
						Rock fragment content	0.88
746:							
Rock outcrop, sandstone and shale	40	Not rated		Not rated		Not rated	
Wisflat sandy loam	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	0.03	Depth to bedrock <20"	0.00
						Rock fragment content	0.95
Arburua loam	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"	0.38
						Rock fragment content	0.88
747:							
Lilten silty clay	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 27 to 40%	0.18

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
747:							
Grazer silty clay loam	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
Arburua loam	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"	0.38
						Rock fragment content	0.88
748:							
Vaquero clay	70	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"	0.82
Grazer silty clay loam	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	Clay >40%	0.00
749:							
Grazer silty clay loam	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
Wisflat sandy loam	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	0.95
Exclose clay loam	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 27 to 40%	0.82
750:							
Monvero sand	50	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.12	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest a layer possible source	0.22	Sand fractions >85%	0.00
						Hard to reclaim	0.98
Monoridge fine sand	35	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer a possible source	0.17	Slope >15%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest a layer possible source	0.17	Sand fractions >85%	0.00
						Depth to bedrock 20 to 40"	0.28

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
752:							
Cyvar loam--------------	45	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 8 to 12%	0.84
						Calcium carbonates 15-40%	0.88
						Clay 27 to 40%	0.98
Nodhill loam------------	35	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	Depth to bedrock 20 to 40"	0.42
						Slope 8 to 12%	0.84
						SAR 4 to 13	0.98
753:							
Cyvar loam--------------	30	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 8 to 12%	0.84
						Calcium carbonates 15-40%	0.88
						Clay 27 to 40%	0.98
Nodhill loam------------	25	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	Depth to bedrock 20 to 40"	0.42
						Slope 8 to 12%	0.84
						SAR 4 to 13	0.98
Pits, gypsiferous-------	25	Not rated		Not rated		Not rated	
755:							
Borreguero sandy loam---	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	0.04	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
Grazer silty clay loam--	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
Rock outcrop------------	20	Not rated		Not rated		Not rated	
757:							
Rock outcrop------------	50	Not rated		Not rated		Not rated	
Borreguero sandy loam---	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	0.88

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
758:							
Wisflat sandy loam------	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	0.03	Depth to bedrock <20"	0.00
						Rock fragment content	0.95
Borreguero sandy loam---	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	0.04	Depth to bedrock <20"	0.00
						Rock fragment content	0.88
Rock outcrop------------	25	Not rated		Not rated		Not rated	
761:							
Atravesada gravelly sandy loam-------------	85	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"	0.06
						Rock fragment content	0.12
765:							
Atravesada sandy loam---	50	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 >15%	0.00
						Rock fragment content	0.88
Pits, asbestos----------	25	Not rated		Not rated		Not rated	
767:							
Atravesada sandy loam---	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"	0.00
						Rock fragment content	0.88
Pits, asbestos----------	25	Not rated		Not rated		Not rated	
769:							
Dumps, asbestos---------	55	Not rated		Not rated		Not rated	
Pits, asbestos----------	40	Not rated		Not rated		Not rated	
770:							
Roacha silty clay loam--	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"	0.42

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
770:							
Millsholm clay loam	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
						Clay 27 to 40%	0.98
Lilten silty clay loam	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	Clay 27 to 40%	0.18
773:							
Hentine very gravelly sandy loam	60	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	0.00
		Bottom layer not a source	0.00			Depth to bedrock <20"	0.00
Rock outcrop	25	Not rated		Not rated		Not rated	
774:							
Hentine very gravelly sandy loam	55	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	0.00
		Bottom layer not a source	0.00			Depth to bedrock <20"	0.00
Franciscan gravelly sandy loam	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"	0.32
Rock outcrop	15	Not rated		Not rated		Not rated	
782, 783:							
Vaquero clay	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
						Depth to bedrock 20 to 40"	0.82
Altamont clay	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
817:							
Arburua loam	88	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"	0.38
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.88

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
818:							
Arburua loam------------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 12 to 15%	0.37
		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"	0.38
						Rock fragment content	0.88
819, 820:							
Arburua loam------------	85	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"	0.38
						Rock fragment content	0.88
822:							
Altamont clay-----------	85	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		
823:							
Ayar clay---------------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40%	0.08
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
827:							
Ayar clay---------------	50	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40%	0.08
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15%	0.37
Arburua loam------------	35	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 12 to 15%	0.37
		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"	0.38
						Rock fragment content	0.88
834:							
Bapos clay loam---------	75	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	Hard to reclaim	0.00
						SAR 4 to 13	0.98
835:							
Pedcat loam, eroded-----	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	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

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
842:							
Quinto gravelly sandy loam	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	0.12
Millsholm clay loam	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
						Clay 27 to 40%	0.98
Rock outcrop	20	Not rated		Not rated		Not rated	
847:							
Carranza gravelly sandy loam	85	Poor source		Fair 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 a layer possible source	0.01	Hard to reclaim	0.08
						Clay 27 to 40%	0.68
						SAR 4 to 13	0.90
849:							
Chaqua loam	85	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		
851, 852:							
Los Banos clay loam	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	Clay >40%	0.00
		Bottom layer a possible source	0.50	Thickest layer not a source	0.00	SAR 4 to 13	0.78
						Rock fragment content	0.88
						Calcium carbonates 15-40%	0.92
						Hard to reclaim	0.95
853:							
Los Banos clay loam	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	Clay >40%	0.00
		Bottom layer a possible source	0.50	Thickest layer not a source	0.00	SAR 4 to 13	0.78
						Rock fragment content	0.88
						Calcium carbonates 15-40%	0.92
						Hard to reclaim	0.95

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
853:							
Pleito gravelly clay loam	30	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	Rock fragment content	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
855:							
Pleito gravelly clay loam	85	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
						Hard to reclaim	0.00
863:							
Vernalis loam	85	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		
865:							
Conosta clay loam	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	Clay >40%	0.00
		Bottom layer a possible source	0.25	Thickest layer not a source	0.00	Depth to bedrock 20 to 40"	0.62
870, 871:							
Wisflat sandy loam	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	0.03	Depth to bedrock <20"	0.00
						Rock fragment content	0.95
Rock outcrop	30	Not rated		Not rated		Not rated	
Arburua loam	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"	0.38
						Rock fragment content	0.88
872:							
Vernalis loam	90	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		

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel: Rating class and limiting features	Value	Potential as a source of sand: Rating class and limiting features	Value	Potential as a source of topsoil: Rating class and limiting features	Value
873:							
Narbaitz, loam	60	Fair source		Poor source		Poor source	
		Thickest layer a possible source	0.36	Bottom layer not a source	0.00	Hard to reclaim	0.00
		Bottom layer a possible source	0.38	Thickest layer not a source	0.00	Rock fragment content	0.00
						Clay 27-40	0.18
						Slope 8 to 12%	0.84
						SAR 4 to 13	0.90
Pleito gravelly clay loam	30	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
						Hard to reclaim	0.00
940:							
Milham sandy loam, organic surface	40	Not rated		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	OM >30%	0.00
				Bottom layer a possible source	0.09		
Polvadero sandy loam, organic surface	40	Not rated		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	OM >30%	0.00
				Bottom layer a possible source	0.03	SAR >13	0.00
941:							
Bisgani loamy sand	45	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.08	Sand fractions >85%	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.12	Saturation from 1 to 3'	0.14
Elnido sandy loam	40	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Thickest a layer possible source	0.02	Saturation from 1 to 3'	0.14
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.11	SAR 4 to 13	0.40
950:							
Pits, gravel	85	Not rated		Not rated		Not rated	

Table 22.--Construction Materials (Part 1)-Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of gravel		Potential as a source of sand		Potential as a source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
960:							
Excelsior sandy loam, sandy substratum-------	50	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.98
		Thickest layer not a source due to fines or thin layer	0.00	Bottom layer a possible source	0.08		
Westhaven loam----------	30	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR 4 to 13	0.78
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
980:							
Urban land--------------	97	Not rated		Not rated		Not rated	
981:							
Sewage disposal ponds---	100	Not rated		Not rated		Not rated	
982:							
Water-------------------	100	Not rated		Not rated		Not rated	

The interpretation for *gravel* evaluates the content of rock fragments more than .2 inch in size in the bottom or thickest layer of the soil.

The interpretation for *sand* evaluates the amount of sand and fine gravel in the thickest or 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, content of rock fragments .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 dS/m of electrical conductivity (EC), depth to bedrock, slope, and pH.

Table 23.--Construction Materials (Part 2)

(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. A value of 0.00 indicates an absolute limitation 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 a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
101:					
Armona loam, partially drained	85	Fair source		Poor source	
		OM of .5 to 1%	0.08	AASHTO GI >8	0.00
		SAR from 4 to 13	0.40	LEP 3 to 9	0.85
		K factor <.10 or null	0.99		
107:					
Anela very gravelly sandy loam	85	Poor source		Good source	
		OM <.5%	0.00		
		AWC <3” to 60” depth	0.00		
		Maximum pH >8.5	0.00		
		Sand fractions 75 to 85%	0.98		
115:					
Bolfar loam, drained	85	Good source		Good source	
120:					
Altaslough clay loam	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		SAR from 4 to 13	0.00	LEP 3 to 9	0.69
		EC 8 to 16 dS/m	0.50		
		Calcium carbonates 15 to 40%	0.92		
		K factor <.10 or null	0.99		
130:					
Gepford clay	85	Poor source		Poor source	
		SAR >13	0.00	AASHTO GI >8	0.00
		Clay >40%	0.00	LEP 3 to 9	0.06
		OM of .5 to 1%	0.32		
282:					
Tachi clay	91	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		SAR >13	0.00	AASHTO GI >8	0.00
		Maximum pH >8.5	0.00		
		OM of .5 to 1%	0.68		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
284:					
Lillis clay-----------------------	85	Poor source		Poor source	
		EC >16 dS/m	0.00	AASHTO GI >8	0.00
		SAR >13	0.00		
		AWC <3” to 60” depth	0.00		
		Maximum pH >8.5	0.00		
285:					
Tranquillity clay, saline-sodic---	60	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		SAR from 4 to 13	0.97	LEP >9	0.00
Tranquillity clay, saline-sodic, wet-----------------------------	25	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		SAR >13	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.08		
		EC 8 to 16 dS/m	0.28		
286:					
Tranquillity clay, saline-sodic, wet-----------------------------	85	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		SAR >13	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.08		
		EC 8 to 16 dS/m	0.28		
311:					
Bisgani sandy loam, drained-------	85	Poor source		Good source	
		Sand fractions >85%	0.00		
		OM <.5%	0.00		
		AWC 3-6” to 60” depth	0.36		
320:					
Elnido sandy loam, drained--------	85	Fair source		Good source	
		SAR from 4 to 13	0.40		
		OM of .5 to 1%	0.68		
		pH between 4 and 6.5 above 40"	0.95		
325:					
Palazzo sandy loam, drained-------	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		SAR from 4 to 13	0.90	LEP 3 to 9	0.98
		K factor <.10 or null	0.99		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
375:					
Lethent silt loam	85	Poor source		Fair source	
		EC >16 dS/m	0.00	AASHTO GI 5 to 8	0.78
		SAR >13	0.00		
		AWC <3” to 60” depth	0.00		
		K factor .10-.35	0.90		
376:					
Agnal silty clay	90	Poor source		Poor source	
		EC >16 dS/m	0.00	AASHTO GI >8	0.00
		SAR >13	0.00		
		Maximum pH >8.5	0.00		
		AWC <3” to 60” depth	0.00		
404:					
Milham sandy loam	55	Poor source		Good source	
		OM <.5%	0.00		
Guijarral sandy loam	30	Poor source		Good source	
		OM <.5%	0.00		
		Maximum pH >8.5	0.00		
		AWC >6” to 60” depth or null AWC data	1.00		
405:					
Polvadero sandy loam	55	Poor source		Good source	
		SAR >13	0.00		
		Maximum pH >8.5	0.00		
		Calcium carbonates 15 to 40%	0.46		
Guijarral sandy loam	30	Poor source		Good source	
		OM <.5%	0.00		
		Maximum pH >8.5	0.00		
		AWC >6” to 60” depth or null AWC data	1.00		
406:					
Guijarral sandy loam	85	Poor source		Good source	
		OM <.5%	0.00		
		Maximum pH >8.5	0.00		
		AWC >6” to 60” depth or null AWC data	1.00		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
412:					
Yribarren clay loam	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		Clay >40%	0.00	LEP 3 to 9	0.37
		SAR from 4 to 13	0.78		
		K factor .10-.35	0.90		
414:					
Dospalos clay loam, drained	85	Fair source		Poor source	
		Clay 27 to 40%	0.08	AASHTO GI >8	0.00
				LEP 3 to 9	0.00
415:					
Dospalos clay, drained	85	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
				LEP >9	0.00
425, 426:					
Kimberlina sandy loam	85	Poor source		Good source	
		OM <.5%	0.00		
		SAR from 4 to 13	0.97		
434:					
Lethent clay loam, wet	85	Poor source		Poor source	
		Maximum pH >8.5	0.00	AASHTO GI >8	0.00
		SAR >13	0.00		
		EC 8 to 16 dS/m	0.50		
		K factor .10-.35	0.90		
435:					
Lethent clay loam	90	Poor source		Poor source	
		Maximum pH >8.5	0.00	AASHTO GI >8	0.00
		SAR from 4 to 13	0.40		
		EC 8 to 16 dS/m	0.88		
		K factor .10-.35	0.90		
436:					
Panoche loam	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		K factor .10-.35	0.90	LEP 3 to 9	0.84
		SAR from 4 to 13	0.97		
437:					
Panoche sandy loam	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		K factor .10-.35	0.90	LEP 3 to 9	0.84
		SAR from 4 to 13	0.97		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
438:					
Panoche loam	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		K factor .10-.35	0.90	LEP 3 to 9	0.84
		SAR from 4 to 13	0.97		
442:					
Panoche clay loam	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		K factor .10-.35	0.90	LEP 3 to 9	0.84
		SAR from 4 to 13	0.97		
445:					
Excelsior sandy loam	85	Poor source		Good source	
		OM <.5%	0.00		
		SAR from 4 to 13	0.97		
447:					
Excelsior sandy loam, sandy substratum	85	Poor source		Good source	
		OM <.5%	0.00		
		SAR from 4 to 13	0.97		
448:					
Excelsior loamy sand, sandy substratum	88	Poor source		Good source	
		WEG = 1 or 2	0.00		
		OM <.5%	0.00		
		SAR from 4 to 13	0.90		
		AWC >6” to 60” depth or null AWC data	0.99		
451:					
Milham sandy loam	85	Poor source		Good source	
		OM <.5%	0.00		
452:					
Milham sandy loam	89	Poor source		Good source	
		OM <.5%	0.00		
453:					
Milham sandy loam	85	Poor source		Good source	
		OM <.5%	0.00		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
454, 455:					
Polvadero sandy loam	85	Poor source		Good source	
		SAR >13	0.00		
		Maximum pH >8.5	0.00		
		Calcium carbonates 15 to 40%	0.46		
459:					
Ciervo clay	80	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.92	LEP 3 to 9	0.35
		SAR from 4 to 13	0.97		
461:					
Ciervo clay, saline-sodic, wet	80	Poor source		Poor source	
		SAR >13	0.00	AASHTO GI >8	0.00
		Clay >40%	0.00	LEP 3 to 9	0.35
		Maximum pH >8.5	0.00		
		EC 8 to 16 dS/m	0.50		
		OM of .5 to 1%	0.92		
462:					
Ciervo clay, saline-sodic, wet	50	Poor source		Poor source	
		SAR >13	0.00	AASHTO GI >8	0.00
		Clay >40%	0.00	LEP 3 to 9	0.35
		Maximum pH >8.5	0.00		
		EC 8 to 16 dS/m	0.50		
		OM of .5 to 1%	0.92		
Ciervo clay, saline-sodic	30	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		Maximum pH >8.5	0.00	LEP 3 to 9	0.35
		SAR from 4 to 13	0.03		
		EC 8 to 16 dS/m	0.50		
		OM of .5 to 1%	0.92		
466:					
Paver clay loam	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		Clay 27 to 40%	0.68	LEP 3 to 9	0.83
468:					
Deldota clay, partially drained	85	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
				LEP 3 to 9	0.18

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
470:					
Chateau clay, partially drained	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		SAR >13	0.00	LEP 3 to 9	0.49
		Clay 27 to 40%	0.08		
		EC 8 to 16 dS/m	0.28		
		K factor <.10 or null	0.99		
472:					
Wekoda clay, partially drained	85	Poor source		Poor source	
		Clay >40%	0.00	LEP >9	0.00
		OM of .5 to 1%	0.68	AASHTO GI >8	0.00
				Wetness from 1 to 3'	0.53
474:					
Westhaven loam	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		K factor .10-.35	0.68	LEP 3 to 9	0.94
		SAR from 4 to 13	0.78		
475:					
Posochanet clay loam, saline-sodic, wet	88	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		SAR >13	0.00	LEP 3 to 9	0.82
		EC >16 dS/m	0.00		
		K factor <.10 or null	0.99		
476:					
Posochanet clay loam, saline-sodic	88	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		SAR >13	0.00	LEP 3 to 9	0.82
		K factor <.10 or null	0.99		
477:					
Westhaven clay loam	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		K factor .10-.35	0.68	LEP 3 to 9	0.80
		SAR from 4 to 13	0.97		
478:					
Cerini sandy loam	85	Fair source		Fair source	
		OM of .5 to 1%	0.32	LEP 3 to 9	0.86
		K factor .10-.35	0.90		
		SAR from 4 to 13	0.97		
		Clay 27 to 40%	0.98		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
479:					
Cerini clay loam	85	Fair source		Fair source	
		OM of .5 to 1%	0.32	LEP 3 to 9	0.86
		K factor .10-.35	0.90		
		SAR from 4 to 13	0.97		
		Clay 27 to 40%	0.98		
480:					
Calflax clay loam, saline-sodic	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		Clay 27 to 40%	0.08	LEP 3 to 9	0.78
		K factor .10-.35	0.90		
		SAR from 4 to 13	0.97		
481:					
Cerini clay loam	85	Fair source		Fair source	
		OM of .5 to 1%	0.32	LEP 3 to 9	0.86
		K factor .10-.35	0.90		
		SAR from 4 to 13	0.97		
		Clay 27 to 40%	0.98		
482:					
Calflax clay loam, saline-sodic, wet	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		Clay 27 to 40%	0.08	LEP 3 to 9	0.78
		EC 8 to 16 dS/m	0.88		
		K factor .10-.35	0.90		
		SAR from 4 to 13	0.90		
488, 489:					
Wasco sandy loam	85	Poor source		Good source	
		OM <.5%	0.00		
490:					
Cerini sandy loam, subsided	85	Fair source		Fair source	
		OM of .5 to 1%	0.32	LEP 3 to 9	0.86
		K factor .10-.35	0.90		
		SAR from 4 to 13	0.97		
		Clay 27 to 40%	0.98		
491:					
Cerini clay loam, subsided	85	Fair source		Fair source	
		OM of .5 to 1%	0.32	LEP 3 to 9	0.86
		K factor .10-.35	0.90		
		SAR from 4 to 13	0.97		
		Clay 27 to 40%	0.98		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
492:					
Panoche loam, subsided------------	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		K factor .10-.35	0.90	LEP 3 to 9	0.84
		SAR from 4 to 13	0.97		
493:					
Panoche clay loam, subsided-------	85	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		K factor .10-.35	0.90	LEP 3 to 9	0.84
		SAR from 4 to 13	0.97		
587:					
Mugatu fine sandy loam------------	85	Good source		Good source	
588:					
Mugatu fine sandy loam------------	85	Good source		Fair source	
				Slopes 15 to 25%	0.82
590:					
Cerini sandy loam-----------------	30	Fair source		Fair source	
		OM of .5 to 1%	0.32	LEP 3 to 9	0.86
		K factor .10-.35	0.90		
		SAR from 4 to 13	0.97		
		Clay 27 to 40%	0.98		
Anela very gravelly sandy loam----	30	Poor source		Good source	
		OM <.5%	0.00		
		AWC <3” to 60” depth	0.00		
		Maximum pH >8.5	0.00		
		Sand fractions 75 to 85%	0.98		
Fluvaquents, saline-sodic---------	20	Poor source		Fair source	
		EC >16 dS/m	0.00	Wetness from 1 to 3'	0.24
		SAR >13	0.00		
		AWC <3” to 60” depth	0.00		
		Maximum pH >8.5	0.00		
		OM of .5 to 1%	0.08		
620:					
Delgado sandy loam, eroded--------	85	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00		
		SAR <4 or SAR is null	1.00		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
621:					
Delgado sandy loam, eroded--------	85	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		OM <.5%	0.00	Slopes 15 to 25%	0.08
		SAR <4 or SAR is null	1.00		
640:					
Kettleman clay loam, eroded-------	35	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40"	0.00
		AWC 3-6" to 60" depth	0.76	AASHTO GI >8	0.00
		SAR from 4 to 13	0.78	LEP 3 to 9	0.83
		Clay 27 to 40%	0.98		
Delgado sandy loam, eroded--------	30	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		OM <.5%	0.00		
		SAR <4 or SAR is null	1.00		
Mercey loam, eroded---------------	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40"	0.00
		AWC 3-6" to 60" depth	0.03	AASHTO GI >8	0.00
		K factor .10-.35	0.90	LEP 3 to 9	0.83
		SAR from 4 to 13	0.97		
641:					
Mercey loam-----------------------	35	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40"	0.00
		AWC 3-6" to 60" depth	0.18	AASHTO GI >8	0.00
		K factor .10-.35	0.90	LEP 3 to 9	0.83
		SAR from 4 to 13	0.97		
Delgado sandy loam----------------	30	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		OM <.5%	0.00		
		SAR <4 or SAR is null	1.00		
Kettleman clay loam---------------	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40"	0.00
		SAR from 4 to 13	0.78	AASHTO GI >8	0.00
		Clay 27 to 40%	0.98	LEP 3 to 9	0.83
		AWC >6" to 60" depth or null AWC data	0.99		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
642:					
Mercey loam, eroded	35	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40″	0.00
		AWC 3-6″ to 60″ depth	0.03	AASHTO GI >8	0.00
		K factor .10-.35	0.90	Slopes 15 to 25%	0.08
		SAR from 4 to 13	0.97	LEP 3 to 9	0.83
Delgado sandy loam, eroded	30	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM <.5%	0.00	Slopes 15 to 25%	0.08
		SAR <4 or SAR is null	1.00		
Kettleman clay loam, eroded	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40″	0.00
		AWC 3-6″ to 60″ depth	0.76	AASHTO GI >8	0.00
		SAR from 4 to 13	0.78	Slopes 15 to 25%	0.08
		Clay 27 to 40%	0.98	LEP 3 to 9	0.83
643:					
Mercey loam	35	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40″	0.00
		AWC 3-6″ to 60″ depth	0.18	AASHTO GI >8	0.00
		K factor .10-.35	0.90	Slopes 15 to 25%	0.18
		SAR from 4 to 13	0.97	LEP 3 to 9	0.83
Delgado sandy loam	30	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM <.5%	0.00	Slopes 15 to 25%	0.18
		SAR <4 or SAR is null	1.00		
Kettleman clay loam	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40″	0.00
		SAR from 4 to 13	0.78	AASHTO GI >8	0.00
		Clay 27 to 40%	0.98	Slopes 15 to 25%	0.18
		AWC >6″ to 60″ depth or null AWC data	0.99	LEP 3 to 9	0.83
644:					
Mercey loam, eroded	35	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40″	0.00
		AWC 3-6″ to 60″ depth	0.03	Slopes >25%	0.00
		K factor .10-.35	0.90	AASHTO GI >8	0.00
		SAR from 4 to 13	0.97	LEP 3 to 9	0.83

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
644:					
Kettleman clay loam, eroded-------	30	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40"	0.00
		AWC 3-6" to 60" depth	0.76	Slopes >25%	0.00
		SAR from 4 to 13	0.78	AASHTO GI >8	0.00
		Clay 27 to 40%	0.98	LEP 3 to 9	0.83
Delgado sandy loam, eroded--------	20	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		OM <.5%	0.00	Slopes >25%	0.00
		SAR <4 or SAR is null	1.00		
645:					
Delgado sandy loam----------------	35	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		OM <.5%	0.00	Slopes >25%	0.00
		SAR <4 or SAR is null	1.00		
Mercey loam-----------------------	30	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40"	0.00
		AWC 3-6" to 60" depth	0.18	Slopes >25%	0.00
		K factor .10-.35	0.90	AASHTO GI >8	0.00
		SAR from 4 to 13	0.97	LEP 3 to 9	0.83
Kettleman clay loam---------------	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40"	0.00
		SAR from 4 to 13	0.78	Slopes >25%	0.00
		Clay 27 to 40%	0.98	AASHTO GI >8	0.00
		AWC >6" to 60" depth or null AWC data	0.99	LEP 3 to 9	0.83
670:					
Badland---------------------------	35	Not rated		Not rated	
Kettleman clay loam---------------	25	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40"	0.00
		SAR from 4 to 13	0.78	Slopes >25%	0.00
		Clay 27 to 40%	0.98	AASHTO GI >8	0.00
		AWC >6" to 60" depth or null AWC data	0.99	LEP 3 to 9	0.83
Mercey loam-----------------------	25	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40"	0.00
		AWC 3-6" to 60" depth	0.18	AASHTO GI >8	0.00
		K factor .10-.35	0.90	Slopes 15 to 25%	0.18
		SAR from 4 to 13	0.97	LEP 3 to 9	0.83

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
680:					
Arburua loam	45	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes >25%	0.00
				LEP 3 to 9	0.67
Morenogulch parachannery silty clay	40	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Clay >40%	0.00	Slopes >25%	0.00
		OM of .5 to 1%	0.08	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.50	LEP 3 to 9	0.50
704:					
Franciscan gravelly sandy loam	85	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM of .5 to 1%	0.32	Slopes >25%	0.00
				LEP 3 to 9	0.83
705:					
Roacha silty clay loam	85	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		OM of .5 to 1%	0.08	Slopes >25%	0.00
		AWC 3-6” to 60” depth	0.77	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	1.00	LEP 3 to 9	0.33
706:					
Sagaser loam	85	Poor source		Poor source	
		OM <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.68	AASHTO GI >8	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.58
				LEP 3 to 9	0.83
709:					
Sagaser loam	50	Poor source		Poor source	
		OM <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.68	AASHTO GI >8	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.58
				LEP 3 to 9	0.83
Gaviota sandy loam	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Borreguero sandy loam	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material Rating class and limiting features	Value	Potential as a source of roadfill Rating class and limiting features	Value
710:					
Monoridge fine sand	45	Poor source		Poor source	
		Sand fractions >85%	0.00	Depth to bedrock <40”	0.00
		WEG = 1 or 2	0.00	Slopes >25%	0.00
		AWC <3” to 60” depth	0.00		
		OM <.5%	0.00		
Exclose clay loam	20	Fair source		Poor source	
		OM of .5 to 1%	0.68	Slopes >25%	0.00
		Clay 27 to 40%	0.82	AASHTO GI 5 to 8	0.78
				LEP 3 to 9	0.83
Badland	15	Not rated		Not rated	
711:					
Currymountain loam	45	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.18	Slopes >25%	0.00
		Clay 27 to 40%	0.82	AASHTO GI >8	0.00
				LEP 3 to 9	0.83
Wisflat sandy loam	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Borreguero sandy loam	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
712:					
Altamont clay	40	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.68	Slopes >25%	0.00
				LEP 3 to 9	0.43
				Depth to bedrock 40 to 60"	0.87
Roacha silty clay loam	25	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		OM of .5 to 1%	0.08	Slopes >25%	0.00
		AWC 3-6” to 60” depth	0.77	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	1.00	LEP 3 to 9	0.33
Borreguero sandy loam	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
713:					
Currymountain loam	45	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		25 to 50% fragments 3-10"	0.65	Slopes >25%	0.00
		pH between 4 and 6.5 above 40"	0.97	25 to 50% fragments >3"	0.93
Rock outcrop	20	Not rated		Not rated	
Quinto gravelly sandy loam	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
				LEP 3 to 9	0.83
714:					
Gaviota sandy loam	45	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Borreguero sandy loam	25	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Rock outcrop	15	Not rated		Not rated	
715:					
Belgarra clay	55	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.68	LEP 3 to 9	0.50
		EC 8 to 16 dS/m	0.97		
Wisflat sandy loam	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
717:					
Belgarra clay	35	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.68	Slopes 15 to 25%	0.08
		EC 8 to 16 dS/m	0.97	LEP 3 to 9	0.50
Arburua loam	30	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes >25%	0.00
				LEP 3 to 9	0.67

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
717:					
Morenogulch parachannery silty clay	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Clay >40%	0.00	Slopes >25%	0.00
		OM of .5 to 1%	0.08	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.50	LEP 3 to 9	0.50
718:					
Nodhill loam	35	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.27	Slopes 15 to 25%	0.08
		SAR from 4 to 13	0.97	LEP 3 to 9	0.83
		K factor <.10 or null	0.99		
Wisflat sandy loam	35	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Rock outcrop	15	Not rated		Not rated	
719:					
Nodhill loam	40	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.27	Slopes 15 to 25%	0.08
		SAR from 4 to 13	0.97	LEP 3 to 9	0.83
		K factor <.10 or null	0.99		
Arburua loam	25	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes >25%	0.00
				LEP 3 to 9	0.67
Wisflat sandy loam	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
720:					
Exclose clay loam	40	Fair source		Poor source	
		OM of .5 to 1%	0.68	Slopes >25%	0.00
		Clay 27 to 40%	0.82	AASHTO GI 5 to 8	0.78
				LEP 3 to 9	0.83
Wisflat sandy loam	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
720:					
Morenogulch parachannery silty clay	15	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		Clay >40%	0.00	Slopes >25%	0.00
		OM of .5 to 1%	0.08	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.50	LEP 3 to 9	0.50
722:					
Exclose clay loam	40	Fair source		Poor source	
		OM of .5 to 1%	0.68	Slopes >25%	0.00
		Clay 27 to 40%	0.82	AASHTO GI 5 to 8	0.78
				LEP 3 to 9	0.83
Wisflat sandy loam	30	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Rock outcrop	15	Not rated		Not rated	
723:					
Exclose clay loam	40	Fair source		Poor source	
		OM of .5 to 1%	0.68	Slopes >25%	0.00
		Clay 27 to 40%	0.82	AASHTO GI 5 to 8	0.78
				LEP 3 to 9	0.83
Wisflat sandy loam	25	Poor source		Poor source	
		AWC <3" to 60" depth	0.00	Depth to bedrock <40"	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Grazer silty clay loam	20	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.92	Slopes >25%	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.29
				LEP 3 to 9	0.33
725:					
Gewter clay	85	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40"	0.00
		AWC 3-6" to 60" depth	0.04	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.50	Slopes 15 to 25%	0.08
		OM of .5 to 1%	0.68	LEP 3 to 9	0.17

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
727:					
Reliz channery loam	40	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
		pH between 4 and 6.5 above 40"	0.50	LEP 3 to 9	0.83
		Clay 27 to 40%	0.68		
Gewter loam	30	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.00	Slopes >25%	0.00
		OM of .5 to 1%	0.32	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.50	LEP 3 to 9	0.70
Rock outcrop	15	Not rated		Not rated	
728:					
Climara clay	85	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.95	AASHTO GI >8	0.00
				Slopes >25%	0.00
				LEP 3 to 9	0.17
733:					
Hentine very gravelly sandy loam	50	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
				LEP 3 to 9	0.83
Climara clay	35	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.95	AASHTO GI >8	0.00
				Slopes >25%	0.00
				LEP 3 to 9	0.17
735:					
Getrail clay	35	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM <.5%	0.00	Slopes >25%	0.00
		SAR <4 or SAR is null	1.00	Depth to bedrock 40 to 60"	0.07
				LEP 3 to 9	0.17
Vernado sandy loam	20	Fair source		Poor source	
		AWC 3-6” to 60” depth	0.00	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
Rock outcrop	20	Not rated		Not rated	

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
737:					
Grazer silty clay loam------------	35	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.92	Slopes >25%	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.29
				LEP 3 to 9	0.33
Badland---------------------------	30	Not rated		Not rated	
Wisflat sandy loam----------------	20	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
738:					
Grazer silty clay loam------------	35	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.92	Depth to bedrock 40 to 60"	0.29
		K factor <.10 or null	0.99	LEP 3 to 9	0.33
Belgarra clay---------------------	30	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.68	LEP 3 to 9	0.50
		EC 8 to 16 dS/m	0.97		
Arburua loam----------------------	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes >25%	0.00
				LEP 3 to 9	0.67
739:					
Domengine loam--------------------	40	Fair source		Poor source	
		Clay 27 to 40%	0.98	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
				AASHTO GI >8	0.00
				LEP 3 to 9	0.83
Wisflat sandy loam----------------	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Rock outcrop----------------------	15	Not rated		Not rated	
740:					
Domengine loam--------------------	45	Fair source		Poor source	
		Clay 27 to 40%	0.98	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
				AASHTO GI >8	0.00
				LEP 3 to 9	0.83

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
740:					
Lilten silty clay loam	25	Poor source		Poor source	
		OM <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.18	AASHTO GI >8	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.01
				LEP 3 to 9	0.33
Rock outcrop	15	Not rated		Not rated	
741:					
Anela very gravelly sandy loam	50	Poor source		Good source	
		OM <.5%	0.00		
		AWC <3” to 60” depth	0.00		
		Maximum pH >8.5	0.00		
		Sand fractions 75 to 85%	0.98		
Vernalis loam	35	Fair source		Poor source	
		OM of .5 to 1%	0.08	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.95	LEP 3 to 9	0.70
742:					
Millsholm clay loam	40	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Clay 27 to 40%	0.98	Slopes >25%	0.00
		K factor <.10 or null	0.99	LEP 3 to 9	0.83
Wisflat sandy loam	25	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Lilten silty clay loam	20	Poor source		Poor source	
		OM <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.18	AASHTO GI >8	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.01
				LEP 3 to 9	0.33
743:					
Millsholm clay loam	50	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Clay 27 to 40%	0.98	Slopes >25%	0.00
		K factor <.10 or null	0.99	LEP 3 to 9	0.83
Borreguero sandy loam	35	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
744:					
Lilten silty clay loam	50	Poor source		Poor source	
		OM <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.18	AASHTO GI >8	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.01
				LEP 3 to 9	0.33
Millsholm clay loam	35	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Clay 27 to 40%	0.98	Slopes >25%	0.00
		K factor <.10 or null	0.99	LEP 3 to 9	0.83
745:					
Grazer silty clay loam	45	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.92	Depth to bedrock 40 to 60"	0.29
		K factor <.10 or null	0.99	LEP 3 to 9	0.33
				Slopes 15 to 25%	0.68
Wisflat sandy loam	25	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Arburua loam	15	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes >25%	0.00
				LEP 3 to 9	0.67
746:					
Rock outcrop, sandstone and shale	40	Not rated		Not rated	
Wisflat sandy loam	25	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Arburua loam	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes >25%	0.00
				LEP 3 to 9	0.67
747:					
Lilten silty clay	35	Poor source		Poor source	
		OM <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.18	AASHTO GI >8	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.01
				LEP 3 to 9	0.33

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
747:					
Grazer silty clay loam	30	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.92	Slopes 15 to 25%	0.08
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.29
				LEP 3 to 9	0.33
Arburua loam	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes >25%	0.00
				LEP 3 to 9	0.67
748:					
Vaquero clay	70	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		SAR from 4 to 13	0.60	Slopes >25%	0.00
		AWC 3-6” to 60” depth	0.88	LEP >9	0.00
				AASHTO GI >8	0.00
Grazer silty clay loam	20	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.92	Slopes >25%	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.29
				LEP 3 to 9	0.33
749:					
Grazer silty clay loam	40	Poor source		Poor source	
		Clay >40%	0.00	Slopes >25%	0.00
		OM of .5 to 1%	0.92	AASHTO GI >8	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.29
				LEP 3 to 9	0.33
Wisflat sandy loam	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Exclose clay loam	15	Fair source		Poor source	
		OM of .5 to 1%	0.68	Slopes >25%	0.00
		Clay 27 to 40%	0.82	AASHTO GI 5 to 8	0.78
				LEP 3 to 9	0.83
750:					
Monvero sand	50	Poor source		Fair source	
		Sand fractions >85%	0.00	Slopes 15 to 25%	0.08
		WEG = 1 or 2	0.00		
		OM <.5%	0.00		
		AWC 3-6” to 60” depth	0.15		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material Rating class and limiting features	Value	Potential as a source of roadfill Rating class and limiting features	Value
750:					
Monoridge fine sand	35	Poor source		Poor source	
		Sand fractions >85%	0.00	Depth to bedrock <40”	0.00
		WEG = 1 or 2	0.00	Slopes >25%	0.00
		AWC <3” to 60” depth	0.00		
		OM <.5%	0.00		
752:					
Cyvar loam	45	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to pan <40”	0.00
		Depth to pan <20"	0.00	AASHTO GI >8	0.00
		OM <.5%	0.00	LEP 3 to 9	0.83
		Calcium carbonates >40%	0.00		
		SAR from 4 to 13	0.97		
		Clay 27 to 40%	0.98		
Nodhill loam	35	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.27	LEP 3 to 9	0.83
		SAR from 4 to 13	0.97		
		K factor <.10 or null	0.99		
753:					
Cyvar loam	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to pan <40”	0.00
		Depth to pan <20"	0.00	AASHTO GI >8	0.00
		OM <.5%	0.00	LEP 3 to 9	0.83
		Calcium carbonates >40%	0.00		
		SAR from 4 to 13	0.97		
		Clay 27 to 40%	0.98		
Nodhill loam	25	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.27	LEP 3 to 9	0.83
		SAR from 4 to 13	0.97		
		K factor <.10 or null	0.99		
Pits, gypsiferous	25	Not rated		Not rated	
755:					
Borreguero sandy loam	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
755:					
Grazer silty clay loam	25	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.92	Slopes 15 to 25%	0.08
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.29
				LEP 3 to 9	0.33
Rock outcrop	20	Not rated		Not rated	
757:					
Rock outcrop	50	Not rated		Not rated	
Borreguero sandy loam	35	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
758:					
Wisflat sandy loam	35	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Borreguero sandy loam	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Rock outcrop	25	Not rated		Not rated	
761:					
Atravesada gravelly sandy loam	85	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM of .5 to 1%	0.32	Slopes >25%	0.00
765:					
Atravesada sandy loam	50	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 15 to 25%	0.98
Pits, asbestos	25	Not rated		Not rated	
767:					
Atravesada sandy loam	50	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
Pits, asbestos	25	Not rated		Not rated	

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
769:					
Dumps, asbestos	55	Not rated		Not rated	
Pits, asbestos	40	Not rated		Not rated	
770:					
Roacha silty clay loam	40	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes >25%	0.00
				AASHTO GI >8	0.00
				LEP 3 to 9	0.33
Millsholm clay loam	25	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Clay 27 to 40%	0.98	Slopes >25%	0.00
		K factor <.10 or null	0.99	LEP 3 to 9	0.83
Lilten silty clay loam	20	Poor source		Poor source	
		OM <.5%	0.00	Slopes >25%	0.00
		Clay 27 to 40%	0.18	AASHTO GI >8	0.00
		K factor <.10 or null	0.99	Depth to bedrock 40 to 60"	0.01
				LEP 3 to 9	0.33
773:					
Hentine very gravelly sandy loam	60	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
				LEP 3 to 9	0.83
Rock outcrop	25	Not rated		Not rated	
774:					
Hentine very gravelly sandy loam	55	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
				LEP 3 to 9	0.83
Franciscan gravelly sandy loam	15	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM of .5 to 1%	0.32	Slopes >25%	0.00
				LEP 3 to 9	0.83
Rock outcrop	15	Not rated		Not rated	

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
782:					
Vaquero clay	45	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		SAR from 4 to 13	0.60	LEP >9	0.00
		AWC 3-6” to 60” depth	0.88	AASHTO GI >8	0.00
				Slopes >25%	0.00
Altamont clay	40	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.68	Slopes >25%	0.00
				LEP 3 to 9	0.43
				Depth to bedrock 40 to 60"	0.87
783:					
Vaquero clay	45	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		SAR from 4 to 13	0.60	Slopes >25%	0.00
		AWC 3-6” to 60” depth	0.88	LEP >9	0.00
				AASHTO GI >8	0.00
Altamont clay	40	Poor source		Poor source	
		Clay >40%	0.00	Slopes >25%	0.00
		OM of .5 to 1%	0.68	AASHTO GI >8	0.00
				LEP 3 to 9	0.43
				Depth to bedrock 40 to 60"	0.87
817:					
Arburua loam	88	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	LEP 3 to 9	0.67
818:					
Arburua loam	85	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	LEP 3 to 9	0.67
819:					
Arburua loam	85	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes 15 to 25%	0.18
				LEP 3 to 9	0.67
820:					
Arburua loam	85	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	Slopes >25%	0.00
				LEP 3 to 9	0.67

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material: Rating class and limiting features	Value	Potential as a source of roadfill: Rating class and limiting features	Value
822:					
Altamont clay	85	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.68	LEP 3 to 9	0.43
				Depth to bedrock 40 to 60"	0.87
823:					
Ayar clay	85	Fair source		Poor source	
		Clay 27 to 40%	0.08	AASHTO GI >8	0.00
		OM of .5 to 1%	0.68	LEP 3 to 9	0.25
827:					
Ayar clay	50	Fair source		Poor source	
		Clay 27 to 40%	0.08	AASHTO GI >8	0.00
		OM of .5 to 1%	0.68	LEP 3 to 9	0.25
Arburua loam	35	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.29	LEP 3 to 9	0.67
834:					
Bapos clay loam	75	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM of .5 to 1%	0.68	LEP 3 to 9	0.68
		SAR from 4 to 13	0.97		
835:					
Pedcat loam, eroded	85	Poor source		Good source	
		SAR >13	0.00		
		Maximum pH >8.5	0.00		
		K factor .10-.35	0.90		
842:					
Quinto gravelly sandy loam	35	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
				Slopes >25%	0.00
				LEP 3 to 9	0.83
Millsholm clay loam	30	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		Clay 27 to 40%	0.98	Slopes >25%	0.00
		K factor <.10 or null	0.99	LEP 3 to 9	0.83
Rock outcrop	20	Not rated		Not rated	

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
847:					
Carranza gravelly sandy loam------	85	Poor source		Fair source	
		OM <.5%	0.00	LEP 3 to 9	0.86
		Clay 27 to 40%	0.68		
		SAR from 4 to 13	0.90		
849:					
Chaqua loam-----------------------	85	Fair source		Fair source	
		OM of .5 to 1%	0.68	Depth to bedrock 40 to 60"	0.29
		Calcium carbonates 15 to 40%	0.92		
		K factor <.10 or null	0.99		
851, 852:					
Los Banos clay loam---------------	85	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM <.5%	0.00	LEP 3 to 9	0.57
		Calcium carbonates 15 to 40%	0.92		
853:					
Los Banos clay loam---------------	55	Poor source		Poor source	
		Clay >40%	0.00	AASHTO GI >8	0.00
		OM <.5%	0.00	LEP 3 to 9	0.57
		Calcium carbonates 15 to 40%	0.92		
Pleito gravelly clay loam---------	30	Poor source		Fair source	
		OM <.5%	0.00	LEP 3 to 9	0.83
855:					
Pleito gravelly clay loam---------	85	Poor source		Fair source	
		OM <.5%	0.00	Slopes 15 to 25%	0.08
				LEP 3 to 9	0.83
863:					
Vernalis loam---------------------	85	Fair source		Poor source	
		OM of .5 to 1%	0.08	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.95	LEP 3 to 9	0.70
865:					
Conosta clay loam-----------------	85	Poor source		Poor source	
		Clay >40%	0.00	Depth to bedrock <40”	0.00
		AWC 3-6” to 60” depth	0.31	AASHTO GI >8	0.00
				LEP 3 to 9	0.44
870:					
Wisflat sandy loam----------------	35	Poor source		Poor source	
		AWC <3” to 60” depth	0.00	Depth to bedrock <40”	0.00
		OM <.5%	0.00	Slopes 15 to 25%	0.08

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material Rating class and limiting features	Value	Potential as a source of roadfill Rating class and limiting features	Value
870:					
Rock outcrop	30	Not rated		Not rated	
Arburua loam	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40″	0.00
		AWC 3-6″ to 60″ depth	0.29	Slopes 15 to 25%	0.08
				LEP 3 to 9	0.67
871:					
Wisflat sandy loam	35	Poor source		Poor source	
		AWC <3″ to 60″ depth	0.00	Depth to bedrock <40″	0.00
		OM <.5%	0.00	Slopes >25%	0.00
Rock outcrop	30	Not rated		Not rated	
Arburua loam	20	Poor source		Poor source	
		OM <.5%	0.00	Depth to bedrock <40″	0.00
		AWC 3-6″ to 60″ depth	0.29	Slopes >25%	0.00
				LEP 3 to 9	0.67
872:					
Vernalis loam	90	Fair source		Poor source	
		OM of .5 to 1%	0.08	AASHTO GI >8	0.00
		pH between 4 and 6.5 above 40"	0.95	LEP 3 to 9	0.70
873:					
Narbaitz loam	60	Fair source		Good source	
		AWC 3-6″ to 60″ depth	0.86		
		pH between 4 and 6.5 above 40"	0.99		
Pleito gravelly clay loam	30	Poor source		Poor source	
		OM <.5%	0.00	Slopes >25%	0.00
				LEP 3 to 9	0.83
940:					
Milham sandy loam, organic surface	40	Poor source		Good source	
		AWC <3″ to 60″ depth	0.00		
		SAR >13	0.00		
Polvadero sandy loam, organic surface	40	Poor source		Good source	
		AWC <3″ to 60″ depth	0.00		
		SAR >13	0.00		
		Maximum pH >8.5	0.00		
		Calcium carbonates 15 to 40%	0.46		

Table 23.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential as a source of reclamation material		Potential as a source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
941:					
Bisgani loamy sand	45	Poor source		Fair source	
		Sand fractions >85%	0.00	Wetness from 1 to 3'	0.14
		WEG = 1 or 2	0.00		
		OM <.5%	0.00		
		AWC 3-6” to 60” depth	0.13		
Elnido sandy loam	40	Fair source		Fair source	
		SAR from 4 to 13	0.40	Wetness from 1 to 3'	0.14
		OM of .5 to 1%	0.68		
		pH between 4 and 6.5 above 40"	0.95		
950:					
Pits, gravel	85	Not rated		Not rated	
960:					
Excelsior sandy loam, sandy substratum	50	Poor source		Good source	
		OM <.5%	0.00		
		SAR from 4 to 13	0.97		
Westhaven loam	30	Poor source		Poor source	
		OM <.5%	0.00	AASHTO GI >8	0.00
		K factor .10-.35	0.68	LEP 3 to 9	0.94
		SAR from 4 to 13	0.78		
980:					
Urban land	97	Not rated		Not rated	
981:					
Sewage disposal ponds	100	Not rated		Not rated	
982:					
Water	100	Not rated		Not rated	

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 24.--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	
		Limitation	Value	Limitation	Value
101:					
Armona	85	Severe		Slight	
		Very high piping potential	1.00		
		Shrink-swell (LEP 3-6)	0.22		
107:					
Anela	85	Moderate		Severe	
		Thin layer	0.12	Marly (piping)	1.00
				Permeability >2”/hr (seepage)	1.00
115:					
Bolfar	85	Moderate		Moderate	
		High piping potential	0.78	Permeability .6-2"/hr (some seepage)	0.32
120:					
Altaslough	85	Severe		Slight	
		Very high piping potential	1.00		
		Shrink-swell (LEP 3-6)	0.78		
		EC 8-16 dS/m	0.50		
130:					
Gepford	85	Severe		Slight	
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified and PI ≥40%	1.00		
282:					
Tachi	91	Severe		Slight	
		MH or CH Unified and PI ≥40%	1.00		
		Shrink-swell (LEP >6)	1.00		
284:					
Lillis	85	Severe		Slight	
		EC >16 dS/m	1.00		
		MH or CH Unified and PI ≥40%	1.00		
		Shrink-swell (LEP >6)	1.00		
285:					
Tranquillity	60	Severe		Slight	
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified and PI ≥40%	1.00		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
285:					
Tranquillity, wet	25	Severe		Slight	
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified and PI ≥40%	1.00		
		EC 8-16 dS/m	0.72		
286:					
Tranquillity	85	Severe		Slight	
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified and PI ≥40%	1.00		
		EC 8-16 dS/m	0.72		
311:					
Bisgani	85	Severe		Severe	
		Seepage problem	1.00	Permeability >2”/hr (seepage)	1.00
320:					
Elnido	85	Severe		Severe	
		Very high piping potential	1.00	Permeability >2”/hr (seepage)	1.00
325:					
Palazzo	85	Severe		Severe	
		Very high piping potential	1.00	Permeability >2”/hr (seepage)	1.00
		Shrink-swell (LEP 3-6)	0.22		
375:					
Lethent	85	Severe		Slight	
		EC >16 dS/m	1.00		
		Shrink-swell (LEP 3-6)	0.78		
376:					
Agnal	90	Severe		Slight	
		EC >16 dS/m	1.00		
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified and PI <40%	0.50		
404:					
Milham	55	Slight		Severe	
		Low piping potential	0.02	Permeability >2”/hr (seepage)	1.00
				Slopes 2 to 7%	0.91
Guijarral	30	Moderate		Severe	
		Possible seepage problem	0.50	Marly (piping)	1.00
		High piping potential	0.22	Permeability >2”/hr (seepage)	1.00
				Slopes >7%	1.00

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
405:					
Polvadero	55	Severe		Severe	
		Very high piping potential	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.32
Guijarral	30	Moderate		Severe	
		Possible seepage problem	0.50	Marly (piping)	1.00
		High piping potential	0.22	Permeability >2"/hr (seepage)	1.00
				Slopes >7%	1.00
406:					
Guijarral	85	Moderate		Severe	
		Possible seepage problem	0.50	Marly (piping)	1.00
		High piping potential	0.22	Permeability >2"/hr (seepage)	1.00
				Slopes 2 to 7%	0.00
412:					
Yribarren	85	Severe		Moderate	
		Shrink-swell (LEP >6)	1.00	Permeability .6-2"/hr (some seepage)	0.02
		High piping potential	0.78		
414:					
Dospalos	85	Moderate		Slight	
		Shrink-swell (LEP 3-6)	0.78		
		MH or CH Unified and PI <40%	0.50		
415:					
Dospalos	85	Severe		Slight	
		MH or CH Unified and PI ≥40%	1.00		
		Shrink-swell (LEP 3-6)	0.78		
425:					
Kimberlina	85	Slight		Severe	
		Low piping potential	0.02	Permeability >2"/hr (seepage)	1.00
426:					
Kimberlina	85	Slight		Severe	
		Low piping potential	0.02	Permeability >2"/hr (seepage)	1.00
				Slopes 2 to 7%	0.00
434:					
Lethent	85	Severe		Slight	
		Shrink-swell (LEP >6)	1.00		
		EC 8-16 dS/m	0.50		
		MH or CH Unified and PI <40%	0.50		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
435:					
Lethent	90	Severe		Slight	
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified and PI <40%	0.50		
		EC 8-16 dS/m	0.12		
436:					
Panoche	85	Moderate		Moderate	
		High piping potential	0.71	Permeability .6-2"/hr (some seepage)	0.68
		Shrink-swell (LEP 3-6)	0.22		
437:					
Panoche	85	Moderate		Moderate	
		High piping potential	0.78	Permeability .6-2"/hr (some seepage)	0.68
		Shrink-swell (LEP 3-6)	0.22		
438:					
Panoche	85	Moderate		Moderate	
		High piping potential	0.71	Permeability .6-2"/hr (some seepage)	0.68
		Shrink-swell (LEP 3-6)	0.22	Slopes 2 to 7%	0.00
442:					
Panoche	85	Moderate		Moderate	
		High piping potential	0.71	Permeability .6-2"/hr (some seepage)	0.68
		Shrink-swell (LEP 3-6)	0.22		
445, 447:					
Excelsior	85	Slight		Severe	
		Low piping potential	0.02	Permeability >2”/hr (seepage)	1.00
448:					
Excelsior	88	Slight		Severe	
		Low piping potential	0.10	Permeability >2”/hr (seepage)	1.00
451:					
Milham	85	Slight		Severe	
		Low piping potential	0.02	Permeability >2”/hr (seepage)	1.00
452:					
Milham	89	Slight		Severe	
		Low piping potential	0.02	Permeability >2”/hr (seepage)	1.00
				Slopes 2 to 7%	0.00
453:					
Milham	85	Slight		Severe	
		Low piping potential	0.02	Permeability >2”/hr (seepage)	1.00
				Slopes 2 to 7%	0.91

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
454:					
Polvadero	85	Severe		Moderate	
		Very high piping potential	1.00	Permeability .6-2"/hr (some seepage)	0.32
		Shrink-swell (LEP 3-6)	0.22		
455:					
Polvadero	85	Severe		Moderate	
		Very high piping potential	1.00	Permeability .6-2"/hr (some seepage)	0.32
		Shrink-swell (LEP 3-6)	0.22	Slopes 2 to 7%	0.00
459:					
Ciervo	80	Moderate		Slight	
		Shrink-swell (LEP 3-6)	0.78		
		MH or CH Unified and PI <40%	0.50		
461:					
Ciervo	80	Moderate		Slight	
		Shrink-swell (LEP 3-6)	0.78		
		EC 8-16 dS/m	0.50		
		MH or CH Unified and PI <40%	0.50		
462:					
Ciervo, wet	50	Moderate		Slight	
		Shrink-swell (LEP 3-6)	0.78		
		EC 8-16 dS/m	0.50		
		MH or CH Unified and PI <40%	0.50		
Ciervo	30	Moderate		Slight	
		Shrink-swell (LEP 3-6)	0.78		
		EC 8-16 dS/m	0.50		
		MH or CH Unified and PI <40%	0.50		
466:					
Paver	85	Moderate		Slight	
		Shrink-swell (LEP 3-6)	0.22		
468:					
Deldota	85	Severe		Slight	
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified and PI <40%	0.50		
470:					
Chateau	85	Moderate		Slight	
		Shrink-swell (LEP 3-6)	0.78		
		EC 8-16 dS/m	0.72		
		MH or CH Unified and PI <40%	0.50		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
472:					
Wekoda	85	Severe		Slight	
		Shrink-swell (LEP >6)	1.00		
		MH or CH Unified and PI ≥40%	1.00		
		Wetness <2' depth	1.00		
474:					
Westhaven	85	Moderate		Moderate	
		High piping potential	0.93	Permeability .6-2"/hr (some seepage)	0.08
		Shrink-swell (LEP 3-6)	0.22		
475:					
Posochanet	88	Severe		Slight	
		Very high piping potential	1.00		
		EC >16 dS/m	1.00		
		Shrink-swell (LEP 3-6)	0.22		
476:					
Posochanet	88	Severe		Slight	
		Very high piping potential	1.00		
		Shrink-swell (LEP 3-6)	0.22		
477:					
Westhaven	85	Moderate		Slight	
		High piping potential	0.47		
		Shrink-swell (LEP 3-6)	0.22		
478:					
Cerini	85	Moderate		Moderate	
		High piping potential	0.60	Permeability .6-2"/hr (some seepage)	0.08
479:					
Cerini	85	Moderate		Moderate	
		High piping potential	0.52	Permeability .6-2"/hr (some seepage)	0.08
480:					
Calflax	85	Severe		Slight	
		Very high piping potential	1.00		
		Shrink-swell (LEP 3-6)	0.22		
481:					
Cerini	85	Moderate		Moderate	
		High piping potential	0.52	Permeability .6-2"/hr (some seepage)	0.08
				Slopes 2 to 7%	0.08

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
482:					
Calflax	85	Severe		Slight	
		Very high piping potential	1.00		
		Shrink-swell (LEP 3-6)	0.22		
		EC 8-16 dS/m	0.12		
488:					
Wasco	85	Slight		Severe	
		Low piping potential	0.02	Permeability >2”/hr (seepage)	1.00
489:					
Wasco	85	Slight		Severe	
		Low piping potential	0.02	Permeability >2”/hr (seepage)	1.00
				Slopes 2 to 7%	0.00
490:					
Cerini	85	Moderate		Moderate	
		High piping potential	0.60	Permeability .6-2"/hr (some seepage)	0.08
				Slopes 2 to 7%	0.00
491:					
Cerini	85	Moderate		Moderate	
		High piping potential	0.52	Permeability .6-2"/hr (some seepage)	0.08
				Slopes 2 to 7%	0.00
492, 493:					
Panoche	85	Moderate		Moderate	
		High piping potential	0.71	Permeability .6-2"/hr (some seepage)	0.68
		Shrink-swell (LEP 3-6)	0.22	Slopes 2 to 7%	0.00
587:					
Mugatu	85	Severe		Severe	
		Seepage problem	1.00	Marly (piping)	1.00
		High piping potential	0.82	Permeability >2”/hr (seepage)	1.00
				Gypsum >15% to 80" depth	1.00
588:					
Mugatu	85	Severe		Severe	
		Seepage problem	1.00	Marly (piping)	1.00
		High piping potential	0.82	Permeability >2”/hr (seepage)	1.00
				Slopes >7%	1.00
590:					
Cerini	30	Moderate		Moderate	
		High piping potential	0.60	Permeability .6-2"/hr (some seepage)	0.08
Anela	30	Moderate		Severe	
		Thin layer	0.12	Marly (piping)	1.00
				Permeability >2”/hr (seepage)	1.00

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
590:					
Fluvaquents	20	Severe		Severe	
		EC >16 dS/m	1.00	Marly (piping)	1.00
		Wetness <2’ depth	1.00		
		Very high piping potential	1.00		
620:					
Delgado	85	Severe		Severe	
		Thin layer	1.00	Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
				Slopes >7%	1.00
621:					
Delgado	85	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
640:					
Kettleman	35	Severe		Severe	
		Very high piping potential	1.00	Slopes >7%	1.00
		Thin layer	0.93	Depth to bedrock from 20-60"	0.93
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.08
Delgado	30	Severe		Severe	
		Thin layer	1.00	Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
				Slopes >7%	1.00
Mercey	20	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		High piping potential	0.52	Depth to bedrock <20”	1.00
		Shrink-swell (LEP 3-6)	0.22		
641:					
Mercey	35	Moderate		Severe	
		Thin layer	0.98	Slopes >7%	1.00
		High piping potential	0.52	Depth to bedrock from 20-60"	0.98
		Shrink-swell (LEP 3-6)	0.22		
Delgado	30	Severe		Severe	
		Thin layer	1.00	Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
				Slopes >7%	1.00
Kettleman	20	Severe		Severe	
		Very high piping potential	1.00	Slopes >7%	1.00
		Thin layer	0.81	Depth to bedrock from 20-60"	0.81
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.08

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
642:					
Mercey	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		High piping potential	0.52	Depth to bedrock <20”	1.00
		Shrink-swell (LEP 3-6)	0.22		
Delgado	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Kettleman	20	Severe		Severe	
		Very high piping potential	1.00	Slopes >7%	1.00
		Thin layer	0.93	Depth to bedrock from 20-60"	0.93
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.08
643:					
Mercey	35	Moderate		Severe	
		Thin layer	0.98	Slopes >7%	1.00
		High piping potential	0.52	Depth to bedrock from 20-60"	0.98
		Shrink-swell (LEP 3-6)	0.22		
Delgado	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Kettleman	20	Severe		Severe	
		Very high piping potential	1.00	Slopes >7%	1.00
		Thin layer	0.81	Depth to bedrock from 20-60"	0.81
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.08
644:					
Mercey	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		High piping potential	0.52	Depth to bedrock <20”	1.00
		Shrink-swell (LEP 3-6)	0.22		
Kettleman	30	Severe		Severe	
		Very high piping potential	1.00	Slopes >7%	1.00
		Thin layer	0.93	Depth to bedrock from 20-60"	0.93
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.08
Delgado	20	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
645:					
Delgado	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Mercey	30	Moderate		Severe	
		Thin layer	0.98	Slopes >7%	1.00
		High piping potential	0.52	Depth to bedrock from 20-60"	0.98
		Shrink-swell (LEP 3-6)	0.22		
Kettleman	20	Severe		Severe	
		Very high piping potential	1.00	Slopes >7%	1.00
		Thin layer	0.81	Depth to bedrock from 20-60"	0.81
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.08
670:					
Badland	35	Not rated		Not rated	
Kettleman	25	Severe		Severe	
		Very high piping potential	1.00	Slopes >7%	1.00
		Thin layer	0.81	Depth to bedrock from 20-60"	0.81
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.08
Mercey	25	Moderate		Severe	
		Thin layer	0.98	Slopes >7%	1.00
		High piping potential	0.52	Depth to bedrock from 20-60"	0.98
		Shrink-swell (LEP 3-6)	0.22		
680:					
Arburua	45	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50
Morenogulch	40	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Marly (piping)	1.00
		MH or CH Unified and PI ≥40%	1.00	Depth to bedrock <20”	1.00
704:					
Franciscan	85	Moderate		Severe	
		Thin layer	0.95	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock from 20-60"	0.95

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
705:					
Roacha	85	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.66	Marly (piping)	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.66
706:					
Sagaser	85	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Slopes >7%	1.00
		Thin layer	0.11	Depth to bedrock from 20-60"	0.11
		Low piping potential	0.01		
709:					
Sagaser	50	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Slopes >7%	1.00
		Thin layer	0.11	Depth to bedrock from 20-60"	0.11
		Low piping potential	0.01		
Gaviota	20	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Borreguero	15	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
710:					
Monoridge	45	Moderate		Severe	
		Thin layer	0.96	Slopes >7%	1.00
		Possible seepage problem	0.50	Permeability >2”/hr (seepage)	1.00
		High piping potential	0.12	Depth to bedrock from 20-60"	0.96
Exclose	20	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Slopes >7%	1.00
Badland	15	Not rated		Not rated	
711:					
Currymountain	45	Moderate		Severe	
		Thin layer	0.98	Slopes >7%	1.00
		High piping potential	0.62	Depth to bedrock from 20-60"	0.98
		Shrink-swell (LEP 3-6)	0.22		
Wisflat	20	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
711:					
Borreguero	20	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
712:					
Altamont	40	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.78	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.03
		Thin layer	0.03		
Roacha	25	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.66	Marly (piping)	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.66
Borreguero	20	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
713:					
Currymountain	45	Severe		Severe	
		Fragments (>3") >35%	1.00	Slopes >7%	1.00
		Thin layer	1.00	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
Rock outcrop	20	Not rated		Not rated	
Quinto	20	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
714:					
Gaviota	45	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Borreguero	25	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Rock outcrop	15	Not rated		Not rated	
715:					
Belgarra	55	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Gypsum >15% to 80" depth	1.00
		EC 8-16 dS/m	0.03		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
715:					
Wisflat	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20"	1.00
				Permeability >2"/hr (seepage)	1.00
717:					
Belgarra	35	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Gypsum >15% to 80" depth	1.00
		EC 8-16 dS/m	0.03		
Arburua	30	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50
Morenogulch	15	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Marly (piping)	1.00
		MH or CH Unified and PI ≥40%	1.00	Depth to bedrock <20"	1.00
718:					
Nodhill	35	Severe		Severe	
		High piping potential	0.99	Slopes >7%	1.00
		Thin layer	0.91	Marly (piping)	1.00
		Shrink-swell (LEP 3-6)	0.22	Depth to bedrock from 20-60"	0.91
Wisflat	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20"	1.00
				Permeability >2"/hr (seepage)	1.00
Rock outcrop	15	Not rated		Not rated	
719:					
Nodhill	40	Severe		Severe	
		High piping potential	0.99	Slopes >7%	1.00
		Thin layer	0.91	Marly (piping)	1.00
		Shrink-swell (LEP 3-6)	0.22	Depth to bedrock from 20-60"	0.91
Arburua	25	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
719:					
Wisflat	15	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
720:					
Exclose	40	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Slopes >7%	1.00
Wisflat	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Morenogulch	15	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Marly (piping)	1.00
		MH or CH Unified and PI ≥40%	1.00	Depth to bedrock <20”	1.00
722:					
Exclose	40	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Slopes >7%	1.00
Wisflat	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Rock outcrop	15	Not rated		Not rated	
723:					
Exclose	40	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Slopes >7%	1.00
Wisflat	25	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Grazer	20	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.19
		Thin layer	0.19		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitation	Value	Pond reservoir areas: Limitation	Value
725:					
Gewter	85	Severe		Severe	
		MH or CH Unified and PI ≥40%	1.00	Slopes >7%	1.00
		Shrink-swell (LEP >6)	1.00	Marly (piping)	1.00
		Thin layer	0.99	Depth to bedrock from 20-60"	0.99
727:					
Reliz	40	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
Gewter	30	Moderate		Severe	
		Thin layer	0.96	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Marly (piping)	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.96
Rock outcrop	15	Not rated		Not rated	
728:					
Climara	85	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI ≥40%	1.00	Depth to bedrock from 20-60"	0.52
		Thin layer	0.52		
733:					
Hentine	50	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
Climara	35	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI ≥40%	1.00	Depth to bedrock from 20-60"	0.52
		Thin layer	0.52		
735:					
Getrail	35	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI ≥40%	1.00	Depth to bedrock from 20-60"	0.34
		Thin layer	0.34		
Vernado	20	Moderate		Severe	
		Thin layer	0.88	Slopes >7%	1.00
				Permeability >2”/hr (seepage)	1.00
				Depth to bedrock from 20-60"	0.88
Rock outcrop	20	Not rated		Not rated	

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
737:					
Grazer	35	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.19
		Thin layer	0.19		
Badland	30	Not rated		Not rated	
Wisflat	20	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
738:					
Grazer	35	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.19
		Thin layer	0.19		
Belgarra	30	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Gypsum >15% to 80" depth	1.00
		EC 8-16 dS/m	0.03		
Arburua	20	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50
739:					
Domengine	40	Moderate		Severe	
		Thin layer	0.52	Slopes >7%	1.00
		High piping potential	0.26	Depth to bedrock from 20-60"	0.52
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.32
Wisflat	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Rock outcrop	15	Not rated		Not rated	
740:					
Domengine	45	Moderate		Severe	
		Thin layer	0.52	Slopes >7%	1.00
		High piping potential	0.26	Depth to bedrock from 20-60"	0.52
		Shrink-swell (LEP 3-6)	0.22	Permeability .6-2"/hr (some seepage)	0.32

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees: Limitation	Embankments, dikes, and levees: Value	Pond reservoir areas: Limitation	Pond reservoir areas: Value
740:					
Lilten	25	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.42
		Thin layer	0.42		
Rock outcrop	15	Not rated		Not rated	
741:					
Anela	50	Moderate		Severe	
		Thin layer	0.12	Marly (piping)	1.00
				Permeability >2"/hr (seepage)	1.00
Vernalis	35	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.78	Permeability .6-2"/hr (some seepage)	0.50
				Slopes 2 to 7%	0.00
742:					
Millsholm	40	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20"	1.00
Wisflat	25	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20"	1.00
				Permeability >2"/hr (seepage)	1.00
Lilten	20	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.42
		Thin layer	0.42		
743:					
Millsholm	50	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20"	1.00
Borreguero	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20"	1.00
744:					
Lilten	50	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.42
		Thin layer	0.42		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
744:					
Millsholm	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
745:					
Grazer	45	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.19
		Thin layer	0.19		
Wisflat	25	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Arburua	15	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50
746:					
Rock outcrop	40	Not rated		Not rated	
Wisflat	25	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Arburua	20	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50
747:					
Lilten	35	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.42
		Thin layer	0.42		
Grazer	30	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.19
		Thin layer	0.19		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
747:					
Arburua	20	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50
748:					
Vaquero	70	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI ≥40%	1.00	Depth to bedrock from 20-60"	0.66
		Thin layer	0.66		
Grazer	20	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.19
		Thin layer	0.19		
749:					
Grazer	40	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.19
		Thin layer	0.19		
Wisflat	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Exclose	15	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Slopes >7%	1.00
750:					
Monvero	50	Slight		Severe	
				Slopes >7%	1.00
				Permeability >2”/hr (seepage)	1.00
Monoridge	35	Moderate		Severe	
		Thin layer	0.96	Slopes >7%	1.00
		Possible seepage problem	0.50	Permeability >2”/hr (seepage)	1.00
		High piping potential	0.12	Depth to bedrock from 20-60"	0.96
752:					
Cyvar	45	Severe		Severe	
		Thin layer	1.00	Depth to pan <20”	1.00
		High piping potential	0.65	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
752:					
Nodhill	35	Severe		Severe	
		High piping potential	0.99	Marly (piping)	1.00
		Thin layer	0.91	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Depth to bedrock from 20-60"	0.91
753:					
Cyvar	30	Severe		Severe	
		Thin layer	1.00	Depth to pan <20”	1.00
		High piping potential	0.65	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22		
Nodhill	25	Severe		Severe	
		High piping potential	0.99	Marly (piping)	1.00
		Thin layer	0.91	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Depth to bedrock from 20-60"	0.91
Pits	25	Not rated		Not rated	
755:					
Borreguero	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Grazer	25	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.19
		Thin layer	0.19		
Rock outcrop	20	Not rated		Not rated	
757:					
Rock outcrop	50	Not rated		Not rated	
Borreguero	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
758:					
Wisflat	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Borreguero	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
Rock outcrop	25	Not rated		Not rated	

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
761:					
Atravesada	85	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Marly (piping)	1.00
				Depth to bedrock <20”	1.00
765:					
Atravesada	50	Severe		Severe	
		Thin layer	1.00	Depth to bedrock <20”	1.00
		High piping potential	0.91	Slopes >7%	1.00
Pits	25	Not rated		Not rated	
767:					
Atravesada	50	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		High piping potential	0.91	Depth to bedrock <20”	1.00
Pits	25	Not rated		Not rated	
769:					
Dumps	55	Not rated		Not rated	
Pits	40	Not rated		Not rated	
770:					
Roacha	40	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		Thin layer	0.91	Marly (piping)	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.91
Millsholm	25	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
Lilten	20	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.42
		Thin layer	0.42		
773:					
Hentine	60	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
Rock outcrop	25	Not rated		Not rated	

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
774:					
Hentine	55	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
Franciscan	15	Moderate		Severe	
		Thin layer	0.95	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock from 20-60"	0.95
Rock outcrop	15	Not rated		Not rated	
782, 783:					
Vaquero	45	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI ≥40%	1.00	Depth to bedrock from 20-60"	0.66
		Thin layer	0.66		
Altamont	40	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.78	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.03
		Thin layer	0.03		
817:					
Arburua	88	Moderate		Moderate	
		Thin layer	0.93	Depth to bedrock from 20-60"	0.93
		Shrink-swell (LEP 3-6)	0.78	Permeability .6-2"/hr (some seepage)	0.50
		High piping potential	0.50	Slopes 2 to 7%	0.08
818, 819, 820:					
Arburua	85	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50
822:					
Altamont	85	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.78	Slopes 2 to 7%	0.66
		MH or CH Unified and PI <40%	0.50	Depth to bedrock from 20-60"	0.03
		Thin layer	0.03		
823:					
Ayar	85	Severe		Moderate	
		Shrink-swell (LEP >6)	1.00	Slopes 2 to 7%	0.91
		MH or CH Unified and PI <40%	0.50		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
827:					
Ayar	50	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Slopes >7%	1.00
		MH or CH Unified and PI <40%	0.50		
834:					
Bapos	75	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Marly (piping)	1.00
		High piping potential	0.98	Slopes 2 to 7%	0.31
		MH or CH Unified and PI <40%	0.50		
835:					
Pedcat	85	Severe		Slight	
		Ponding (any duration)	1.00		
		Very high piping potential	1.00		
		Shrink-swell (LEP 3-6)	0.78		
842:					
Quinto	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
Millsholm	30	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Depth to bedrock <20”	1.00
Rock outcrop	20	Not rated		Not rated	
847:					
Carranza	85	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
		Low piping potential	0.10	Permeability .6-2"/hr (some seepage)	0.50
				Slopes 2 to 7%	0.08
849:					
Chaqua	85	Severe		Moderate	
		Very high piping potential	1.00	Slopes 2 to 7%	0.31
		Thin layer	0.19	Depth to bedrock from 20-60"	0.19
				Permeability .6-2"/hr (some seepage)	0.18
851:					
Los Banos	85	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Marly (piping)	1.00
		MH or CH Unified and PI <40%	0.50		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
852:					
Los Banos	85	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Marly (piping)	1.00
		MH or CH Unified and PI <40%	0.50	Slopes 2 to 7%	0.08
853:					
Los Banos	55	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Marly (piping)	1.00
		MH or CH Unified and PI <40%	0.50	Slopes 2 to 7%	0.31
Pleito	30	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Slopes 2 to 7%	0.31
855:					
Pleito	85	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Slopes >7%	1.00
				Marly (piping)	1.00
863:					
Vernalis	85	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.78	Permeability .6-2"/hr (some seepage)	0.50
865:					
Conosta	85	Severe		Severe	
		Shrink-swell (LEP >6)	1.00	Marly (piping)	1.00
		Thin layer	0.81	Depth to bedrock from 20-60"	0.81
				Slopes 2 to 7%	0.31
870:					
Wisflat	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00
Rock outcrop	30	Not rated		Not rated	
Arburua	20	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50
871:					
Wisflat	35	Severe		Severe	
		Thin layer	1.00	Slopes >7%	1.00
				Depth to bedrock <20”	1.00
				Permeability >2”/hr (seepage)	1.00

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
871:					
Rock outcrop	30	Not rated		Not rated	
Arburua	20	Moderate		Severe	
		Thin layer	0.93	Slopes >7%	1.00
		Shrink-swell (LEP 3-6)	0.78	Depth to bedrock from 20-60"	0.93
		High piping potential	0.50	Permeability .6-2"/hr (some seepage)	0.50
872:					
Vernalis	90	Moderate		Moderate	
		Shrink-swell (LEP 3-6)	0.78	Permeability .6-2"/hr (some seepage)	0.50
				Slopes 2 to 7%	0.00
873:					
Narbaitz	60	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Marly (piping)	1.00
				Slopes >7%	1.00
Pleito	30	Moderate		Severe	
		Shrink-swell (LEP 3-6)	0.22	Slopes >7%	1.00
				Marly (piping)	1.00
940:					
Milham	40	Severe		Severe	
		Thin layer	1.00	Marly (piping)	1.00
		Very high piping potential	1.00	Permeability >2”/hr (seepage)	1.00
		Organic matter (PT, OL, OH)	1.00	Slopes 2 to 7%	0.00
Polvadero	40	Severe		Severe	
		Thin layer	1.00	Marly (piping)	1.00
		Very high piping potential	1.00	Permeability >2”/hr (seepage)	1.00
		Organic matter (PT, OL, OH)	1.00	Slopes 2 to 7%	0.00
941:					
Bisgani	45	Severe		Severe	
		Wetness <2’ depth	1.00	Permeability >2”/hr (seepage)	1.00
		Seepage problem	1.00		
Elnido	40	Severe		Severe	
		Wetness <2’ depth	1.00	Permeability >2”/hr (seepage)	1.00
		Very high piping potential	1.00		
950:					
Pits	85	Not rated		Not rated	
960:					
Excelsior	50	Severe		Severe	
		Ponding (any duration)	1.00	Permeability >2”/hr (seepage)	1.00
		Low piping potential	0.02		

Table 24.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Pond reservoir areas	
		Limitation	Value	Limitation	Value
960:					
Westhaven-------------------------	30	Severe		Moderate	
		Ponding (any duration)	1.00	Permeability .6-2"/hr (some seepage)	0.08
		High piping potential	0.93		
		Shrink-swell (LEP 3-6)	0.22		
980:					
Urban land------------------------	97	Not rated		Not rated	
981:					
Sewage disposal ponds-------------	100	Not rated		Not rated	
982:					
Water-----------------------------	100	Not rated		Not rated	

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 25.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated)

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	
101:												
Armona loam, partially drained	0-14	Loam	CL	A-6, A-4	0	0	100	100	85-95	60-75	30-40	5-15
	14-22	Stratified loam to clay loam	CL	A-7, A-6	0	0	100	100	85-100	60-80	30-45	10-20
	22-42	Stratified loam to clay loam	CL	A-7, A-6	0	0	100	100	85-100	60-80	30-45	10-20
	42-60	Stratified loam to clay loam	CL	A-7, A-6	0	0	100	100	85-100	60-80	30-45	10-20
107:												
Anela very gravelly sandy loam	0-7	Gravelly sandy loam, very gravelly sandy loam	GM, SM	A-1-a, A-1-b	0	2-15	40-60	35-50	20-35	10-20	15-20	NP-4
	7-15	Very gravelly coarse sandy loam	GM, SM	A-1-a, A-1-b	0	2-15	40-60	35-50	20-35	10-20	15-20	NP-4
	15-22	Very gravelly coarse sandy loam	SM, GM	A-1-b, A-1-a	0	2-15	40-60	35-50	20-35	10-20	15-20	NP-4
	22-49	Very gravelly coarse sandy loam	GM	A-1-b, A-1-a	0	2-25	35-55	30-50	15-30	10-20	15-20	NP-4
	49-65	Extremely gravelly loamy coarse sand	GW	A-1-a	0	7-25	25-40	20-30	10-20	3-5	15-20	NP-2
115:												
Bolfar loam, drained-----------	0-29	Loam	CL	A-6	0	0	100	100	85-95	60-70	25-35	10-15
	29-34	Stratified fine sandy loam to loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	75-95	35-75	20-35	5-15
	34-39	Stratified fine sandy loam to loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	75-95	35-75	20-35	5-15
	39-44	Stratified fine sandy loam to loam	CL, SC, SC-SM, CL-ML	A-4, A-6	0	0	100	100	75-95	35-75	20-35	5-15
	44-87	Sandy clay loam, sandy loam, loam	SC-SM, CL-ML, SC, CL	A-6, A-4	0	0	100	100	65-95	35-75	20-40	5-20

Table 25.--Engineering Index 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	
120:												
Altaslough clay loam	0-13	Clay loam	CL	A-7	0	0	100	100	90-100	70-80	40-50	15-30
	13-24	Clay loam	CL	A-7	0	0	100	100	90-100	70-80	40-50	15-30
	24-51	Clay loam	CL	A-7	0	0	100	100	90-100	70-80	40-50	20-30
	51-72	Stratified sandy loam to clay loam	SC, CL	A-7, A-6	0	0	100	100	80-100	35-80	30-50	15-30
130:												
Gepford clay	0-13	Clay	CH	A-7	0	0	100	100	90-100	80-95	60-80	35-50
	13-26	Silty clay, clay	CH	A-7	0	0	100	100	90-100	80-95	60-80	35-50
	26-60	Clay loam, clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-45
282:												
Tachi clay	0-14	Clay	CH	A-7	0	0	100	100	95-100	90-95	70-90	45-55
	14-35	Clay	CH	A-7	0	0	100	100	95-100	90-95	70-90	45-55
	35-70	Silty clay, clay	CH	A-7	0	0	100	100	90-100	85-95	60-80	35-50
284:												
Lillis clay	0-2	Clay	CH	A-7	0	0	100	100	95-100	90-100	60-75	35-50
	2-7	Clay	CH	A-7	0	0	100	100	95-100	90-100	65-75	35-50
	7-13	Clay	CH	A-7	0	0	100	100	95-100	90-100	65-75	40-55
	13-21	Clay	CH	A-7	0	0	100	100	95-100	90-100	70-80	55-60
	21-28	Clay	CH	A-7	0	0	100	100	95-100	90-100	75-85	50-60
	28-39	Clay	CH	A-7	0	0	100	100	95-100	90-100	75-85	50-65
	39-48	Clay	CH	A-7	0	0	100	100	95-100	90-100	75-85	55-65
	48-60	Silty clay, clay	CH	A-7	0	0	100	100	95-100	85-100	75-85	50-60
285:												
Tranquillity clay, saline-sodic	0-22	Silty clay, clay	CH	A-7	0	0	100	100	95-100	85-100	55-75	35-50
	22-53	Silty clay, clay	CH	A-7	0	0	100	100	95-100	85-100	55-70	35-45
	53-71	Silty clay, clay	CH	A-7	0	0	100	100	95-100	85-100	55-70	35-45

Table 25.--Engineering Index 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	
285:												
Tranquillity clay, saline-sodic, wet	0-6	Clay	CH	A-7	0	0	100	100	95-100	80-95	55-75	35-50
	6-16	Clay	CH	A-7	0	0	100	100	95-100	80-95	55-75	35-50
	16-31	Clay	CH	A-7	0	0	100	100	95-100	80-95	55-75	35-50
	31-48	Clay	CH	A-7	0	0	100	100	95-100	80-95	55-75	35-50
	48-65	Clay, silty clay	CH	A-7	0	0	100	100	95-100	90-95	55-75	35-50
286:												
Tranquillity clay, saline-sodic, wet	0-6	Clay	CH	A-7	0	0	100	100	95-100	80-95	55-75	35-50
	6-16	Clay	CH	A-7	0	0	100	100	95-100	80-95	55-75	35-50
	16-31	Clay	CH	A-7	0	0	100	100	95-100	80-95	55-75	35-50
	31-48	Clay	CH	A-7	0	0	100	100	95-100	80-95	55-75	35-50
	48-65	Clay, silty clay	CH	A-7	0	0	100	100	95-100	90-95	55-75	35-50
311:												
Bisgani sandy loam, drained	0-10	Stratified sandy loam	SM	A-2-4	0	0	100	100	60-70	30-40	0-20	NP-5
	10-13	Stratified loamy sand	SM	A-2-4	0	0	100	100	50-75	15-30	0-15	NP-5
	13-60	Loamy sand, sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-30	0-15	NP-5
320:												
Elnido sandy loam, drained	0-14	Sandy loam	SC-SM	A-4, A-2-4	0	0	100	100	60-70	30-40	20-30	5-10
	14-32	Fine sandy loam, sandy loam	SC-SM	A-4	0	0	100	100	60-85	35-50	15-30	2-10
	32-40	Sandy loam, fine sandy loam	SC-SM	A-4	0	0	100	100	60-85	35-50	15-30	2-10
	40-53	Sandy loam	SC-SM	A-4	0	0	100	100	60-85	35-50	15-30	2-10
	53-60	Loamy sand, sand	SM, SC-SM	A-2-4	0	0	100	100	50-70	5-25	0-10	NP-3
325:												
Palazzo sandy loam, drained	0-10	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	20-30	5-10
	10-31	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	20-30	5-10
	31-60	Silt loam, clay loam	CL	A-7-6, A-6	0	0	100	100	90-100	70-90	30-45	10-25

Table 25.--Engineering Index 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	
375:												
Lethent silt loam-------------	0-7	Silt loam	CL	A-6	0	0	100	100	90-100	70-90	30-35	10-15
	7-20	Silty clay loam, clay, clay loam, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-45
	20-39	Clay, silty clay loam, clay loam, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	25-45
	39-60	Clay loam, silt loam, loam, silty clay loam	CL	A-6, A-7	0	0	100	100	85-100	65-95	35-50	20-30
376:												
Agnal silty clay---------------	0-6	Clay, silty clay	CH, CL	A-7	0	0	100	100	98-100	95-100	45-55	25-35
	6-9	Silty clay, clay	CH, CL	A-7	0	0	100	100	98-100	95-100	45-55	25-35
	9-70	Clay, silty clay	CH, CL	A-7	0	0	100	100	98-100	95-100	45-55	25-35
404:												
Milham sandy loam-------------	0-6	Sandy loam	SC, SC-SM	A-4, A-2-4	0	0	95-100	95-100	55-70	25-40	20-30	5-10
	6-16	Sandy clay loam	SC	A-6, A-2-6	0	0	90-100	85-100	60-90	30-50	30-40	10-20
	16-31	Sandy clay loam	SC	A-2-6, A-6	0	0	90-100	85-100	60-90	30-50	30-40	10-20
	31-60	Sandy loam	SC-SM, SM	A-2-4	0	0	95-100	85-100	55-70	25-35	10-20	NP-5

Table 25.--Engineering Index 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	
404:												
Guijarral sandy loam-----------	0-3	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	45-70	20-40	0-25	NP-10
	3-6	Fine sandy loam, sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	45-70	20-40	0-25	NP-10
	6-12	Fine sandy loam, sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	45-70	20-40	0-25	NP-10
	12-24	Sandy loam, gravelly sandy loam	SC-SM, SM	A-2-4	0	0	75-90	70-85	40-60	20-35	0-25	NP-10
	24-36	Sandy loam, gravelly sandy loam	SC-SM, SM	A-2-4	0	0	75-90	70-85	40-60	20-35	0-25	NP-10
	36-60	Gravelly sandy loam, sandy loam, gravelly loamy sand	SC-SM, SM	A-2-4	0	0	60-90	55-85	30-60	10-30	0-25	NP-10
405:												
Polvadero sandy loam-----------	0-7	Fine sandy loam, sandy loam	SC-SM	A-2-4	0	0-1	80-100	75-100	45-85	25-55	20-30	5-10
	7-12	Fine sandy loam, sandy loam	SC-SM	A-2-4	0	0-1	80-100	75-100	45-85	25-55	20-30	5-10
	12-30	Sandy loam, loam, sandy clay loam	SC	A-2-6, A-6	0	0-1	80-100	75-100	50-90	25-55	30-40	10-20
	30-52	Loam, sandy loam, sandy clay loam	SC	A-2-6, A-6	0	0-1	80-100	75-100	50-90	25-55	30-40	10-20
	52-60	Loam, sandy clay loam, sandy loam	SC, SC-SM	A-2-4	0	0-1	80-100	75-100	45-90	25-50	20-35	5-15

Table 25.--Engineering Index 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	
405:												
Guijarral sandy loam-----------	0-3	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	45-70	20-40	0-25	NP-10
	3-6	Fine sandy loam, sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	45-70	20-40	0-25	NP-10
	6-12	Fine sandy loam, sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	45-70	20-40	0-25	NP-10
	12-24	Sandy loam, gravelly sandy loam	SC-SM, SM	A-2-4	0	0	75-90	70-85	40-60	20-35	0-25	NP-10
	24-36	Sandy loam, gravelly sandy loam	SC-SM, SM	A-2-4	0	0	75-90	70-85	40-60	20-35	0-25	NP-10
	36-60	Gravelly sandy loam, sandy loam, gravelly loamy sand	SC-SM, SM	A-2-4	0	0	60-90	55-85	30-60	10-30	0-25	NP-10
406:												
Guijarral sandy loam-----------	0-3	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	45-70	20-40	0-25	NP-10
	3-6	Fine sandy loam, sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	45-70	20-40	0-25	NP-10
	6-12	Fine sandy loam, sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	45-70	20-40	0-25	NP-10
	12-24	Sandy loam, gravelly sandy loam	SC-SM, SM	A-2-4	0	0	75-90	70-85	40-60	20-35	0-25	NP-10
	24-36	Sandy loam, gravelly sandy loam	SC-SM, SM	A-2-4	0	0	75-90	70-85	40-60	20-35	0-25	NP-10
	36-60	Sandy loam, gravelly sandy loam, gravelly loamy sand	SC-SM, SM	A-2-4	0	0	60-90	55-85	30-60	10-30	0-25	NP-10

Table 25.--Engineering Index 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	
412:												
Yribarren clay loam	0-9	Clay loam	CL	A-7	0	0	90-100	85-100	80-100	65-80	40-50	20-30
	9-16	Silty clay loam, clay loam	CL	A-7	0	0	90-100	85-100	85-100	65-95	40-50	20-30
	16-31	Silty clay, clay loam, silty clay loam, clay	CH	A-7	0	0	90-100	85-100	80-100	65-95	50-65	30-40
	31-51	Silt loam, loam, clay loam, silty clay loam	CL	A-7, A-6	0	0	90-100	85-100	75-95	55-85	35-50	15-30
	51-60	Clay loam, loam, silty clay loam, silt loam	CL	A-6, A-7	0	0	90-100	85-100	75-95	55-85	35-50	15-30
414:												
Dospalos clay loam, drained	0-17	Clay loam	CH	A-7	0	0	100	100	90-100	70-85	50-55	30-35
	17-25	Clay	CH	A-7	0	0	100	100	95-100	90-95	65-75	40-50
	25-43	Clay	CH	A-7	0	0	100	100	95-100	85-95	65-75	40-50
	43-73	Clay loam, silty clay loam	CH, CL	A-7	0	0	100	100	90-100	70-85	45-55	25-35
415:												
Dospalos clay, drained	0-17	Clay	CH	A-7	0	0	100	100	95-100	90-95	65-80	40-55
	17-25	Clay	CH	A-7	0	0	100	100	95-100	90-95	65-75	40-50
	25-43	Clay	CH	A-7	0	0	100	100	95-100	85-95	65-75	40-50
	43-73	Clay loam, silty clay loam	CH, CL	A-7	0	0	100	100	90-100	70-85	45-55	25-35
425:												
Kimberlina sandy loam	0-14	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0	90-100	85-100	55-70	25-40	20-30	NP-10
	14-72	Sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0	90-100	85-100	55-70	25-50	20-30	NP-10

Table 25.--Engineering Index 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	
426:												
Kimberlina sandy loam----------	0-14	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0	90-100	85-100	55-70	25-40	20-30	NP-10
	14-72	Fine sandy loam, sandy loam	SM, SC-SM	A-2-4, A-4	0	0	90-100	85-100	55-70	25-50	20-30	NP-10
434:												
Lethent clay loam, wet---------	0-7	Clay loam	CL, CH	A-7	0	0	100	100	90-100	70-80	45-60	20-35
	7-16	Clay loam	CL, CH	A-7	0	0	100	100	90-100	70-80	45-60	20-35
	16-25	Clay loam	CL, CH	A-7	0	0	100	100	90-100	70-80	45-60	20-35
	25-33	Clay, clay loam	CH	A-7	0	0	100	100	90-100	70-90	50-70	25-40
	33-62	Clay, clay loam	CH	A-7	0	0	100	100	90-100	70-90	50-70	25-40
	62-72	Loam, silt loam, clay loam	CL, CH	A-7, A-6	0	0	100	100	85-100	60-90	35-55	15-35
435:												
Lethent clay loam--------------	0-7	Clay loam	CL, CH	A-7	0	0	100	100	90-100	70-80	45-60	20-35
	7-16	Clay loam	CL, CH	A-7	0	0	100	100	90-100	70-80	45-60	20-35
	16-25	Clay loam	CL, CH	A-7	0	0	100	100	90-100	70-80	45-60	20-35
	25-33	Clay loam, clay	CH	A-7	0	0	100	100	90-100	70-90	50-70	25-40
	33-62	Clay loam, clay	CH	A-7	0	0	100	100	90-100	70-90	50-70	25-40
	62-72	Clay loam, loam, silt loam	CL, CH	A-7, A-6	0	0	100	100	85-100	60-90	35-55	15-35
436:												
Panoche loam-------------------	0-7	Loam	CL	A-6	0	0	95-100	90-100	75-95	55-75	30-40	10-20
	7-16	Clay loam, loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	16-27	Clay loam, loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	27-43	Clay loam, loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	43-57	Clay loam, loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	57-72	Loam, sandy loam, clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	55-100	35-75	20-40	5-20

Table 25.--Engineering Index 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	
437:												
Panoche sandy loam	0-7	Sandy loam	SC-SM	A-4	0	0	95-100	90-100	55-70	30-40	20-30	5-10
	7-16	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	16-27	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	27-43	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	43-57	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	57-72	Sandy loam, loam, clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	55-100	35-75	20-40	5-20
438:												
Panoche loam	0-7	Loam	CL	A-6	0	0	95-100	90-100	75-95	55-75	30-40	10-20
	7-16	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	16-27	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	27-43	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	43-57	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	57-72	Sandy loam, loam, clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	55-100	35-75	20-40	5-20
442:												
Panoche clay loam	0-7	Clay loam	CL	A-6	0	0	95-100	90-100	80-100	65-80	35-40	15-20
	7-16	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	16-27	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	27-43	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	43-57	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	57-72	Sandy loam, loam, clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	55-100	35-75	20-40	5-20
445:												
Excelsior sandy loam	0-7	Sandy loam	SC-SM, SM	A-4, A-2-4	0	0	100	100	60-70	30-40	15-30	NP-10
	7-23	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	15-30	NP-10
	23-72	Stratified sandy loam to silt loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	100	55-95	30-85	15-30	NP-10

Table 25.--Engineering Index 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	
447: Excelsior sandy loam, sandy substratum-------------------	0-7	Sandy loam	SC-SM, SM	A-4, A-2-4	0	0	100	100	60-70	30-40	15-30	NP-10
	7-23	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	15-30	NP-10
	23-53	Stratified loamy sand to silt loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	100	55-95	20-85	15-30	NP-10
	53-72	Loamy sand	SM	A-2-4	0	0	100	100	50-75	15-30	10-20	NP-5
448: Excelsior loamy sand, sandy substratum, eroded-----------	0-8	Loamy sand	SM	A-2-4	0	0	90-100	85-100	40-70	15-30	10-20	NP-5
	8-38	Stratified sandy loam to silt loam	SC-SM, CL-ML, ML, SM	A-2-4, A-4	0	0	90-100	85-100	50-90	30-85	15-30	NP-10
	38-60	Loamy sand	SM	A-2-4	0	0	90-100	85-100	40-70	15-30	10-20	NP-5
451, 452, 453: Milham sandy loam-------------	0-6	Sandy loam	SC, SC-SM	A-4, A-2-4	0	0	95-100	95-100	55-70	25-40	20-30	5-10
	6-16	Sandy clay loam	SC	A-6, A-2-6	0	0	90-100	85-100	60-90	30-50	30-40	10-20
	16-31	Sandy clay loam	SC	A-2-6, A-6	0	0	90-100	85-100	60-90	30-50	30-40	10-20
	31-60	Sandy loam	SC-SM, SM	A-2-4	0	0	95-100	85-100	55-70	25-35	10-20	NP-5
454, 455: Polvadero sandy loam-----------	0-7	Fine sandy loam, sandy loam	SC-SM	A-2-4	0	0-1	80-100	75-100	45-85	25-55	20-30	5-10
	7-12	Fine sandy loam, sandy loam	SC-SM	A-2-4	0	0-1	80-100	75-100	45-85	25-55	20-30	5-10
	12-30	Sandy loam, loam, sandy clay loam	SC	A-2-6, A-6	0	0-1	80-100	75-100	50-90	25-55	30-40	10-20
	30-52	Sandy loam, loam, sandy clay loam	SC	A-2-6, A-6	0	0-1	80-100	75-100	50-90	25-55	30-40	10-20
	52-60	Loam, sandy clay loam, sandy loam	SC, SC-SM	A-2-4	0	0-1	80-100	75-100	45-90	25-50	20-35	5-15

Table 25.--Engineering Index 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	
459:												
Ciervo clay	0-17	Clay, clay loam	CL, CH	A-7	0	0	100	100	90-100	70-95	45-65	25-35
	17-27	Clay, clay loam, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-50
	27-41	Silty clay, clay loam, clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-50
	41-60	Clay loam, loam, silty clay loam	CH, CL	A-7	0	0	100	100	85-100	60-95	40-60	20-40
461:												
Ciervo clay, saline-sodic, wet	0-17	Clay, clay loam	CL, CH	A-7	0	0	100	100	90-100	70-95	45-65	25-35
	17-27	Clay, clay loam, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-50
	27-41	Silty clay, clay loam, clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-50
	41-60	Clay loam, loam, silty clay loam	CH, CL	A-7	0	0	100	100	85-100	60-95	40-60	20-40
462:												
Ciervo clay, saline-sodic, wet	0-17	Clay, clay loam	CL, CH	A-7	0	0	100	100	90-100	70-95	45-65	25-35
	17-27	Clay, clay loam, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-50
	27-41	Silty clay, clay loam, clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-50
	41-60	Clay loam, loam, silty clay loam	CH, CL	A-7	0	0	100	100	85-100	60-95	40-60	20-40

Table 25.--Engineering Index 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	
462:												
Ciervo clay, saline-sodic------	0-17	Clay, clay loam	CL, CH	A-7	0	0	100	100	90-100	70-95	45-65	25-35
	17-27	Clay, clay loam, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-50
	27-41	Silty clay, clay loam, clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	30-50
	41-60	Clay loam, loam, silty clay loam	CH, CL	A-7	0	0	100	100	85-100	60-95	40-60	20-40
466:												
Paver clay loam---------------	0-6	Clay loam	CL	A-7, A-6	0	0	90-100	85-100	80-100	65-80	35-45	15-25
	6-19	Clay loam	CL	A-7, A-6	0	0	90-100	85-100	80-100	65-80	35-45	15-25
	19-26	Clay loam, loam	CL	A-7, A-6	0	0	90-100	85-100	75-100	55-80	30-45	15-25
	26-48	Clay loam, loam	CL	A-7, A-6	0	0	90-100	85-100	75-100	55-80	30-45	15-25
	48-60	Loam, clay loam	CL	A-7, A-6	0	0	90-100	85-100	75-100	55-80	30-45	15-25
468:												
Deldota clay, partially drained----------------------	0-17	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-60	25-35
	17-24	Clay, clay loam	CL, CH	A-7	0	0	100	95-100	90-100	70-95	45-60	20-35
	24-54	Clay, clay loam	CL, CH	A-7	0	0	100	95-100	90-100	70-95	45-60	20-35
	54-65	Clay loam	CL	A-7	0	0	100	95-100	90-100	70-80	40-50	20-25
470:												
Chateau clay, partially drained	0-6	Clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	25-40
	6-20	Clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	25-40
	20-43	Silty clay loam, clay loam, clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	40-60	25-35
	43-60	Silty clay, clay	CH	A-7	0	0	100	100	90-100	75-95	50-60	25-35
472:												
Wekoda clay, partially drained	0-7	Clay	CH	A-7	0	0	100	100	90-100	75-95	70-80	40-50
	7-12	Clay	CH	A-7	0	0	100	100	90-100	75-95	70-80	40-50
	12-22	Clay	CH	A-7	0	0	100	100	90-100	75-95	60-80	35-50
	22-35	Clay	CH	A-7	0	0	100	100	90-100	75-95	60-80	35-50
	35-47	Clay	CH	A-7	0	0	100	100	90-100	75-95	60-80	35-50
	47-60	Clay	CH	A-7	0	0	100	100	90-100	75-95	60-80	35-50

Table 25.--Engineering Index 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	
474:												
Westhaven loam	0-7	Loam	CL	A-6	0	0	100	100	85-95	60-75	30-40	10-15
	7-17	Loam	CL	A-6	0	0	100	100	90-95	60-75	30-40	10-15
	17-42	Stratified loam to silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-90	30-45	10-20
	42-65	Stratified loamy sand to silty clay loam	CL-ML, CL	A-4, A-7, A-6	0	0	100	100	55-95	35-90	20-45	5-20
	65-72	Stratified loam to silty clay loam	CL	A-7, A-6	0	0	100	100	90-100	70-90	30-45	10-20
475:												
Posochanet clay loam, saline-sodic, wet	0-7	Clay loam	CL	A-6, A-7	0	0	100	100	95-100	75-80	35-45	15-25
	7-15	Clay loam	CL	A-6, A-7	0	0	100	100	95-100	75-80	35-45	15-25
	15-24	Stratified loam to silty clay loam	CL	A-7, A-6	0	0	100	100	90-100	75-90	30-45	10-25
	24-60	Stratified loam to silty clay loam	CL	A-7, A-6	0	0	100	100	90-100	75-90	30-45	10-25
476:												
Posochanet clay loam, saline-sodic	0-7	Clay loam	CL	A-6, A-7	0	0	100	100	95-100	75-80	35-45	15-25
	7-15	Clay loam	CL	A-6, A-7	0	0	100	100	95-100	75-80	35-45	15-25
	15-24	Stratified loam to silty clay loam	CL	A-7, A-6	0	0	100	100	90-100	75-90	30-45	10-25
	24-60	Stratified loam to silty clay loam	CL	A-7, A-6	0	0	100	100	90-100	75-90	30-45	10-25

Table 25.--Engineering Index 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	
477:												
Westhaven clay loam	0-12	Clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-80	35-45	15-25
	12-21	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-25
	21-61	Stratified loam to silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-90	30-45	10-20
	61-72	Stratified loamy sand to silty clay loam	CL-ML, CL	A-4, A-7, A-6	0	0	100	100	55-95	35-90	20-45	5-20
478:												
Cerini sandy loam	0-5	Sandy loam	SC-SM	A-4, A-2-4	0	0	100	95-100	60-70	30-40	20-30	5-10
	5-25	Loam, clay loam	CL	A-6	0	0	100	95-100	80-100	60-80	30-40	10-20
	25-35	Stratified sandy loam to clay loam	CL, SC	A-6	0	0	100	95-100	60-95	35-75	30-40	10-20
	35-62	Stratified sandy loam to clay loam	CL-ML, SC, SC-SM, CL	A-2-4, A-6, A-2-6	0	0	90-100	85-100	55-95	30-75	20-35	5-20
479:												
Cerini clay loam	0-5	Clay loam	CL	A-6	0	0	100	95-100	85-100	65-80	35-40	15-20
	5-25	Clay loam, loam	CL	A-6	0	0	100	95-100	80-100	60-80	30-40	10-20
	25-35	Stratified sandy loam to clay loam	CL, SC	A-6	0	0	100	95-100	60-95	35-75	30-40	10-20
	35-62	Stratified sandy loam to clay loam	CL, CL-ML, SC, SC-SM	A-2-4, A-6, A-2-6	0	0	90-100	85-100	55-95	30-75	20-35	5-20
480:												
Calflax clay loam, saline-sodic	0-8	Clay loam	CL	A-7, A-6	0	0	100	100	90-100	70-80	35-50	15-25
	8-26	Clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-80	35-50	15-25
	26-33	Loam, clay loam	CL	A-6, A-7	0	0	100	100	85-100	60-80	30-50	10-25
	33-47	Silt loam, loam, clay loam	CL	A-6, A-7	0	0	100	100	85-100	70-90	30-50	10-25
	47-65	Loam, clay loam	CL	A-6, A-7	0	0	100	100	85-100	60-80	30-50	10-25

Table 25.--Engineering Index 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	
481:												
Cerini clay loam	0-5	Clay loam	CL	A-6	0	0	100	95-100	85-100	65-80	35-40	15-20
	5-25	Loam, clay loam	CL	A-6	0	0	100	95-100	80-100	60-80	30-40	10-20
	25-35	Stratified sandy loam to clay loam	CL, SC	A-6	0	0	100	95-100	60-95	35-75	30-40	10-20
	35-62	Stratified sandy loam to clay loam	CL, CL-ML, SC, SC-SM	A-2-4, A-6, A-2-6	0	0	90-100	85-100	55-95	30-75	20-35	5-20
482:												
Calflax clay loam, saline-sodic, wet	0-8	Clay loam	CL	A-7, A-6	0	0	100	100	90-100	70-80	35-50	15-25
	8-26	Clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-80	35-50	15-25
	26-33	Loam, clay loam	CL	A-6, A-7	0	0	100	100	85-100	60-80	30-50	10-25
	33-47	Silt loam, loam, clay loam	CL	A-6, A-7	0	0	100	100	85-100	70-90	30-50	10-25
	47-65	Loam, clay loam	CL	A-6, A-7	0	0	100	100	85-100	60-80	30-50	10-25
488, 489:												
Wasco sandy loam	0-8	Sandy loam	SM	A-4, A-2-4	0	0	100	100	60-70	30-40	20-25	NP-5
	8-21	Sandy loam	SM	A-2-4, A-4	0	0	100	100	60-70	30-40	20-25	NP-5
	21-50	Sandy loam	SM	A-4, A-2-4	0	0	100	100	60-70	30-40	20-25	NP-5
	50-72	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-2-4, A-4	0	0	100	100	60-85	25-50	20-25	NP-5
490:												
Cerini sandy loam, subsided	0-5	Sandy loam	SC-SM	A-4, A-2-4	0	0	100	95-100	60-70	30-40	20-30	5-10
	5-25	Loam, clay loam	CL	A-6	0	0	100	95-100	80-100	60-80	30-40	10-20
	25-35	Stratified sandy loam to clay loam	CL, SC	A-6	0	0	100	95-100	60-95	35-75	30-40	10-20
	35-62	Stratified sandy loam to clay loam	CL, CL-ML, SC, SC-SM	A-2-4, A-6, A-2-6	0	0	90-100	85-100	55-95	30-75	20-35	5-20

Table 25.--Engineering Index 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	
491:												
Cerini clay loam, subsided-----	0-5	Clay loam	CL	A-6	0	0	100	95-100	85-100	65-80	35-40	15-20
	5-25	Loam, clay loam	CL	A-6	0	0	100	95-100	80-100	60-80	30-40	10-20
	25-35	Stratified sandy loam to clay loam	CL, SC	A-6	0	0	100	95-100	60-95	35-75	30-40	10-20
	35-62	Stratified sandy loam to clay loam	CL, CL-ML, SC, SC-SM	A-2-4, A-6, A-2-6	0	0	90-100	85-100	55-95	30-75	20-35	5-20
492:												
Panoche loam, subsided---------	0-7	Loam	CL	A-6	0	0	95-100	90-100	75-95	55-75	30-40	10-20
	7-16	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	16-27	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	27-43	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	43-57	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	57-72	Sandy loam, loam, clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	55-100	35-75	20-40	5-20
493:												
Panoche clay loam, subsided----	0-7	Clay loam	CL	A-6	0	0	95-100	90-100	80-100	65-80	35-40	15-20
	7-16	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	16-27	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	27-43	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	43-57	Loam, clay loam	CL	A-6	0	0	95-100	90-100	75-100	60-80	30-40	10-20
	57-72	Sandy loam, loam, clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	55-100	35-75	20-40	5-20
587, 588:												
Mugatu fine sandy loam---------	0-2	Fine sandy loam	CL-ML, SC-SM	A-4	0	0	90-100	85-100	65-85	40-55	20-30	5-10
	2-10	Fine sandy loam	CL-ML, SC-SM	A-4	0	0	90-100	85-100	65-85	40-55	20-30	5-10
	10-24	Fine sandy loam	SC-SM, CL-ML	A-4	0	0	90-100	85-100	65-85	35-55	20-30	5-10
	24-41	Clay loam	CL	A-7	0	0	90-100	85-100	80-100	60-80	35-45	15-20
	41-60	Stratified very gravelly coarse sand to gravelly sandy loam	SP, SM, GP	A-1, A-2-4	0	0-8	40-80	35-75	20-60	2-30	10-20	NP-5

Table 25.--Engineering Index 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	
590:												
Cerini sandy loam-------------	0-5	Sandy loam	SC-SM	A-4, A-2-4	0	0	100	95-100	60-70	30-40	20-30	5-10
	5-25	Loam, clay loam	CL	A-6	0	0	100	95-100	80-100	60-80	30-40	10-20
	25-35	Stratified sandy loam to clay loam	CL, SC	A-6	0	0	100	95-100	60-95	35-75	30-40	10-20
	35-62	Stratified sandy loam to clay loam	CL, CL-ML, SC, SC-SM	A-2-4, A-6, A-2-6	0	0	90-100	85-100	55-95	30-75	20-35	5-20
Anela very gravelly sandy loam	0-7	Gravelly sandy loam, very gravelly sandy loam	GM, SM	A-1-a, A-1-b	0	2-15	40-60	35-50	20-35	10-20	15-20	NP-4
	7-15	Very gravelly coarse sandy loam	GM, SM	A-1-a, A-1-b	0	2-15	40-60	35-50	20-35	10-20	15-20	NP-4
	15-22	Very gravelly coarse sandy loam	SM, GM	A-1-b, A-1-a	0	2-15	40-60	35-50	20-35	10-20	15-20	NP-4
	22-49	Very gravelly coarse sandy loam	GM	A-1-b, A-1-a	0	2-25	35-55	30-50	15-30	10-20	15-20	NP-4
	49-65	Extremely gravelly loamy coarse sand	GW	A-1-a	0	7-25	25-40	20-30	10-20	3-5	15-20	NP-2
Fluvaquents, saline-sodic------	0-5	Stratified gravelly sand to loam	CL-ML, SC-SM, SM	A-2-4, A-4	0	0-1	55-100	50-100	30-95	5-70	10-25	NP-10
	5-10	Stratified gravelly sand to loam	CL-ML, SC-SM, SM	A-2-4, A-4	0	0-1	55-100	50-100	30-95	5-70	10-25	NP-10
	10-18	Stratified gravelly sand to loam	CL-ML, SC-SM, SM	A-2-4, A-4	0	0-1	55-100	50-100	30-95	5-70	10-25	NP-10
	18-60	Stratified very gravelly sand to loam	CL-ML, SC-SM, SM, GC-GM	A-2-4, A-4	0	0-1	35-90	30-85	20-80	3-60	10-25	NP-10

Table 25.--Engineering Index 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	
620:												
Delgado sandy loam, eroded-----	0-2	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	2-5	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	5-15	Sandy loam	SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-20	NP-5
	15-20	Bedrock	---	---	---	---	---	---	---	---	---	---
621:												
Delgado sandy loam, eroded-----	0-2	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	2-6	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	6-10	Sandy loam	SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-20	NP-5
	10-14	Bedrock	---	---	---	---	---	---	---	---	---	---
640:												
Kettleman clay loam, eroded----	0-8	Clay loam	CL	A-6	0	0	85-100	80-100	75-95	60-75	35-40	15-20
	8-20	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	20-27	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	27-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Delgado sandy loam, eroded-----	0-2	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	2-5	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	5-15	Sandy loam	SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-20	NP-5
	15-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Mercey loam, eroded------------	0-3	Loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	3-6	Loam, silt loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	6-14	Loam, silt loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	14-21	Silt loam, loam	CL	A-6	0	0	95-100	90-100	85-100	80-90	30-40	10-20
	21-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
641:												
Mercey loam--------------------	0-6	Loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	6-9	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	9-14	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	14-24	Loam, silt loam	CL	A-6	0	0	95-100	90-100	85-100	80-90	30-40	10-20
	24-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Delgado sandy loam-------------	0-4	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	4-8	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	8-18	Sandy loam	SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-20	NP-5
	18-22	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
641:												
Kettleman clay loam------------	0-8	Clay loam	CL	A-6	0	0	85-100	80-100	75-95	60-75	35-40	15-20
	8-25	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	25-32	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	32-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
642:												
Mercey loam, eroded------------	0-3	Loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	3-6	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	6-14	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	14-21	Loam, silt loam	CL	A-6	0	0	95-100	90-100	85-100	80-90	30-40	10-20
	21-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Delgado sandy loam, eroded-----	0-2	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	2-6	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	6-10	Sandy loam	SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-20	NP-5
	10-14	Bedrock	---	---	---	---	---	---	---	---	---	---
Kettleman clay loam, eroded----	0-8	Clay loam	CL	A-6	0	0	85-100	80-100	75-95	60-75	35-40	15-20
	8-20	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	20-27	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	27-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
643:												
Mercey loam--------------------	0-6	Loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	6-9	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	9-14	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	14-24	Loam, silt loam	CL	A-6	0	0	95-100	90-100	85-100	80-90	30-40	10-20
	24-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Delgado sandy loam-------------	0-2	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	2-6	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	6-13	Sandy loam	SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-20	NP-5
	13-17	Bedrock	---	---	---	---	---	---	---	---	---	---
Kettleman clay loam------------	0-8	Clay loam	CL	A-6	0	0	85-100	80-100	75-95	60-75	35-40	15-20
	8-25	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	25-32	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	32-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
644:												
Mercey loam, eroded------------	0-3	Loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	3-6	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	6-14	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	14-21	Loam, silt loam	CL	A-6	0	0	95-100	90-100	85-100	80-90	30-40	10-20
	21-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Kettleman clay loam, eroded----	0-8	Clay loam	CL	A-6	0	0	85-100	80-100	75-95	60-75	35-40	15-20
	8-20	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	20-27	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	27-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Delgado sandy loam, eroded-----	0-2	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	2-6	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	6-10	Sandy loam	SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-20	NP-5
	10-14	Bedrock	---	---	---	---	---	---	---	---	---	---
645:												
Delgado sandy loam-------------	0-2	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	2-6	Sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-25	NP-10
	6-13	Sandy loam	SM	A-2-4	0	0-5	80-100	75-100	45-65	25-35	15-20	NP-5
	13-17	Bedrock	---	---	---	---	---	---	---	---	---	---
Mercey loam--------------------	0-6	Loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	6-9	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	9-14	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	14-24	Loam, silt loam	CL	A-6	0	0	95-100	90-100	85-100	80-90	30-40	10-20
	24-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Kettleman clay loam------------	0-8	Clay loam	CL	A-6	0	0	85-100	80-100	75-95	60-75	35-40	15-20
	8-25	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	25-32	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	32-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
670:												
Badland.												
Kettleman clay loam------------	0-8	Clay loam	CL	A-6	0	0	85-100	80-100	75-95	60-75	35-40	15-20
	8-25	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	25-32	Clay loam, loam	CL	A-6	0	0	85-100	80-100	70-95	50-75	30-40	10-20
	32-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Mercey loam--------------------	0-6	Loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	6-9	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	9-14	Silt loam, loam	CL	A-6	0	0	100	95-100	90-100	85-95	30-40	10-20
	14-24	Loam, silt loam	CL	A-6	0	0	95-100	90-100	85-100	80-90	30-40	10-20
	24-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
680:												
Arburua loam-------------------	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
680: Morenogulch parachannery silty clay	0-3	Parachannery silty clay	CH	A-7	0	0	90-100	85-95	85-95	80-90	60-70	35-45
	3-6	Very parachannery silty clay loam, very parachannery silty clay	CH	A-7	0	0	90-100	85-95	85-95	80-90	50-70	30-45
	6-10	Extremely parachannery silty clay, very parachannery silty clay, extremely parachannery silty clay loam, very parachannery silty clay loam	CH	A-7	0	0	90-100	85-95	85-95	80-90	50-70	30-45
	10-33	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
704: Franciscan gravelly sandy loam	0-5	Gravelly sandy loam	SC-SM	A-2-4	0	0-8	65-80	60-75	40-50	20-30	20-30	5-10
	5-9	Gravelly loam, gravelly sandy loam	CL-ML, SC-SM	A-2-4, A-4	0	0-8	65-80	60-75	40-70	20-55	20-30	5-10
	9-15	Gravelly loam, cobbly loam, cobbly clay loam	SC, CL	A-6	0	8-30	60-80	55-75	50-70	35-60	30-40	10-20
	15-26	Cobbly loam, gravelly loam, cobbly clay loam	SC, CL	A-6	0	8-30	60-80	55-75	50-70	35-60	30-40	10-20
	26-31	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
705:												
Roacha silty clay loam---------	0-5	Silty clay loam	CL, CH	A-7	0	0	90-98	85-95	80-95	75-90	45-55	25-35
	5-10	Silty clay, clay	CH	A-7	0	0	90-98	85-95	80-95	65-90	50-70	25-45
	10-25	Clay, silty clay	CH	A-7	0	0	90-98	85-95	80-95	65-90	50-70	25-45
	25-36	Gravelly clay, gravelly clay loam, gravelly silty clay loam, gravelly silty clay	SC, CH	A-7	0	0	60-80	55-75	50-75	40-70	50-65	30-40
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
706:												
Sagaser loam-------------------	0-7	Loam	CL	A-6	0	0	100	95-100	85-95	60-75	30-40	10-15
	7-17	Clay loam	CL	A-6, A-7	0	0	80-100	75-95	70-90	55-75	35-45	15-20
	17-29	Clay loam	CL	A-6, A-7	0	0	80-100	75-95	70-90	55-75	35-45	15-20
	29-50	Clay loam	CL	A-7, A-6	0	0	80-95	75-90	70-85	55-70	35-45	15-20
	50-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
709:												
Sagaser loam-------------------	0-7	Loam	CL	A-6	0	0	100	95-100	85-95	60-75	30-40	10-15
	7-17	Clay loam	CL	A-6, A-7	0	0	80-100	75-95	70-90	55-75	35-45	15-20
	17-29	Clay loam	CL	A-6, A-7	0	0	80-100	75-95	70-90	55-75	35-45	15-20
	29-50	Clay loam	CL	A-7, A-6	0	0	80-95	75-90	70-85	55-70	35-45	15-20
	50-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Gaviota sandy loam-------------	0-3	Sandy loam	SC-SM	A-2-4, A-4	0	0	90-100	85-100	50-70	30-40	20-30	5-10
	3-10	Sandy loam	SC-SM	A-2-4, A-4	0	0	90-100	85-100	50-70	30-40	20-30	5-10
	10-15	Bedrock	---	---	---	---	---	---	---	---	---	---
Borreguero sandy loam----------	0-2	Sandy loam	SC-SM	A-4	0	0	80-100	75-100	50-70	25-40	20-25	5-10
	2-5	Sandy clay loam, sandy loam, loam	CL, SC, CL-ML, SC-SM	A-2-4, A-6, A-2-6, A-4	0	0	80-100	75-100	50-90	25-75	20-30	5-15
	5-11	Sandy clay loam, sandy loam	SC, CL, CL-ML, SC-SM	A-6, A-2-4, A-4, A-2-6	0	0	80-100	75-100	50-90	25-55	20-30	5-15
	11-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
710:												
Monoridge fine sand------------	0-7	Fine sand	SM	A-2-4	0	0	100	95-100	70-80	20-35	0-0	NP
	7-25	Sand, loamy sand	SM	A-2-4	0	0	100	95-100	50-75	10-30	0-0	NP
	25-29	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Exclose clay loam--------------	0-5	Clay loam	CL	A-6	0	0	100	95-100	80-95	70-80	35-40	20-25
	5-12	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	12-19	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	19-29	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	29-84	Sandy clay loam, clay loam	CL	A-6	0	0	90-100	85-100	75-95	40-75	35-40	20-25
Badland.												
711:												
Currymountain loam-------------	0-3	Loam	CL-ML, CL	A-4, A-6	0	0	90-100	85-100	75-95	55-75	25-35	5-15
	3-13	Clay loam, loam	CL	A-6	0	0-15	85-100	80-100	70-100	50-80	30-40	10-20
	13-24	Clay loam, loam	CL	A-6	0	0-15	80-100	75-100	65-100	50-80	30-40	10-20
	24-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
711:												
Borreguero sandy loam----------	0-2	Sandy loam	SC-SM	A-4	0	0	80-100	75-100	50-70	25-40	20-25	5-10
	2-5	Sandy clay loam, sandy loam, loam	CL, SC, CL-ML, SC-SM	A-2-4, A-6, A-2-6, A-4	0	0	80-100	75-100	50-90	25-75	20-30	5-15
	5-11	Sandy clay loam, sandy loam	SC, CL, CL-ML, SC-SM	A-6, A-2-4, A-4, A-2-6	0	0	80-100	75-100	50-90	25-55	20-30	5-15
	11-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
712:												
Altamont clay------------------	0-9	Clay	CH	A-7	0	0	95-100	90-100	80-100	70-95	50-60	25-35
	9-22	Clay	CH	A-7	0	0	95-100	90-100	80-100	70-95	50-70	25-35
	22-31	Clay	CH	A-7	0	0	95-100	90-100	80-100	70-95	50-70	25-35
	31-54	Clay loam	CH	A-7	0	0	95-100	90-100	80-100	65-80	50-60	20-30
	54-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Roacha silty clay loam---------	0-5	Silty clay loam	CL, CH	A-7	0	0	90-98	85-95	80-95	75-90	45-55	25-35
	5-10	Silty clay, clay	CH	A-7	0	0	90-98	85-95	80-95	65-90	50-70	25-45
	10-25	Clay, silty clay	CH	A-7	0	0	90-98	85-95	80-95	65-90	50-70	25-45
	25-36	Gravelly clay, gravelly clay loam, gravelly silty clay loam, gravelly silty clay	SC, CH	A-7	0	0	60-80	55-75	50-75	40-70	50-65	30-40
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Borreguero sandy loam----------	0-2	Sandy loam	SC-SM	A-4	0	0	80-100	75-100	50-70	25-40	20-25	5-10
	2-5	Sandy clay loam, sandy loam, loam	CL, SC, CL-ML, SC-SM	A-2-4, A-6, A-2-6, A-4	0	0	80-100	75-100	50-90	25-75	20-30	5-15
	5-11	Sandy clay loam, sandy loam	SC, CL, CL-ML, SC-SM	A-6, A-2-4, A-4, A-2-6	0	0	80-100	75-100	50-90	25-55	20-30	5-15
	11-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
713:												
Currymountain loam-------------	0-2	Loam	CL-ML	A-4	0	0-7	85-95	80-90	70-85	50-60	20-30	5-10
	2-5	Loam	CL, CL-ML	A-6, A-4	0	0-7	85-95	80-90	70-85	50-60	25-35	5-15
	5-13	Very cobbly loam	SC, SC-SM	A-6, A-4, A-2-6, A-2-4	0	45-60	55-70	45-65	40-60	30-45	25-35	5-15
	13-21	Very cobbly loam	SC	A-2-6, A-6	0-25	45-60	55-70	45-65	40-60	30-45	25-35	10-15
	21-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
Quinto gravelly sandy loam-----	0-6	Gravelly sandy loam	SC-SM	A-2-4	0	0-5	55-80	50-75	30-50	15-30	20-30	5-10
	6-11	Gravelly sandy clay loam	SC	A-2-6, A-6	0	0-10	55-80	50-75	40-65	20-40	30-40	10-20
	11-17	Gravelly sandy clay loam	SC	A-6, A-2-6	0	0-10	55-80	50-75	40-65	20-40	30-40	10-20
	17-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	19-20	Bedrock	---	---	---	---	---	---	---	---	---	---
714:												
Gaviota sandy loam-------------	0-3	Sandy loam	SC-SM	A-2-4, A-4	0	0	90-100	85-100	50-70	30-40	20-30	5-10
	3-10	Sandy loam	SC-SM	A-2-4, A-4	0	0	90-100	85-100	50-70	30-40	20-30	5-10
	10-15	Bedrock	---	---	---	---	---	---	---	---	---	---
Borreguero sandy loam----------	0-2	Sandy loam	SC-SM	A-4	0	0	80-100	75-100	50-70	25-40	20-25	5-10
	2-5	Sandy clay loam, sandy loam, loam	CL, SC, CL-ML, SC-SM	A-2-4, A-6, A-2-6, A-4	0	0	80-100	75-100	50-90	25-75	20-30	5-15
	5-11	Sandy clay loam, sandy loam	SC, CL, CL-ML, SC-SM	A-6, A-2-4, A-4, A-2-6	0	0	80-100	75-100	50-90	25-55	20-30	5-15
	11-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 25.--Engineering Index 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	
715:												
Belgarra clay	0-4	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	4-10	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	10-21	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	21-32	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	32-45	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	45-72	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	70-95	55-65	25-40
Wisflat sandy loam	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
717:												
Belgarra clay	0-4	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	4-10	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	10-21	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	21-32	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	32-45	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	45-72	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	70-95	55-65	25-40
Arburua loam	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
717:												
Morenogulch parachannery silty clay---------------------------	0-3	Parachannery silty clay	CH	A-7	0	0	90-100	85-95	85-95	80-90	60-70	35-45
	3-6	Very parachannery silty clay, very parachannery silty clay loam	CH	A-7	0	0	90-100	85-95	85-95	80-90	50-70	30-45
	6-10	Extremely parachannery silty clay, very parachannery silty clay, extremely parachannery silty clay loam, very parachannery silty clay loam	CH	A-7	0	0	90-100	85-95	85-95	80-90	50-70	30-45
	10-33	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
718:												
Nodhill loam-------------------	0-10	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-70	30-40	10-15
	10-17	Loam, clay loam	CL	A-7	0	0	90-100	85-100	75-95	55-75	35-45	15-20
	17-28	Gravelly loam, loam, clay loam	CL, SC	A-6	0	0	60-100	55-100	50-95	35-75	30-40	10-20
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 25.--Engineering Index 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	
719:												
Nodhill loam	0-10	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-70	30-40	10-15
	10-17	Loam, clay loam	CL	A-7	0	0	90-100	85-100	75-95	55-75	35-45	15-20
	17-28	Gravelly loam, loam, clay loam	CL, SC	A-6	0	0	60-100	55-100	50-95	35-75	30-40	10-20
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Arburua loam	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---
Wisflat sandy loam	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
720:												
Exclose clay loam	0-5	Clay loam	CL	A-6	0	0	100	95-100	80-95	70-80	35-40	20-25
	5-12	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	12-19	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	19-29	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	29-84	Sandy clay loam, clay loam	CL	A-6	0	0	90-100	85-100	75-95	40-75	35-40	20-25
Wisflat sandy loam	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
720:												
Morenogulch parachannery silty clay-------------------------	0-3	Parachannery silty clay	CH	A-7	0	0	90-100	85-95	85-95	80-90	60-70	35-45
	3-6	Very parachannery silty clay, very parachannery silty clay loam	CH	A-7	0	0	90-100	85-95	85-95	80-90	50-70	30-45
	6-10	Extremely parachannery silty clay, very parachannery silty clay, extremely parachannery silty clay loam, very parachannery silty clay loam	CH	A-7	0	0	90-100	85-95	85-95	80-90	50-70	30-45
	10-33	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
722:												
Exclose clay loam-------------	0-5	Clay loam	CL	A-6	0	0	100	95-100	80-95	70-80	35-40	20-25
	5-12	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	12-19	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	19-29	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	29-84	Sandy clay loam, clay loam	CL	A-6	0	0	90-100	85-100	75-95	40-75	35-40	20-25

Table 25.--Engineering Index 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	
722:												
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
723:												
Exclose clay loam--------------	0-5	Clay loam	CL	A-6	0	0	100	95-100	80-95	70-80	35-40	20-25
	5-12	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	12-19	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	19-29	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	29-84	Sandy clay loam, clay loam	CL	A-6	0	0	90-100	85-100	75-95	40-75	35-40	20-25
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Grazer silty clay loam---------	0-4	Silty clay loam	CL	A-7	0	0	100	95-100	95-100	85-95	40-50	20-30
	4-11	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-60	30-35
	11-34	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	34-47	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	47-80	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
725:												
Gewter clay	0-4	Clay	CH	A-7	0	0	100	100	90-98	75-95	70-80	45-55
	4-13	Parachannery clay	CH	A-7	0	0	100	100	90-98	75-95	75-80	50-55
	13-23	Very parachannery clay, parachannery clay	CH	A-7	0	0	100	100	90-96	75-95	75-80	50-55
	23-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
727:												
Reliz channery loam	0-3	Channery loam	SC-SM, SC	A-6, A-4	0	0	60-80	55-75	50-70	35-50	25-35	5-15
	3-7	Very channery clay loam	GC	A-2-6	0	0	30-55	25-50	20-45	15-35	30-40	10-15
	7-15	Extremely channery clay loam	GC	A-2-6	0	0	20-30	15-25	14-20	10-18	35-40	10-15
	15-20	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Gewter loam	0-1	Slightly decomposed plant material	PT	A-8	0	0	---	---	---	---	---	---
	1-6	Loam	CL-ML	A-4	0	0-1	80-100	75-95	65-90	45-70	20-30	5-10
	6-13	Channery clay loam	CL, SC	A-6	0	0-1	55-80	55-80	45-70	35-60	30-45	10-20
	13-25	Channery clay	CH, CL, SC	A-7	0	0-1	55-80	55-80	45-70	40-65	45-60	20-30
	25-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
728:												
Climara clay	0-26	Clay	CH	A-7	0	0-5	80-100	75-95	70-90	60-85	55-70	35-45
	26-36	Clay	CH	A-7	0	0-5	90-100	85-95	80-90	65-85	60-75	35-50
	36-39	Clay	CH	A-7	0	0-5	90-100	85-95	80-90	65-85	60-75	35-50
	39-40	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
733:												
Hentine very gravelly sandy loam	0-2	Very gravelly sandy loam	GC-GM	A-2-4	0	0	35-55	30-50	20-35	10-20	20-30	5-10
	2-15	Very gravelly clay loam, very gravelly loam, extremely gravelly clay loam	GC	A-2-6	0	0	20-55	15-50	14-45	13-35	30-40	10-15
	15-18	Very gravelly clay loam, very gravelly loam, extremely gravelly clay loam	GC	A-2-6	0	0	20-55	15-50	14-45	13-35	30-40	10-15
	18-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Climara clay	0-26	Clay	CH	A-7	0	0-5	80-100	75-95	70-90	60-85	55-70	35-45
	26-36	Clay	CH	A-7	0	0-5	90-100	85-95	80-90	65-85	60-75	35-50
	36-39	Clay	CH	A-7	0	0-5	90-100	85-95	80-90	65-85	60-75	35-50
	39-40	Bedrock	---	---	---	---	---	---	---	---	---	---
735:												
Getrail clay	0-4	Clay	CH	A-7	0	0	100	100	90-100	80-95	60-75	35-50
	4-15	Clay	CH	A-7	0	0	100	100	90-100	80-95	60-75	35-50
	15-24	Clay	CH	A-7	0	0	100	100	90-100	80-95	60-75	35-50
	24-36	Clay	CH	A-7	0	0	100	100	90-100	80-95	60-75	35-50
	36-43	Clay	CH	A-7	0	0	100	100	90-100	80-95	65-70	40-45
	43-48	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Vernado sandy loam	0-6	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	95-100	60-70	30-40	20-30	5-10
	6-13	Sandy loam	SC-SM	A-4, A-2-4	0	0	100	95-100	60-70	30-40	20-30	5-10
	13-22	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	95-100	60-70	30-40	20-30	5-10
	22-29	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	95-100	60-70	30-40	20-30	5-10
	29-32	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 25.--Engineering Index 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	
737:												
Grazer silty clay loam---------	0-4	Silty clay loam	CL	A-7	0	0	100	95-100	95-100	85-95	40-50	20-30
	4-11	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-60	30-35
	11-34	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	34-47	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	47-80	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Badland.												
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
738:												
Grazer silty clay loam---------	0-4	Silty clay loam	CL	A-7	0	0	100	95-100	95-100	85-95	40-50	20-30
	4-11	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-60	30-35
	11-34	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	34-47	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	47-80	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Belgarra clay------------------	0-4	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	4-10	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	10-21	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	21-32	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	32-45	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	25-40
	45-72	Clay, silty clay	CH	A-7	0	0	95-100	90-100	85-100	70-95	55-65	25-40
Arburua loam-------------------	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
739:												
Domengine loam	0-6	Loam	CL	A-6	0	0	100	95-100	85-95	60-75	30-35	10-15
	6-17	Clay loam, loam	CL	A-6	0	0	100	95-100	85-95	60-80	30-35	10-15
	17-28	Clay loam, loam	CL	A-6	0	0	100	95-100	85-95	60-80	30-40	10-20
	28-39	Clay loam, loam	CL	A-6	0	0	100	95-100	85-95	60-80	30-40	10-20
	39-45	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Wisflat sandy loam	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SC-SM, SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
740:												
Domengine loam	0-6	Loam	CL	A-6	0	0	100	95-100	85-95	60-75	30-35	10-15
	6-17	Clay loam, loam	CL	A-6	0	0	100	95-100	85-95	60-80	30-35	10-15
	17-28	Clay loam, loam	CL	A-6	0	0	100	95-100	85-95	60-80	30-40	10-20
	28-39	Clay loam, loam	CL	A-6	0	0	100	95-100	85-95	60-80	30-40	10-20
	39-45	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Lilten silty clay loam	0-2	Silty clay loam	CH	A-7	0	0	100	95-100	90-100	85-95	50-60	30-35
	2-8	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	8-18	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	18-28	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	28-41	Silty clay loam, silty clay, clay	CH	A-7	0	0-5	90-100	90-100	90-100	70-95	50-65	30-40
	41-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 25.--Engineering Index 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	
741:												
Anela very gravelly sandy loam	0-7	Gravelly sandy loam, very gravelly sandy loam	GM, SM	A-1-a, A-1-b	0	2-15	40-60	35-50	20-35	10-20	15-20	NP-4
	7-15	Very gravelly coarse sandy loam	GM, SM	A-1-a, A-1-b	0	2-15	40-60	35-50	20-35	10-20	15-20	NP-4
	15-22	Very gravelly coarse sandy loam	GM	A-1-b, A-1-a	0	2-15	40-60	35-50	20-35	10-20	15-20	NP-4
	22-49	Very gravelly coarse sandy loam	GM	A-1-b, A-1-a	0	2-25	35-55	30-50	15-30	10-20	15-20	NP-4
	49-65	Extremely gravelly loamy coarse sand	GW	A-1-a	0	7-25	25-40	20-30	10-20	3-5	15-20	NP-2
Vernalis loam------------------	0-7	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-75	30-35	15-20
	7-28	Clay loam	CL	A-6	0	0	90-100	85-100	80-100	60-80	35-40	15-25
	28-50	Clay loam	CL	A-6	0	0	85-100	80-95	75-90	55-75	35-40	15-25
	50-60	Sandy clay loam, loam, clay loam	CL	A-6	0	0	85-95	80-90	65-85	35-70	30-40	10-25
742:												
Millsholm clay loam------------	0-7	Clay loam	CL	A-6, A-7	0	0	80-100	75-100	70-95	55-75	35-45	15-20
	7-13	Gravelly clay loam	SC	A-6, A-7	0	0	55-80	50-75	45-70	35-60	40-45	20-25
	13-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-19	Bedrock	---	---	---	---	---	---	---	---	---	---
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
742:												
Lilten silty clay loam---------	0-2	Silty clay loam	CH	A-7	0	0	100	95-100	90-100	85-95	50-60	30-35
	2-8	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	8-18	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	18-28	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	28-41	Silty clay loam, silty clay, clay	CH	A-7	0	0-5	90-100	90-100	90-100	70-95	50-65	30-40
	41-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
743:												
Millsholm clay loam------------	0-7	Clay loam	CL	A-6, A-7	0	0	80-100	75-100	70-95	55-75	35-45	15-20
	7-13	Gravelly clay loam	SC	A-6, A-7	0	0	55-80	50-75	45-70	35-60	40-45	20-25
	13-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-19	Bedrock	---	---	---	---	---	---	---	---	---	---
Borreguero sandy loam----------	0-2	Sandy loam	SC-SM	A-4	0	0	80-100	75-100	50-70	25-40	20-25	5-10
	2-5	Sandy clay loam, sandy loam, loam	CL, SC, CL-ML, SC-SM	A-2-4, A-6, A-2-6, A-4	0	0	80-100	75-100	50-90	25-75	20-30	5-15
	5-11	Sandy clay loam, sandy loam	SC, CL, CL-ML, SC-SM	A-6, A-2-4, A-4, A-2-6	0	0	80-100	75-100	50-90	25-55	20-30	5-15
	11-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
744:												
Lilten silty clay loam---------	0-2	Silty clay loam	CH	A-7	0	0	100	95-100	90-100	85-95	50-60	30-35
	2-8	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	8-18	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	18-28	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	28-41	Silty clay loam, silty clay, clay	CH	A-7	0	0-5	90-100	90-100	90-100	70-95	50-65	30-40
	41-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Millsholm clay loam------------	0-7	Clay loam	CL	A-6, A-7	0	0	80-100	75-100	70-95	55-75	35-45	15-20
	7-13	Gravelly clay loam	SC	A-6, A-7	0	0	55-80	50-75	45-70	35-60	40-45	20-25
	13-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-19	Bedrock	---	---	---	---	---	---	---	---	---	---
745:												
Grazer silty clay loam---------	0-4	Silty clay loam	CL	A-7	0	0	100	95-100	95-100	85-95	40-50	20-30
	4-11	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-60	30-35
	11-34	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	34-47	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	47-80	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
745:												
Arburua loam-------------------	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---
746:												
Rock outcrop, sandstone and shale.												
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Arburua loam-------------------	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---
747:												
Lilten silty clay--------------	0-2	Silty clay loam	CH	A-7	0	0	100	95-100	90-100	85-95	50-60	30-35
	2-8	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	8-18	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	18-28	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	28-41	Silty clay loam, silty clay, clay	CH	A-7	0	0-5	90-100	90-100	90-100	70-95	50-65	30-40
	41-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
747:												
Grazer silty clay loam	0-4	Silty clay loam	CL	A-7	0	0	100	95-100	95-100	85-95	40-50	20-30
	4-11	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-60	30-35
	11-34	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	34-47	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	47-80	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Arburua loam	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---
748:												
Vaquero clay	0-3	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-75	35-50
	3-17	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-75	35-50
	17-25	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	60-80	40-55
	25-36	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	60-80	40-55
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Grazer silty clay loam	0-4	Silty clay loam	CL	A-7	0	0	100	95-100	95-100	85-95	40-50	20-30
	4-11	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-60	30-35
	11-34	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	34-47	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	47-80	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
749:												
Grazer silty clay loam	0-4	Silty clay loam	CL	A-7	0	0	100	95-100	95-100	85-95	40-50	20-30
	4-11	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-60	30-35
	11-34	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	34-47	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	47-80	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Exclose clay loam--------------	0-5	Clay loam	CL	A-6	0	0	100	95-100	80-95	70-80	35-40	20-25
	5-12	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	12-19	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	19-29	Sandy clay loam, loam, clay loam	CL	A-6	0	0	100	95-100	80-95	40-75	30-40	15-25
	29-84	Sandy clay loam, clay loam	CL	A-6	0	0	90-100	85-100	75-95	40-75	35-40	20-25
750:												
Monvero sand-------------------	0-15	Sand	SM	A-2-4	0	0	100	95-100	50-70	10-15	0-0	NP
	15-31	Loamy sand	SM	A-2-4	0	0	100	95-100	50-70	15-30	0-0	NP
	31-60	Loamy coarse sand	SM	A-2-4	0-5	0-15	90-100	85-100	45-65	10-15	0-0	NP
Monoridge fine sand------------	0-7	Fine sand	SM	A-2-4	0	0	100	95-100	70-80	20-35	0-0	NP
	7-25	Sand, loamy sand	SM	A-2-4	0	0	100	95-100	50-75	10-30	0-0	NP
	25-29	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
752:												
Cyvar loam---------------------	0-2	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-75	25-35	10-15
	2-7	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-75	30-35	10-15
	7-15	Clay loam	CL	A-6	0	0	90-100	85-100	80-100	65-80	35-45	15-20
	15-34	Indurated	---	---	---	---	---	---	---	---	---	---
	34-60	Indurated	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
752:												
Nodhill loam-------------------	0-10	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-70	30-40	10-15
	10-17	Loam, clay loam	CL	A-7	0	0	90-100	85-100	75-95	55-75	35-45	15-20
	17-28	Gravelly loam, loam, clay loam	CL, SC	A-6	0	0	60-100	55-100	50-95	35-75	30-40	10-20
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
753:												
Cyvar loam---------------------	0-2	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-75	25-35	10-15
	2-7	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-75	30-35	10-15
	7-15	Clay loam	CL	A-6	0	0	90-100	85-100	80-100	65-80	35-45	15-20
	15-34	Indurated	---	---	---	---	---	---	---	---	---	---
	34-60	Indurated	---	---	---	---	---	---	---	---	---	---
Nodhill loam-------------------	0-10	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-70	30-40	10-15
	10-17	Loam, clay loam	CL	A-7	0	0	90-100	85-100	75-95	55-75	35-45	15-20
	17-28	Gravelly loam, loam, clay loam	CL, SC	A-6	0	0	60-100	55-100	50-95	35-75	30-40	10-20
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Pits, gypsiferous.												
755:												
Borreguero sandy loam----------	0-2	Sandy loam	SC-SM	A-4	0	0	80-100	75-100	50-70	25-40	20-25	5-10
	2-5	Sandy clay loam, sandy loam, loam	CL, SC, CL-ML, SC-SM	A-2-4, A-6, A-2-6, A-4	0	0	80-100	75-100	50-90	25-75	20-30	5-15
	5-11	Sandy clay loam, sandy loam	SC, CL, CL-ML, SC-SM	A-6, A-2-4, A-4, A-2-6	0	0	80-100	75-100	50-90	25-55	20-30	5-15
	11-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
755:												
Grazer silty clay loam---------	0-4	Silty clay loam	CL	A-7	0	0	100	95-100	95-100	85-95	40-50	20-30
	4-11	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-60	30-35
	11-34	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	34-47	Silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	47-80	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
757:												
Rock outcrop.												
Borreguero sandy loam----------	0-2	Sandy loam	SC-SM	A-4	0	0	80-100	75-100	50-70	25-40	20-25	5-10
	2-5	Sandy clay loam, sandy loam, loam	CL, SC, CL-ML, SC-SM	A-2-4, A-6, A-2-6, A-4	0	0	80-100	75-100	50-90	25-75	20-30	5-15
	5-11	Sandy clay loam, sandy loam	SC, CL, CL-ML, SC-SM	A-6, A-2-4, A-4, A-2-6	0	0	80-100	75-100	50-90	25-55	20-30	5-15
	11-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
758:												
Wisflat sandy loam-------------	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Borreguero sandy loam----------	0-2	Sandy loam	SC-SM	A-4	0	0	80-100	75-100	50-70	25-40	20-25	5-10
	2-5	Sandy clay loam, sandy loam, loam	CL, SC, CL-ML, SC-SM	A-2-4, A-6, A-2-6, A-4	0	0	80-100	75-100	50-90	25-75	20-30	5-15
	5-11	Sandy clay loam, sandy loam	SC, CL, CL-ML, SC-SM	A-6, A-2-4, A-4, A-2-6	0	0	80-100	75-100	50-90	25-55	20-30	5-15
	11-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 25.--Engineering Index 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	
761:												
Atravesada gravelly sandy loam	0-7	Gravelly sandy loam	SC-SM, SM	A-2-4	0	0	70-85	65-75	40-50	20-30	20-30	NP-10
	7-15	Gravelly loam	SC, SC-SM	A-4	0	0	70-85	65-75	55-70	40-50	25-35	5-15
	15-21	Gravelly loam	SC, SC-SM	A-4	0	0	70-85	65-75	55-70	40-50	25-30	5-10
	21-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
765, 767:												
Atravesada sandy loam----------	0-0	Slightly decomposed plant material	PT	A-8	0	0	---	---	---	---	---	---
	0-6	Sandy loam, loam	SC, CL-ML	A-4	0	1-7	80-100	75-95	45-85	25-60	25-35	5-15
	6-12	Sandy clay loam, loam	CL	A-6	0	1-7	80-100	75-95	65-90	45-65	30-45	10-25
	12-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-27	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Pits, asbestos.												
769.												
Dumps-Pits, asbestos.												
770:												
Roacha silty clay loam---------	0-4	Silty clay loam	CL, CH	A-7	0	0	90-98	85-95	80-95	75-90	45-55	25-35
	4-14	Silty clay, clay	CH	A-7	0	0	90-98	85-95	80-95	65-90	50-70	25-45
	14-22	Clay, silty clay	CH	A-7	0	0	90-98	85-95	80-95	65-90	50-70	25-45
	22-28	Gravelly clay, gravelly clay loam, gravelly silty clay loam, gravelly silty clay	SC, CH	A-7	0	0	60-80	55-75	50-75	40-70	50-65	30-40
	28-37	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
770:												
Millsholm clay loam	0-7	Clay loam	CL	A-6, A-7	0	0	80-100	75-100	70-95	55-75	35-45	15-20
	7-13	Gravelly clay loam	SC	A-6, A-7	0	0	55-80	50-75	45-70	35-60	40-45	20-25
	13-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-19	Bedrock	---	---	---	---	---	---	---	---	---	---
Lilten silty clay loam	0-2	Silty clay loam	CH	A-7	0	0	100	95-100	90-100	85-95	50-60	30-35
	2-8	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	8-18	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	18-28	Silty clay loam, silty clay, clay	CH	A-7	0	0	100	95-100	90-100	75-95	50-65	30-40
	28-41	Silty clay loam, silty clay, clay	CH	A-7	0	0-5	90-100	90-100	90-100	70-95	50-65	30-40
	41-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
773:												
Hentine very gravelly sandy loam	0-2	Very gravelly sandy loam	GC-GM	A-2-4	0	0	35-55	30-50	20-35	10-20	20-30	5-10
	2-15	Very gravelly clay loam, very gravelly loam, extremely gravelly clay loam	GC	A-2-6	0	0	20-55	15-50	14-45	13-35	30-40	10-15
	15-18	Very gravelly clay loam, very gravelly loam, extremely gravelly clay loam	GC	A-2-6	0	0	20-55	15-50	14-45	13-35	30-40	10-15
	18-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 25.--Engineering Index 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	
774:												
Hentine very gravelly sandy loam	0-2	Very gravelly sandy loam	GC-GM	A-2-4	0	0	35-55	30-50	20-35	10-20	20-30	5-10
	2-15	Very gravelly clay loam, very gravelly loam, extremely gravelly clay loam	GC	A-2-6	0	0	20-55	15-50	14-45	13-35	30-40	10-15
	15-18	Very gravelly clay loam, very gravelly loam, extremely gravelly clay loam	GC	A-2-6	0	0	20-55	15-50	14-45	13-35	30-40	10-15
	18-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Franciscan gravelly sandy loam	0-5	Gravelly sandy loam	SC-SM	A-2-4	0	0-8	65-80	60-75	40-50	20-30	20-30	5-10
	5-9	Gravelly loam, gravelly sandy loam	CL-ML, SC-SM	A-2-4, A-4	0	0-8	65-80	60-75	40-70	20-55	20-30	5-10
	9-15	Gravelly loam, cobbly loam, cobbly clay loam	SC, CL	A-6	0	8-30	60-80	55-75	50-70	35-60	30-40	10-20
	15-26	Cobbly loam, gravelly loam, cobbly clay loam	SC, CL	A-6	0	8-30	60-80	55-75	50-70	35-60	30-40	10-20
	26-31	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
782, 783:												
Vaquero clay	0-3	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-75	35-50
	3-17	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-75	35-50
	17-25	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	60-80	40-55
	25-36	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	60-80	40-55
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
782, 783:												
Altamont clay	0-9	Clay	CH	A-7	0	0	95-100	90-100	80-100	70-95	50-60	25-35
	9-22	Clay	CH	A-7	0	0	95-100	90-100	80-100	70-95	50-70	25-35
	22-31	Clay	CH	A-7	0	0	95-100	90-100	80-100	70-95	50-70	25-35
	31-54	Clay loam	CH	A-7	0	0	95-100	90-100	80-100	65-80	50-60	20-30
	54-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
817, 818, 819, 820:												
Arburua loam	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---
822:												
Altamont clay	0-9	Clay	CH	A-7	0	0	95-100	90-100	80-100	70-95	50-60	25-35
	9-22	Clay	CH	A-7	0	0	95-100	90-100	80-100	70-95	50-70	25-35
	22-31	Clay	CH	A-7	0	0	95-100	90-100	80-100	70-95	50-70	25-35
	31-54	Clay loam	CH	A-7	0	0	95-100	90-100	80-100	65-80	50-60	20-30
	54-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
823:												
Ayar clay	0-7	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	30-40
	7-16	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	30-40
	16-34	Clay loam, clay	CH	A-7	0	0	100	95-100	90-100	70-95	50-65	30-40
	34-59	Clay loam, clay	CH	A-7	0	0	100	95-100	90-100	70-90	50-65	30-40
	59-72	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
827:												
Ayar clay	0-7	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	30-40
	7-16	Clay	CH	A-7	0	0	100	95-100	90-100	75-95	55-65	30-40
	16-34	Clay loam, clay	CH	A-7	0	0	100	95-100	90-100	70-95	50-65	30-40
	34-59	Clay loam, clay	CH	A-7	0	0	100	95-100	90-100	70-90	50-65	30-40
	59-72	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Arburua loam	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 25.--Engineering Index 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	
834:												
Bapos clay loam	0-8	Clay loam	CL	A-7, A-6	0	0	80-100	75-100	70-100	55-80	35-45	15-20
	8-33	Clay	CL, CH	A-7	0	0	80-100	75-100	70-100	55-95	45-60	25-35
	33-42	Clay loam	CL	A-7	0	0	80-100	75-100	70-100	55-80	40-50	20-25
	42-60	Gravelly clay loam	SC, CL	A-7	0	0	55-80	50-75	45-70	35-60	40-50	20-25
835:												
Pedcat loam, eroded	0-2	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	20-30	5-10
	2-5	Loam, fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	100	70-95	40-75	20-30	5-10
	5-13	Clay loam	CL	A-7	0	0	100	100	90-100	70-80	40-50	15-25
	13-28	Clay, clay loam	CL, CH	A-7	0	0	100	100	90-100	70-95	45-60	20-35
	28-50	Clay loam, clay	CL, CH	A-7	0	0	100	100	90-100	70-95	45-60	20-35
	50-60	Sandy clay loam, clay loam	CL	A-6, A-7	0	0	100	100	80-100	35-80	30-45	10-20
842:												
Quinto gravelly sandy loam	0-6	Gravelly sandy loam	SC-SM	A-2-4	0	0-5	55-80	50-75	30-50	15-30	20-30	5-10
	6-11	Gravelly sandy clay loam	SC	A-2-6, A-6	0	0-10	55-80	50-75	40-65	20-40	30-40	10-20
	11-17	Gravelly sandy clay loam	SC	A-6, A-2-6	0	0-10	55-80	50-75	40-65	20-40	30-40	10-20
	17-19	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	19-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Millsholm clay loam	0-7	Clay loam	CL	A-6, A-7	0	0	80-100	75-100	70-95	55-75	35-45	15-20
	7-13	Gravelly clay loam	SC	A-6, A-7	0	0	55-80	50-75	45-70	35-60	40-45	20-25
	13-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-19	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 25.--Engineering Index 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	
847:												
Carranza gravelly sandy loam---	0-7	Gravelly sandy loam	SC-SM	A-2-4	0	0	55-80	50-75	30-50	15-30	25-30	5-10
	7-14	Gravelly sandy loam	SC-SM	A-2-4	0	0	60-80	55-75	35-50	20-30	25-30	5-10
	14-20	Gravelly sandy clay loam	SC	A-2-6, A-6	0	0-7	60-80	55-75	45-65	20-40	30-45	10-20
	20-25	Very gravelly sandy clay loam	GC	A-2-6	0	0-7	40-55	35-50	30-45	15-25	30-45	10-20
	25-60	Gravelly sandy clay loam	SC	A-6, A-2-6	0	0-7	55-80	50-75	40-65	20-40	30-45	10-20
849:												
Chaqua loam--------------------	0-6	Loam	CL	A-6	0	0	97-100	93-100	80-95	55-75	25-35	10-15
	6-19	Loam	CL	A-6	0	0	97-100	93-100	80-95	55-75	25-35	10-15
	19-25	Loam	CL	A-6	0	0	97-100	93-100	80-95	55-75	30-35	10-15
	25-35	Loam	CL	A-6	0	0	97-100	93-100	80-95	55-75	30-35	10-15
	35-47	Loam	CL	A-6	0	0	97-100	93-100	80-95	55-75	30-35	10-15
	47-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
851, 852:												
Los Banos clay loam------------	0-2	Clay loam	CL	A-6	0	0-8	85-100	80-95	75-95	60-75	35-45	15-20
	2-13	Clay loam	CL	A-6, A-7	0	0-8	85-100	80-95	75-95	60-75	35-50	15-25
	13-20	Clay loam, clay	CL, CH	A-7	0	0-8	85-100	80-95	75-95	60-90	45-60	20-30
	20-53	Clay	CH	A-7	0	0-8	85-100	80-95	75-95	60-90	50-60	25-35
	53-60	Stratified very gravelly clay loam to very gravelly clay	GC, SC	A-2-7, A-7	0	0-15	30-75	25-70	22-65	20-55	45-60	20-30
853:												
Los Banos clay loam------------	0-2	Clay loam	CL	A-6	0	0-8	85-100	80-95	75-95	60-75	35-45	15-20
	2-13	Clay loam	CL	A-6, A-7	0	0-8	85-100	80-95	75-95	60-75	35-50	15-25
	13-20	Clay loam, clay	CL, CH	A-7	0	0-8	85-100	80-95	75-95	60-90	45-60	20-30
	20-53	Clay	CH	A-7	0	0-8	85-100	80-95	75-95	60-90	50-60	25-35
	53-60	Stratified very gravelly clay loam to very gravelly clay	GC, SC	A-2-7, A-7	0	0-15	30-75	25-70	22-65	20-55	45-60	20-30

Table 25.--Engineering Index 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	
853:												
Pleito gravelly clay loam------	0-2	Gravelly clay loam	CL	A-6	0	0	70-80	65-75	60-70	50-60	35-45	15-25
	2-9	Clay loam	CL	A-6	0	0	80-97	75-93	70-90	55-70	35-45	15-25
	9-17	Clay loam, loam, sandy clay loam	CL, SC	A-6	0	0	80-100	75-100	60-95	30-75	30-45	10-25
	17-22	Clay loam, loam, sandy clay loam	CL, SC	A-6	0	0	80-100	75-100	60-95	30-75	30-45	10-25
	22-27	Clay loam, loam, sandy clay loam	SC, CL	A-6	0	0	80-100	75-100	60-95	30-75	30-45	10-25
	27-60	Gravelly sandy clay loam, gravelly loam, gravelly clay loam, very gravelly clay loam	SC	A-6, A-2-6	0	0-15	45-75	40-70	35-65	15-50	30-40	10-20
855:												
Pleito gravelly clay loam------	0-2	Gravelly clay loam	CL	A-6	0	0	70-80	65-75	60-70	50-60	35-45	15-25
	2-9	Clay loam	CL	A-6	0	0	80-97	75-93	70-90	55-70	35-45	15-25
	9-17	Clay loam, loam, sandy clay loam	CL, SC	A-6	0	0	80-100	75-100	60-95	30-75	30-45	10-25
	17-22	Clay loam, loam, sandy clay loam	CL, SC	A-6	0	0	80-100	75-100	60-95	30-75	30-45	10-25
	22-27	Clay loam, loam, sandy clay loam	SC, CL	A-6	0	0	80-100	75-100	60-95	30-75	30-45	10-25
	27-60	Gravelly sandy clay loam, gravelly loam, gravelly clay loam, very gravelly clay loam	SC	A-6, A-2-6	0	0-15	45-75	40-70	35-65	15-50	30-40	10-20

Table 25.--Engineering Index 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	
863:												
Vernalis loam	0-7	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-75	30-35	15-20
	7-28	Clay loam	CL	A-6	0	0	90-100	85-100	80-100	60-80	35-40	15-25
	28-50	Clay loam	CL	A-6	0	0	85-100	80-95	75-90	55-75	35-40	15-25
	50-60	Sandy clay loam, loam, clay loam	CL	A-6	0	0	85-95	80-90	65-85	35-70	30-40	10-25
865:												
Conosta clay loam	0-5	Clay loam	CL	A-6	0	0-5	80-100	75-95	70-90	55-75	35-45	15-20
	5-14	Clay	CL	A-7	0	0-5	80-95	75-90	70-85	60-80	45-50	25-30
	14-19	Gravelly clay	CL, SC	A-7	0	0-5	55-80	50-75	45-70	35-65	45-50	25-30
	19-27	Gravelly clay	SC, CL	A-7	0	0-5	55-80	50-75	45-70	35-65	45-50	25-30
	27-32	Very gravelly clay loam	GC	A-7	0	8-25	40-55	35-50	30-50	25-40	40-50	20-25
	32-40	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
870, 871:												
Wisflat sandy loam	0-6	Sandy loam	SC-SM, SM	A-2-4	0	0-8	80-100	75-95	45-65	25-35	15-25	NP-10
	6-14	Sandy loam	SM, SC-SM	A-2-4	0	0-15	80-95	75-90	45-60	25-35	15-25	NP-10
	14-16	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
Arburua loam	0-10	Loam	CL, SC	A-4, A-6	0	0	80-100	75-100	65-95	40-70	25-35	5-15
	10-27	Loam, clay loam	SC, CL	A-6, A-4	0	0-7	80-100	75-95	65-90	40-65	25-40	5-20
	27-32	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	32-40	Bedrock	---	---	---	---	---	---	---	---	---	---
872:												
Vernalis loam	0-7	Loam	CL	A-6	0	0	90-100	85-100	75-95	55-75	30-35	15-20
	7-28	Clay loam	CL	A-6	0	0	90-100	85-100	80-100	60-80	35-40	15-25
	28-50	Clay loam	CL	A-6	0	0	85-100	80-95	75-90	55-75	35-40	15-25
	50-60	Sandy clay loam, loam, clay loam	CL	A-6	0	0	85-95	80-90	65-85	35-70	30-40	10-25

Table 25.--Engineering Index 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	
873:												
Narbaitz loam------------------	0-3	Loam	CL	A-6	0	0	85-100	80-95	70-90	50-75	30-40	10-20
	3-9	Sandy clay loam	SC	A-2-6, A-6	0	0	85-100	80-95	65-85	30-50	35-40	15-20
	9-22	Clay	CH	A-7	0	0	90-100	85-95	80-95	65-85	65-80	40-55
	22-38	Extremely gravelly sandy clay	GW-GC, GC	A-2-7	0	0	15-30	10-25	8-24	5-15	50-60	30-35
	38-60	Very gravelly sandy clay loam	GC	A-2-7, A-2-6	0	0	30-40	25-35	20-30	10-20	35-50	15-25
Pleito gravelly clay loam------	0-2	Gravelly clay loam	CL	A-6	0	0	70-80	65-75	60-70	50-60	35-45	15-25
	2-9	Clay loam	CL	A-6	0	0	80-97	75-93	70-90	55-70	35-45	15-25
	9-17	Clay loam, loam, sandy clay loam	CL, SC	A-6	0	0	80-100	75-100	60-95	30-75	30-45	10-25
	17-22	Clay loam, loam, sandy clay loam	CL, SC	A-6	0	0	80-100	75-100	60-95	30-75	30-45	10-25
	22-27	Clay loam, loam, sandy clay loam	SC, CL	A-6	0	0	80-100	75-100	60-95	30-75	30-45	10-25
	27-60	Gravelly sandy clay loam, gravelly loam, gravelly clay loam, very gravelly clay loam	SC	A-6, A-2-6	0	0-15	45-75	40-70	35-65	15-50	30-40	10-20
940:												
Milham sandy loam, organic surface-----------------------	0-4	Herbaceous material	PT	A-8	0	0	---	---	---	---	0-0	NP
	4-6	Sandy loam, herbaceous material	SC, SC-SM, PT	A-4, A-2-4, A-8	0	0	95-100	95-100	55-70	25-40	20-30	5-10
	6-12	Sandy loam	SC, SC-SM	A-4, A-2-4	0	0	95-100	95-100	55-70	25-40	20-30	5-10
	12-22	Sandy clay loam	SC	A-6, A-2-6	0	0	90-100	85-100	60-90	30-50	30-40	10-20
	22-37	Sandy clay loam	SC	A-2-6, A-6	0	0	90-100	85-100	60-90	30-50	30-40	10-20
	37-66	Sandy loam	SC-SM, SM	A-2-4	0	0	95-100	85-100	55-70	25-35	10-20	NP-5

Table 25.--Engineering Index 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	
940:												
Polvadero sandy loam, organic surface-----------------------	0-4	Herbaceous material	PT	A-8	0	0	---	---	---	---	0-0	NP
	4-6	Herbaceous material, fine sandy loam, sandy loam	SC-SM, PT	A-2-4, A-8	0	0-1	80-100	75-100	45-85	25-55	20-30	5-10
	6-13	Fine sandy loam, sandy loam	SC-SM	A-2-4	0	0-1	80-100	75-100	45-85	25-55	20-30	5-10
	13-18	Fine sandy loam, sandy loam	SC-SM	A-2-4	0	0-1	80-100	75-100	45-85	25-55	20-30	5-10
	18-36	Sandy loam, loam, sandy clay loam	SC	A-2-6, A-6	0	0-1	80-100	75-100	50-90	25-55	30-40	10-20
	36-58	Sandy loam, loam, sandy clay loam	SC	A-2-6, A-6	0	0-1	80-100	75-100	50-90	25-55	30-40	10-20
	58-66	Loam, sandy clay loam, sandy loam	SC, SC-SM	A-2-4	0	0-1	80-100	75-100	45-90	25-50	20-35	5-15
941:												
Bisgani loamy sand------------	0-10	Loamy sand	SM	A-2-4	0	0	100	100	50-75	15-30	0-15	NP-5
	10-13	Loamy sand	SM	A-2-4	0	0	100	100	50-75	15-30	0-15	NP-5
	13-60	Sand, loamy sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-30	0-15	NP-5
Elnido sandy loam-------------	0-14	Sandy loam	SC-SM	A-4, A-2-4	0	0	100	100	60-70	30-40	20-30	5-10
	14-32	Sandy loam, fine sandy loam	SC-SM	A-4	0	0	100	100	60-85	35-50	15-30	2-10
	32-40	Fine sandy loam, sandy loam	SC-SM	A-4	0	0	100	100	60-85	35-50	15-30	2-10
	40-53	Sandy loam, fine sandy loam	SC-SM	A-4	0	0	100	100	60-85	35-50	15-30	2-10
	53-60	Sand, loamy sand	SM, SC-SM	A-2-4	0	0	100	100	50-70	5-25	0-10	NP-3

Table 25.--Engineering Index 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	
950. Pits, gravel.												
960: Excelsior sandy loam, sandy substratum	0-7	Sandy loam	SC-SM, SM	A-4, A-2-4	0	0	100	100	60-70	30-40	15-30	NP-10
	7-23	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	15-30	NP-10
	23-53	Stratified loamy sand to silt loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	100	55-95	20-85	15-30	NP-10
	53-72	Loamy sand	SM	A-2-4	0	0	100	100	50-75	15-30	10-20	NP-5
Westhaven loam	0-7	Loam	CL	A-6	0	0	100	100	85-95	60-75	30-40	10-15
	7-17	Loam	CL	A-6	0	0	100	100	90-95	60-75	30-40	10-15
	17-42	Stratified loam to silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-90	30-45	10-20
	42-65	Stratified loamy sand to silty clay loam	CL-ML, CL	A-4, A-7, A-6	0	0	100	100	55-95	35-90	20-45	5-20
	65-72	Stratified loam to silty clay loam	CL	A-7, A-6	0	0	100	100	90-100	70-90	30-45	10-20
980. Urban land.												
981. Sewage disposal ponds.												
982. Water.												

Table 26.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
101:														
Armona loam, partially drained----	0-14	30-50	30-45	18-27	1.40-1.50	4.00-14.00	0.11-0.16	3.0-6.0	1.0-2.0	.37	.37	5	6	48
	14-22	30-50	30-45	20-35	1.35-1.45	1.40-4.00	0.11-0.18	3.0-6.0	0.5-1.0	.37	.37			
	22-42	30-50	30-45	20-35	1.35-1.45	1.40-4.00	0.11-0.18	3.0-6.0	0.5-1.0	.37	.37			
	42-60	30-50	30-45	20-35	1.35-1.45	1.40-4.00	0.11-0.18	3.0-6.0	0.3-0.8	.37	.37			
107:														
Anela very gravelly sandy loam----	0-7	65-75	20-35	5-10	1.55-1.65	14.00-42.00	0.05-0.08	0.0-1.0	0.4-2.0	.05	.17	3	6	48
	7-15	65-75	15-35	5-10	1.50-1.65	14.00-42.00	0.04-0.07	0.0-1.0	0.1-0.2	.05	.17			
	15-22	65-75	18-35	5-10	1.50-1.70	14.00-42.00	0.04-0.07	0.0-1.0	0.1-0.2	.05	.17			
	22-49	70-77	15-25	5-10	1.50-1.70	14.00-42.00	0.03-0.07	0.0-1.0	0.0-0.2	.05	.17			
	49-65	75-86	8-20	4-7	1.80-1.90	1.40-4.00	0.01-0.03	0.0-0.0	0.0-0.1	.02	.10			
115:														
Bolfar loam, drained--------------	0-29	23-52	28-50	18-27	1.50-1.65	4.00-14.00	0.14-0.18	3.0-6.0	1.0-2.0	.32	.32	5	6	48
	29-34	30-80	10-50	7-25	1.40-1.60	4.00-14.00	0.13-0.17	0.0-3.0	0.2-0.5	.24	.24			
	34-39	25-80	10-50	10-25	1.40-1.60	4.00-14.00	0.13-0.17	0.0-3.0	0.2-0.5	.32	.32			
	39-44	30-80	10-50	7-25	1.40-1.60	4.00-14.00	0.13-0.17	0.0-3.0	0.1-0.5	.24	.24			
	44-87	40-60	10-50	10-30	1.40-1.60	4.00-14.00	0.13-0.17	0.0-3.0	0.2-0.5	.32	.32			
120:														
Altaslough clay loam--------------	0-13	30-40	30-40	27-35	1.40-1.50	1.40-4.00	0.14-0.18	4.0-6.0	1.0-2.0	.32	.32	5	6	48
	13-24	30-40	30-40	27-35	1.40-1.50	1.40-4.00	0.08-0.17	4.0-6.0	0.5-1.0	.37	.37			
	24-51	30-40	30-40	27-35	1.40-1.55	0.42-1.40	0.08-0.18	4.0-6.0	0.2-0.8	.37	.37			
	51-72	30-60	25-35	15-35	1.40-1.50	0.42-1.40	0.08-0.15	3.0-6.0	0.1-0.5	.37	.37			
130:														
Gepford clay----------------------	0-13	3-30	10-40	40-60	1.35-1.50	0.42-1.40	0.11-0.15	9.0-12.0	1.0-3.0	.24	.24	5	4	86
	13-26	3-25	15-58	40-60	1.35-1.50	0.02-0.42	0.08-0.16	9.0-12.0	1.0-2.0	.28	.28			
	26-60	5-35	10-40	35-55	1.35-1.50	0.42-1.40	0.08-0.17	6.0-9.0	0.5-1.0	.28	.28			
282:														
Tachi clay------------------------	0-14	2-25	10-38	60-75	1.10-1.25	0.02-0.42	0.11-0.15	12.0-25.0	1.0-3.0	.20	.20	5	4	86
	14-35	2-25	10-38	60-75	1.10-1.30	0.02-0.42	0.10-0.15	12.0-25.0	0.5-1.0	.20	.20			
	35-70	2-25	5-58	40-70	1.00-1.20	0.02-0.42	0.10-0.16	9.0-23.0	0.4-0.8	.28	.28			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
284:														
Lillis clay-----------------------	0-2	2-20	20-38	60-70	1.00-1.20	0.02-0.42	0.02-0.13	15.0-20.0	0.8-1.0	.24	.24	5	4	86
	2-7	2-20	20-38	60-70	1.10-1.25	0.02-0.42	0.02-0.13	15.0-20.0	0.8-1.0	.24	.24			
	7-13	2-20	20-38	60-70	1.10-1.25	0.02-0.42	0.01-0.12	11.0-20.0	0.5-1.0	.24	.24			
	13-21	2-20	20-38	60-70	1.20-1.25	0.02-0.42	0.01-0.04	15.0-20.0	0.3-0.6	.24	.24			
	21-28	2-20	20-38	60-70	1.20-1.25	0.02-0.42	0.01-0.04	15.0-20.0	0.3-0.6	.24	.24			
	28-39	2-20	20-38	60-70	1.00-1.20	0.02-0.42	0.01-0.04	20.0-30.0	0.3-0.6	.24	.24			
	39-48	2-20	20-38	60-70	1.00-1.20	0.02-0.42	0.01-0.04	20.0-25.0	0.3-0.6	.24	.24			
	48-60	2-20	10-58	40-70	1.00-1.20	0.02-0.42	0.01-0.04	20.0-25.0	0.3-0.6	.24	.24			
285:														
Tranquillity clay, saline-sodic---	0-22	3-30	30-45	40-60	1.25-1.40	0.42-1.40	0.13-0.16	9.0-13.0	1.0-2.0	.28	.28	5	4	86
	22-53	5-30	30-45	40-60	1.20-1.40	0.42-1.40	0.11-0.15	6.0-9.0	0.5-1.0	.28	.28			
	53-71	5-30	30-45	40-60	1.20-1.35	0.42-1.40	0.11-0.14	3.0-6.0	0.1-0.4	.28	.28			
Tranquillity clay, saline-sodic, wet------------------------------	0-6	10-40	20-40	40-60	1.25-1.40	0.42-1.40	0.11-0.15	9.0-15.0	1.0-2.0	.28	.28	5	4	86
	6-16	10-40	30-40	40-60	1.25-1.40	0.42-1.40	0.08-0.14	9.0-15.0	0.5-1.0	.28	.28			
	16-31	5-40	20-40	40-60	1.20-1.35	0.02-0.42	0.08-0.13	9.0-15.0	0.4-1.0	.28	.28			
	31-48	5-35	25-40	40-60	1.20-1.35	0.02-0.42	0.08-0.13	9.0-15.0	0.4-0.6	.28	.28			
	48-65	5-35	25-45	40-60	1.20-1.35	0.02-0.42	0.08-0.13	9.0-14.0	0.4-0.6	.28	.28			
286:														
Tranquillity clay, saline-sodic, Wet------------------------------	0-6	10-40	20-40	40-60	1.25-1.40	0.42-1.40	0.11-0.15	9.0-15.0	1.0-2.0	.28	.28	5	4	86
	6-16	10-40	30-40	40-60	1.25-1.40	0.42-1.40	0.08-0.14	9.0-15.0	0.5-1.0	.28	.28			
	16-31	5-40	20-40	40-60	1.20-1.35	0.02-0.42	0.08-0.13	9.0-15.0	0.4-1.0	.28	.28			
	31-48	5-35	25-40	40-60	1.20-1.35	0.02-0.42	0.08-0.13	9.0-15.0	0.4-0.6	.28	.28			
	48-65	5-35	25-45	40-60	1.20-1.35	0.02-0.42	0.08-0.13	9.0-14.0	0.4-0.6	.28	.28			
311:														
Bisgani sandy loam, drained-------	0-10	52-80	10-47	1-10	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	1.0-2.0	.28	.28	3	3	86
	10-13	72-90	1-28	1-10	1.55-1.65	42.00-141.00	0.06-0.08	0.0-3.0	0.5-2.0	.20	.20			
	13-60	72-98	1-28	1-10	1.55-1.70	42.00-141.00	0.05-0.08	0.0-3.0	0.0-0.4	.15	.15			
320:														
Elnido sandy loam, drained--------	0-14	52-75	7-38	10-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	1.0-2.0	.24	.24	4	3	86
	14-32	52-75	7-43	5-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-3.0	0.5-1.0	.28	.28			
	32-40	52-75	7-43	5-18	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.5-0.8	.32	.32			
	40-53	52-75	7-43	5-18	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.4-0.7	.32	.32			
	53-60	69-98	1-28	1-8	1.60-1.70	42.00-141.00	0.05-0.08	0.0-3.0	0.1-0.3	.15	.15			
325:														
Palazzo sandy loam, drained-------	0-10	52-75	7-38	10-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	1.0-2.0	.24	.24	5	3	86
	10-31	52-75	7-38	10-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.3-0.7	.24	.24			
	31-60	10-35	30-70	20-35	1.40-1.50	1.40-4.00	0.14-0.20	3.0-6.0	0.5-2.0	.37	.37			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
375:														
Lethent silt loam-----------------	0-7	10-35	50-75	15-27	1.40-1.55	1.40-4.00	0.14-0.18	0.0-3.0	0.5-0.9	.43	.43	2	6	48
	7-20	5-30	25-60	35-55	1.35-1.50	0.02-0.42	0.02-0.10	9.0-12.0	0.4-0.6	.32	.32			
	20-39	5-30	25-65	30-55	1.35-1.50	0.02-0.42	0.00-0.02	9.0-12.0	0.2-0.5	.32	.32			
	39-60	10-35	30-70	20-35	1.35-1.50	0.42-1.40	0.00-0.02	3.0-6.0	0.1-0.3	.37	.37			
376:														
Agnal silty clay------------------	0-6	3-6	38-45	50-58	1.05-1.30	0.02-0.42	0.01-0.10	12.0-14.0	1.0-3.0	.32	.32	5	4	86
	6-9	3-5	35-45	50-58	1.10-1.30	0.02-0.42	0.01-0.01	13.0-15.0	0.9-2.0	.32	.32			
	9-70	2-5	38-46	50-58	1.10-1.30	0.02-0.42	0.01-0.10	14.0-17.0	0.1-0.9	.32	.32			
404:														
Milham sandy loam-----------------	0-6	52-70	15-28	15-20	1.40-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.3-0.8	.32	.32	5	3	86
	6-16	52-70	10-20	22-35	1.40-1.55	1.40-4.00	0.13-0.17	3.0-6.0	0.2-0.5	.28	.28			
	16-31	52-70	10-25	22-35	1.45-1.60	1.40-4.00	0.13-0.17	3.0-6.0	0.1-0.4	.28	.28			
	31-60	55-75	15-30	6-15	1.40-1.60	14.00-42.00	0.09-0.11	0.0-3.0	0.1-0.3	.28	.28			
Guijarral sandy loam--------------	0-3	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.5-1.0	.24	.32	4	3	86
	3-6	52-80	10-45	3-15	1.45-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.5-1.0	.24	.32			
	6-12	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.2-0.5	.24	.32			
	12-24	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.08-0.12	0.0-3.0	0.1-0.5	.20	.32			
	24-36	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.08-0.12	0.0-3.0	0.1-0.4	.20	.32			
	36-60	52-86	10-45	3-15	1.50-1.65	14.00-145.00	0.07-0.09	0.0-3.0	0.1-0.3	.15	.20			
405:														
Polvadero sandy loam--------------	0-7	52-77	15-40	6-18	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.5-1.0	.28	.32	5	3	86
	7-12	52-77	15-40	6-18	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.3-0.6	.28	.32			
	12-30	45-70	10-35	18-30	1.45-1.55	1.40-4.00	0.09-0.18	3.0-6.0	0.2-0.4	.24	.28			
	30-52	45-70	10-35	18-30	1.45-1.55	1.40-4.00	0.09-0.18	3.0-6.0	0.1-0.3	.24	.28			
	52-60	45-80	10-40	6-25	1.45-1.55	4.00-14.00	0.09-0.17	0.0-3.0	0.1-0.2	.28	.32			
Guijarral sandy loam--------------	0-3	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.5-1.0	.24	.32	4	3	86
	3-6	52-80	10-45	3-15	1.45-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.5-1.0	.24	.32			
	6-12	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.2-0.5	.24	.32			
	12-24	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.08-0.12	0.0-3.0	0.1-0.5	.20	.32			
	24-36	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.08-0.12	0.0-3.0	0.1-0.4	.20	.32			
	36-60	52-86	10-45	3-15	1.50-1.65	14.00-145.00	0.07-0.09	0.0-3.0	0.1-0.3	.15	.20			
406:														
Guijarral sandy loam--------------	0-3	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.5-1.0	.24	.32	4	3	86
	3-6	52-80	10-45	3-15	1.45-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.5-1.0	.24	.32			
	6-12	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.2-0.5	.24	.32			
	12-24	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.08-0.12	0.0-3.0	0.1-0.5	.20	.32			
	24-36	52-80	10-45	3-15	1.50-1.60	14.00-42.00	0.08-0.12	0.0-3.0	0.1-0.4	.20	.32			
	36-60	52-86	10-45	3-15	1.50-1.65	14.00-145.00	0.07-0.09	0.0-3.0	0.1-0.3	.15	.20			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
412:														
Yribarren clay loam	0-9	20-40	25-53	27-35	1.40-1.50	1.40-4.00	0.16-0.20	6.0-9.0	0.5-1.0	.37	.37	5	4L	86
	9-16	10-40	25-63	27-35	1.40-1.55	1.40-4.00	0.15-0.19	6.0-9.0	0.5-1.0	.37	.37			
	16-31	10-40	20-55	35-50	1.35-1.55	0.42-1.40	0.13-0.19	6.0-9.0	0.2-0.5	.32	.32			
	31-51	15-40	25-65	20-35	1.45-1.55	4.00-14.00	0.11-0.19	6.0-9.0	0.2-0.5	.43	.43			
	51-60	15-40	25-65	20-35	1.45-1.55	4.00-14.00	0.11-0.19	6.0-9.0	0.1-0.4	.37	.37			
414:														
Dospalos clay loam, drained	0-17	20-45	20-45	35-40	1.15-1.30	1.40-4.00	0.15-0.20	6.0-9.0	2.0-3.0	.32	.32	5	4	86
	17-25	5-25	20-40	50-60	1.10-1.25	0.42-1.40	0.13-0.16	15.0-18.0	1.0-2.0	.24	.24			
	25-43	5-25	15-40	50-60	1.25-1.35	0.42-1.40	0.13-0.16	8.0-12.0	0.5-1.0	.24	.24			
	43-73	15-45	20-55	27-40	1.25-1.45	1.40-4.00	0.15-0.20	3.0-6.0	0.1-0.5	.28	.28			
415:														
Dospalos clay, drained	0-17	5-25	25-40	50-65	1.10-1.25	0.42-1.40	0.13-0.16	15.0-20.0	2.0-3.0	.24	.24	5	4	86
	17-25	5-25	20-40	50-60	1.10-1.25	0.42-1.40	0.13-0.16	15.0-18.0	1.0-2.0	.24	.24			
	25-43	5-25	15-40	50-60	1.25-1.35	0.42-1.40	0.13-0.16	8.0-12.0	0.5-1.0	.24	.24			
	43-73	15-45	20-55	27-40	1.25-1.45	1.40-4.00	0.15-0.20	3.0-6.0	0.1-0.5	.28	.28			
425:														
Kimberlina sandy loam	0-14	52-75	7-43	5-18	1.45-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.32	.32	5	3	86
	14-72	52-75	7-43	5-18	1.45-1.60	14.00-42.00	0.10-0.15	0.0-3.0	0.1-0.2	.32	.32			
426:														
Kimberlina sandy loam	0-14	52-75	7-43	5-18	1.45-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.32	.32	5	3	86
	14-72	52-75	7-43	5-18	1.45-1.60	14.00-42.00	0.10-0.15	0.0-3.0	0.1-0.2	.32	.32			
434:														
Lethent clay loam, wet	0-7	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.14-0.18	3.0-6.0	0.7-2.0	.37	.37	3	6	48
	7-16	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.14-0.18	3.0-6.0	0.7-2.0	.37	.37			
	16-25	20-45	20-53	27-35	1.40-1.55	1.40-4.00	0.14-0.18	3.0-6.0	0.7-1.0	.37	.37			
	25-33	10-45	20-45	35-50	1.35-1.50	0.42-1.40	0.08-0.17	6.0-9.0	0.4-0.8	.43	.43			
	33-62	10-45	20-47	33-50	1.35-1.50	0.42-1.40	0.08-0.17	6.0-9.0	0.2-0.6	.43	.43			
	62-72	20-45	15-60	20-40	1.40-1.55	0.42-4.00	0.08-0.17	3.0-6.0	0.2-0.6	.43	.43			
435:														
Lethent clay loam	0-7	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-6.0	0.7-2.0	.37	.37	3	6	48
	7-16	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-6.0	0.7-2.0	.37	.37			
	16-25	20-45	20-53	27-35	1.40-1.55	1.40-4.00	0.15-0.19	3.0-6.0	0.7-1.0	.37	.37			
	25-33	10-45	20-45	35-50	1.35-1.50	0.42-1.40	0.08-0.18	6.0-9.0	0.4-0.8	.43	.43			
	33-62	10-45	20-47	33-50	1.35-1.50	0.42-1.40	0.08-0.17	6.0-9.0	0.2-0.6	.43	.43			
	62-72	20-45	15-60	20-40	1.40-1.55	0.42-4.00	0.08-0.17	3.0-6.0	0.2-0.6	.43	.43			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
436:														
Panoche loam----------------------	0-7	23-52	28-50	15-27	1.40-1.55	4.00-14.00	0.13-0.18	3.0-6.0	0.5-1.0	.32	.37	5	6	48
	7-16	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.4-1.0	.37	.43			
	16-27	20-52	20-50	18-35	1.35-1.50	4.00-14.00	0.13-0.20	3.0-6.0	0.3-0.5	.43	.43			
	27-43	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	43-57	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	57-72	20-80	10-50	10-30	1.40-1.60	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.4	.37	.37			
437:														
Panoche sandy loam----------------	0-7	52-80	10-38	10-20	1.45-1.60	4.00-14.00	0.09-0.13	0.0-3.0	0.5-1.0	.28	.32	5	3	86
	7-16	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.4-1.0	.37	.43			
	16-27	20-52	20-50	18-35	1.35-1.50	4.00-14.00	0.13-0.20	3.0-6.0	0.3-0.5	.43	.43			
	27-43	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	43-57	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	57-72	20-80	10-50	10-30	1.40-1.60	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.4	.37	.37			
438:														
Panoche loam----------------------	0-7	23-52	28-50	15-27	1.40-1.55	4.00-14.00	0.13-0.18	3.0-6.0	0.5-1.0	.32	.37	5	6	48
	7-16	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.4-1.0	.37	.43			
	16-27	20-52	20-50	18-35	1.35-1.50	4.00-14.00	0.13-0.20	3.0-6.0	0.3-0.5	.43	.43			
	27-43	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	43-57	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	57-72	20-80	10-50	10-30	1.40-1.60	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.4	.37	.37			
442:														
Panoche clay loam-----------------	0-7	20-45	20-50	27-35	1.35-1.50	4.00-14.00	0.15-0.20	3.0-6.0	0.5-1.0	.32	.37	5	6	48
	7-16	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.4-1.0	.37	.43			
	16-27	20-52	20-50	18-35	1.35-1.50	4.00-14.00	0.13-0.20	3.0-6.0	0.3-0.5	.43	.43			
	27-43	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	43-57	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	57-72	20-80	10-50	10-30	1.40-1.60	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.4	.37	.37			
445:														
Excelsior sandy loam--------------	0-7	52-75	7-43	5-18	1.40-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.5-1.0	.28	.28	5	3	86
	7-23	52-75	7-43	5-18	1.40-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.28	.28			
	23-72	20-75	7-75	5-18	1.45-1.60	4.00-14.00	0.09-0.15	0.0-3.0	0.1-0.4	.32	.32			
447:														
Excelsior sandy loam, sandy substrastum----------------------	0-7	52-75	7-43	5-18	1.40-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.5-1.0	.28	.28	4	3	86
	7-23	52-75	7-43	5-18	1.40-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.28	.28			
	23-53	20-85	5-75	5-18	1.30-1.60	4.00-14.00	0.08-0.15	0.0-3.0	0.1-0.7	.32	.32			
	53-72	73-87	3-23	3-10	1.45-1.65	42.00-141.00	0.05-0.08	0.0-3.0	0.1-0.2	.17	.17			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
448:														
Excelsior loamy sand, sandy substratum, eroded	0-8	73-88	2-23	3-14	1.50-1.65	42.00-141.00	0.06-0.08	0.0-3.0	0.5-1.0	.17	.17	4	2	134
	8-38	20-75	7-75	5-18	1.45-1.60	4.00-14.00	0.09-0.15	0.0-3.0	0.0-0.7	.32	.32			
	38-60	72-90	5-26	2-10	1.50-1.65	42.00-141.00	0.05-0.08	0.0-3.0	0.0-0.2	.17	.17			
451, 452, 453:														
Milham sandy loam	0-6	52-70	15-28	15-20	1.40-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.3-0.8	.32	.32	5	3	86
	6-16	52-70	10-20	22-35	1.40-1.55	1.40-4.00	0.13-0.17	3.0-6.0	0.2-0.5	.28	.28			
	16-31	52-70	10-25	22-35	1.45-1.60	1.40-4.00	0.13-0.17	3.0-6.0	0.1-0.4	.28	.28			
	31-60	55-75	15-30	6-15	1.40-1.60	14.00-42.00	0.09-0.11	0.0-3.0	0.1-0.3	.28	.28			
454, 455:														
Polvadero sandy loam	0-7	52-77	15-40	6-18	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.5-1.0	.28	.32	5	3	86
	7-12	52-77	15-40	6-18	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.3-0.6	.28	.32			
	12-30	45-70	10-35	18-30	1.45-1.55	1.40-4.00	0.09-0.18	3.0-6.0	0.2-0.4	.24	.28			
	30-52	45-70	10-35	18-30	1.45-1.55	1.40-4.00	0.09-0.18	3.0-6.0	0.1-0.3	.24	.28			
	52-60	45-80	10-40	6-25	1.45-1.55	4.00-14.00	0.09-0.17	0.0-3.0	0.1-0.2	.28	.32			
459:														
Ciervo clay	0-17	5-45	20-40	35-55	1.25-1.50	1.40-4.00	0.13-0.18	6.0-9.0	0.5-1.0	.28	.28	5	4	86
	17-27	5-40	25-45	35-55	1.15-1.35	0.42-1.40	0.13-0.18	6.0-9.0	0.4-0.8	.28	.28			
	27-41	5-40	25-45	35-50	1.15-1.35	0.42-1.40	0.13-0.18	6.0-9.0	0.3-0.7	.28	.28			
	41-60	10-40	20-50	20-40	1.15-1.30	0.42-1.40	0.13-0.18	3.0-6.0	0.3-0.6	.28	.28			
461:														
Ciervo clay, saline-sodic, wet	0-17	5-45	20-40	35-55	1.25-1.50	0.42-1.40	0.08-0.17	6.0-9.0	0.5-1.0	.28	.28	5	4	86
	17-27	5-40	25-45	35-55	1.15-1.35	0.42-1.40	0.08-0.17	6.0-9.0	0.4-0.8	.28	.28			
	27-41	5-40	25-45	35-50	1.15-1.35	0.02-0.42	0.08-0.14	6.0-9.0	0.3-0.7	.28	.28			
	41-60	10-40	20-50	20-40	1.15-1.30	0.42-1.40	0.08-0.14	3.0-6.0	0.3-0.6	.28	.28			
462:														
Ciervo clay, saline-sodic, wet	0-17	5-45	20-40	35-55	1.25-1.50	0.42-1.40	0.08-0.17	6.0-9.0	0.5-1.0	.28	.28	5	4	86
	17-27	5-40	25-45	35-55	1.15-1.35	0.42-1.40	0.08-0.17	6.0-9.0	0.4-0.8	.28	.28			
	27-41	5-40	25-45	35-50	1.15-1.35	0.02-0.42	0.08-0.14	6.0-9.0	0.3-0.7	.28	.28			
	41-60	10-40	20-50	20-40	1.15-1.30	0.42-1.40	0.08-0.14	3.0-6.0	0.3-0.6	.28	.28			
Ciervo clay, saline-sodic	0-17	5-45	20-40	35-55	1.25-1.50	0.42-1.40	0.11-0.18	6.0-9.0	0.5-1.0	.28	.28	5	4	86
	17-27	5-40	25-45	35-55	1.15-1.35	0.42-1.40	0.11-0.17	6.0-9.0	0.4-0.8	.28	.28			
	27-41	5-40	25-45	35-50	1.15-1.35	0.02-0.42	0.08-0.15	6.0-9.0	0.3-0.7	.28	.28			
	41-60	10-40	20-50	20-40	1.15-1.30	0.42-1.40	0.08-0.14	3.0-6.0	0.3-0.6	.28	.28			
466:														
Paver clay loam	0-6	25-45	20-48	27-35	1.40-1.50	1.40-4.00	0.17-0.20	3.0-6.0	0.5-0.8	.32	.32	5	6	48
	6-19	25-45	20-48	27-35	1.40-1.50	1.40-4.00	0.17-0.20	3.0-6.0	0.5-0.8	.32	.32			
	19-26	25-48	20-50	23-35	1.40-1.55	1.40-4.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	26-48	25-48	20-50	23-35	1.40-1.55	1.40-4.00	0.13-0.20	3.0-6.0	0.1-0.4	.32	.32			
	48-60	25-48	20-50	23-35	1.40-1.55	1.40-4.00	0.13-0.20	3.0-6.0	0.1-0.3	.32	.32			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
468:														
Deldota clay, partially drained---	0-17	10-40	10-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-2.0	.24	.24	5	4	86
	17-24	10-40	10-40	35-50	1.35-1.50	0.42-1.40	0.14-0.19	6.0-9.0	0.5-1.0	.28	.28			
	24-54	10-40	10-40	35-50	1.35-1.50	0.42-1.40	0.14-0.19	6.0-9.0	0.3-0.7	.28	.28			
	54-65	20-40	20-50	30-40	1.40-1.50	0.42-1.40	0.17-0.20	6.0-9.0	0.2-0.5	.32	.32			
470:														
Chateau clay, partially drained---	0-6	5-35	20-40	40-60	1.25-1.40	0.42-1.40	0.08-0.14	6.0-9.0	0.5-1.0	.28	.28	5	4	86
	6-20	5-35	20-40	40-60	1.25-1.40	0.42-1.40	0.08-0.13	6.0-9.0	0.5-0.9	.28	.28			
	20-43	5-35	20-60	35-50	1.35-1.50	0.42-1.40	0.08-0.15	3.0-6.0	0.2-0.5	.37	.37			
	43-60	5-35	25-55	40-50	1.35-1.50	0.42-1.40	0.08-0.14	6.0-9.0	0.2-0.4	.32	.32			
472:														
Wekoda clay, partially drained----	0-7	5-40	10-35	50-60	1.25-1.35	0.02-0.42	0.13-0.16	9.0-15.0	1.0-3.0	.20	.20	5	4	86
	7-12	5-40	10-35	50-60	1.25-1.35	0.02-0.42	0.13-0.16	9.0-15.0	1.0-3.0	.20	.20			
	12-22	5-40	10-35	45-60	1.25-1.40	0.02-0.42	0.11-0.15	9.0-15.0	0.5-1.0	.24	.24			
	22-35	5-40	10-35	45-60	1.25-1.40	0.02-0.42	0.11-0.15	9.0-15.0	0.5-1.0	.24	.24			
	35-47	5-40	10-35	45-60	1.25-1.40	0.02-0.42	0.11-0.15	9.0-15.0	0.2-0.7	.24	.24			
	47-60	5-40	10-35	45-60	1.25-1.40	0.02-0.42	0.11-0.15	9.0-15.0	0.2-0.5	.24	.24			
474:														
Westhaven loam--------------------	0-7	23-40	33-50	18-27	1.45-1.55	4.00-14.00	0.13-0.18	0.0-3.0	0.7-2.0	.37	.37	5	6	48
	7-17	23-40	33-50	18-27	1.45-1.55	4.00-14.00	0.13-0.18	0.0-3.0	0.5-1.0	.43	.43			
	17-42	10-40	25-70	20-35	1.40-1.55	1.40-4.00	0.13-0.20	3.0-6.0	0.2-0.7	.49	.49			
	42-65	10-87	10-70	3-35	1.40-1.65	1.40-4.00	0.10-0.18	3.0-6.0	0.1-0.5	.43	.43			
	65-72	10-40	25-70	20-35	1.40-1.55	1.40-4.00	0.13-0.20	3.0-6.0	0.1-0.5	.49	.49			
475:														
Posochanet clay loam, saline-sodic, wet-----------------------	0-7	20-40	25-53	27-35	1.40-1.50	1.40-4.00	0.14-0.20	3.0-6.0	0.5-2.0	.32	.32	5	4L	86
	7-15	20-40	25-53	27-35	1.40-1.55	1.40-4.00	0.14-0.19	3.0-6.0	0.5-1.0	.32	.32			
	15-24	10-40	25-70	20-35	1.40-1.55	0.42-1.40	0.08-0.18	3.0-6.0	0.2-0.8	.37	.37			
	24-60	10-40	25-70	20-35	1.40-1.55	0.42-1.40	0.06-0.18	3.0-6.0	0.1-0.5	.37	.37			
476:														
Posochanet clay loam, saline-sodic														
	7-15	20-40	25-53	27-35	1.40-1.55	1.40-4.00	0.14-0.19	3.0-6.0	0.5-1.0	.32	.32			
	15-24	10-40	25-70	20-35	1.40-1.55	1.40-4.00	0.11-0.18	3.0-6.0	0.2-0.8	.37	.37			
	24-60	10-40	25-70	20-35	1.40-1.55	0.42-1.40	0.11-0.18	3.0-6.0	0.1-0.5	.37	.37			
477:														
Westhaven clay loam---------------	0-12	20-40	25-53	27-35	1.40-1.50	1.40-4.00	0.16-0.20	3.0-6.0	0.7-2.0	.37	.37	5	6	48
	12-21	5-20	45-68	27-35	1.45-1.55	1.40-4.00	0.16-0.20	3.0-6.0	0.5-1.0	.43	.43			
	21-61	10-40	25-70	20-35	1.40-1.55	1.40-4.00	0.13-0.20	3.0-6.0	0.2-0.7	.49	.49			
	61-72	10-87	10-70	3-35	1.40-1.65	1.40-4.00	0.10-0.18	3.0-6.0	0.1-0.5	.43	.43			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
478:														
Cerini sandy loam-----------------	0-5	52-75	10-38	10-20	1.50-1.60	14.00-42.00	0.11-0.13	0.0-3.0	0.5-1.0	.28	.28	5	3	86
	5-25	20-45	20-53	15-35	1.40-1.55	4.00-14.00	0.14-0.19	3.0-6.0	0.4-1.0	.37	.37			
	25-35	20-60	20-65	15-35	1.40-1.55	1.40-4.00	0.11-0.19	3.0-6.0	0.2-0.7	.43	.43			
	35-62	20-72	20-60	8-30	1.40-1.55	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.7	.28	.37			
479:														
Cerini clay loam------------------	0-5	20-45	20-53	27-35	1.40-1.50	4.00-14.00	0.15-0.19	3.0-6.0	0.5-1.0	.37	.37	5	6	48
	5-25	20-45	20-53	15-35	1.40-1.55	4.00-14.00	0.14-0.19	3.0-6.0	0.4-1.0	.37	.37			
	25-35	20-60	20-65	15-35	1.40-1.55	1.40-4.00	0.11-0.19	3.0-6.0	0.2-0.7	.43	.43			
	35-62	20-72	20-60	8-30	1.40-1.55	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.7	.28	.37			
480:														
Calflax clay loam, saline-sodic---	0-8	20-40	20-52	27-40	1.30-1.45	1.40-4.00	0.14-0.19	3.0-6.0	0.5-2.0	.37	.37	5	6	48
	8-26	20-40	20-52	27-40	1.30-1.45	1.40-4.00	0.14-0.19	3.0-6.0	0.3-1.0	.32	.32			
	26-33	20-40	25-50	18-35	1.35-1.50	1.40-4.00	0.11-0.19	3.0-6.0	0.1-0.4	.43	.43			
	33-47	20-40	25-60	18-35	1.30-1.50	1.40-4.00	0.08-0.18	3.0-6.0	0.1-0.4	.43	.43			
	47-65	20-40	25-50	18-35	1.30-1.50	1.40-4.00	0.08-0.18	3.0-6.0	0.1-0.3	.43	.43			
481:														
Cerini clay loam------------------	0-5	20-45	20-53	27-35	1.40-1.50	4.00-14.00	0.15-0.19	3.0-6.0	0.5-1.0	.37	.37	5	6	48
	5-25	20-45	20-53	15-35	1.40-1.55	4.00-14.00	0.14-0.19	3.0-6.0	0.4-1.0	.37	.37			
	25-35	20-60	20-65	15-35	1.40-1.55	1.40-4.00	0.11-0.19	3.0-6.0	0.2-0.7	.43	.43			
	35-62	20-72	20-60	8-30	1.40-1.55	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.7	.28	.37			
482:														
Calflax clay loam, saline-sodic, wet------------------------------	0-8	20-40	20-52	27-40	1.30-1.45	1.40-4.00	0.14-0.19	3.0-6.0	0.5-2.0	.37	.37	5	6	48
	8-26	20-40	20-52	27-40	1.30-1.45	1.40-4.00	0.14-0.18	3.0-6.0	0.3-1.0	.32	.32			
	26-33	20-40	25-50	18-35	1.35-1.50	1.40-4.00	0.11-0.18	3.0-6.0	0.1-0.4	.43	.43			
	33-47	20-40	25-60	18-35	1.30-1.50	1.40-4.00	0.08-0.17	3.0-6.0	0.1-0.4	.43	.43			
	47-65	20-40	25-50	18-35	1.30-1.50	1.40-4.00	0.08-0.17	3.0-6.0	0.1-0.3	.43	.43			
488, 489:														
Wasco sandy loam------------------	0-8	52-75	7-40	8-18	1.45-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.4-1.0	.32	.32	5	3	86
	8-21	52-75	7-40	8-18	1.45-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.4-0.9	.32	.32			
	21-50	52-75	7-40	8-18	1.45-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.1-0.2	.32	.32			
	50-72	52-75	7-43	5-18	1.45-1.60	14.00-42.00	0.09-0.14	0.0-3.0	0.0-0.1	.32	.32			
490:														
Cerini sandy loam, subsided-------	0-5	52-75	10-38	10-20	1.50-1.60	14.00-42.00	0.11-0.13	0.0-3.0	0.5-1.0	.28	.28	5	3	86
	5-25	20-45	20-53	15-35	1.40-1.55	4.00-14.00	0.14-0.19	3.0-6.0	0.4-1.0	.37	.37			
	25-35	20-60	20-65	15-35	1.40-1.55	1.40-4.00	0.11-0.19	3.0-6.0	0.2-0.7	.43	.43			
	35-62	20-72	20-60	8-30	1.40-1.55	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.7	.28	.37			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
491:														
Cerini clay loam, subsided--------	0-5	20-45	20-53	27-35	1.40-1.50	4.00-14.00	0.15-0.19	3.0-6.0	0.5-1.0	.37	.37	5	6	48
	5-25	20-45	20-53	15-35	1.40-1.55	4.00-14.00	0.14-0.19	3.0-6.0	0.4-1.0	.37	.37			
	25-35	20-60	20-65	15-35	1.40-1.55	1.40-4.00	0.11-0.19	3.0-6.0	0.2-0.7	.43	.43			
	35-62	20-72	20-60	8-30	1.40-1.55	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.7	.28	.37			
492:														
Panoche loam, subsided------------	0-7	23-52	28-50	15-27	1.40-1.55	4.00-14.00	0.13-0.18	3.0-6.0	0.5-1.0	.32	.37	5	6	48
	7-16	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.4-1.0	.37	.43			
	16-27	20-52	20-50	18-35	1.35-1.50	4.00-14.00	0.13-0.20	3.0-6.0	0.3-0.5	.43	.43			
	27-43	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	43-57	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	57-72	20-80	10-50	10-30	1.40-1.60	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.4	.37	.37			
493:														
Panoche clay loam, subsided-------	0-7	20-45	20-50	27-35	1.35-1.50	4.00-14.00	0.15-0.20	3.0-6.0	0.5-1.0	.32	.37	5	6	48
	7-16	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.4-1.0	.37	.43			
	16-27	20-52	20-50	18-35	1.35-1.50	4.00-14.00	0.13-0.20	3.0-6.0	0.3-0.5	.43	.43			
	27-43	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	43-57	20-52	20-50	18-35	1.35-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.43	.43			
	57-72	20-80	10-50	10-30	1.40-1.60	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.4	.37	.37			
587, 588:														
Mugatu fine sandy loam------------	0-2	52-85	10-39	10-18	1.50-1.60	14.00-42.00	0.12-0.15	0.0-3.0	1.0-2.0	.28	.28	4	3	86
	2-10	52-85	10-39	10-18	1.50-1.60	14.00-42.00	0.12-0.15	0.0-3.0	0.8-2.0	.28	.28			
	10-24	52-85	10-39	10-18	1.50-1.60	14.00-42.00	0.12-0.15	0.0-3.0	0.4-1.0	.24	.28			
	24-41	25-45	20-48	27-35	1.40-1.50	1.40-4.00	0.13-0.16	3.0-6.0	0.1-0.3	.28	.32			
	41-60	60-98	2-38	2-15	1.50-1.65	42.00-141.00	0.01-0.04	0.0-3.0	0.0-0.2	.05	.15			
590:														
Cerini sandy loam-----------------	0-5	52-75	10-38	10-20	1.50-1.60	14.00-42.00	0.11-0.13	0.0-3.0	0.5-1.0	.28	.28	5	3	86
	5-25	20-45	20-53	15-35	1.40-1.55	4.00-14.00	0.14-0.19	3.0-6.0	0.4-1.0	.37	.37			
	25-35	20-60	20-65	15-35	1.40-1.55	1.40-4.00	0.11-0.19	3.0-6.0	0.2-0.7	.43	.43			
	35-62	20-72	20-60	8-30	1.40-1.55	4.00-14.00	0.09-0.18	3.0-6.0	0.1-0.7	.28	.37			
Anela very gravelly sandy loam----	0-7	65-75	20-35	5-10	1.55-1.65	14.00-42.00	0.05-0.08	0.0-1.0	0.4-2.0	.05	.17	3	6	48
	7-15	65-75	15-35	5-10	1.50-1.65	14.00-42.00	0.04-0.07	0.0-1.0	0.1-0.2	.05	.17			
	15-22	65-75	18-35	5-10	1.50-1.70	14.00-42.00	0.04-0.07	0.0-1.0	0.1-0.2	.05	.17			
	22-49	70-77	15-25	5-10	1.50-1.70	14.00-42.00	0.03-0.07	0.0-1.0	0.0-0.2	.05	.17			
	49-65	75-86	8-20	4-7	1.80-1.90	1.40-4.00	0.01-0.03	0.0-0.0	0.0-0.1	.02	.10			
Fluvaquents, saline-sodic---------	0-5	33-93	5-50	2-18	1.45-1.70	4.00-14.00	0.00-0.10	0.0-3.0	0.2-0.9	.24	.28	2	8	0
	5-10	33-93	5-50	2-18	1.45-1.70	1.40-4.00	0.00-0.12	0.0-3.0	0.2-0.9	.24	.28			
	10-18	33-93	5-50	2-18	1.45-1.70	1.40-4.00	0.00-0.12	0.0-3.0	0.2-1.0	.24	.28			
	18-60	33-96	2-50	2-18	1.45-1.70	0.42-1.40	0.00-0.12	0.0-3.0	0.1-1.0	.10	.24			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
620:														
Delgado sandy loam, eroded--------	0-2	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.24	.28	1	3	86
	2-5	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.2-0.5	.24	.28			
	5-15	60-80	10-35	5-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.4	.24	.28			
	15-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
621:														
Delgado sandy loam, eroded--------	0-2	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.24	.28	1	3	86
	2-6	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.2-0.5	.24	.28			
	6-10	60-80	10-35	5-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.4	.24	.28			
	10-14	---	---	---	---	0.02-0.42	---	---	---	---	---			
640:														
Kettleman clay loam, eroded-------	0-8	25-45	20-48	27-35	1.40-1.50	4.00-14.00	0.16-0.20	3.0-6.0	0.4-1.0	.32	.32	3	6	48
	8-20	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	20-27	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.1-0.3	.32	.32			
	27-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
Delgado sandy loam, eroded--------	0-2	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.24	.28	1	3	86
	2-5	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.2-0.5	.24	.28			
	5-15	60-80	10-35	5-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.4	.24	.28			
	15-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Mercey loam, eroded---------------	0-3	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.4-1.0	.43	.43	3	6	48
	3-6	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.3-0.5	.43	.43			
	6-14	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.2-0.5	.43	.43			
	14-21	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.3	.43	.43			
	21-30	---	---	---	---	0.42-1.40	---	---	---	---	---			
641:														
Mercey loam-----------------------	0-6	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.4-1.0	.43	.43	3	6	48
	6-9	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.3-0.5	.43	.43			
	9-14	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.2-0.5	.43	.43			
	14-24	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.3	.43	.43			
	24-30	---	---	---	---	0.42-1.40	---	---	---	---	---			
Delgado sandy loam----------------	0-4	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.24	.28	1	3	86
	4-8	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.2-0.5	.24	.28			
	8-18	60-80	10-35	5-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.4	.24	.28			
	18-22	---	---	---	---	0.02-0.42	---	---	---	---	---			
Kettleman clay loam---------------	0-8	25-45	20-48	27-35	1.40-1.50	4.00-14.00	0.16-0.20	3.0-6.0	0.4-1.0	.32	.32	3	6	48
	8-25	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	25-32	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.1-0.3	.32	.32			
	32-60	---	---	---	---	0.42-1.40	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
642:														
Mercey loam, eroded---------------	0-3	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.4-1.0	.43	.43	3	6	48
	3-6	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.3-0.5	.43	.43			
	6-14	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.2-0.5	.43	.43			
	14-21	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.3	.43	.43			
	21-30	---	---	---	---	0.42-1.40	---	---	---	---	---			
Delgado sandy loam, eroded--------	0-2	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.24	.28	1	3	86
	2-6	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.2-0.5	.24	.28			
	6-10	60-80	10-35	5-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.4	.24	.28			
	10-14	---	---	---	---	0.02-0.42	---	---	---	---	---			
Kettleman clay loam, eroded-------	0-8	25-45	20-48	27-35	1.40-1.50	4.00-14.00	0.16-0.20	3.0-6.0	0.4-1.0	.32	.32	3	6	48
	8-20	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	20-27	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.1-0.3	.32	.32			
	27-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
643:														
Mercey loam-----------------------	0-6	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.4-1.0	.43	.43	3	6	48
	6-9	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.3-0.5	.43	.43			
	9-14	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.2-0.5	.43	.43			
	14-24	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.3	.43	.43			
	24-30	---	---	---	---	0.42-1.40	---	---	---	---	---			
Delgado sandy loam----------------	0-2	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.24	.28	1	3	86
	2-6	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.2-0.5	.24	.28			
	6-13	60-80	10-35	5-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.4	.24	.28			
	13-17	---	---	---	---	0.02-0.42	---	---	---	---	---			
Kettleman clay loam---------------	0-8	25-45	20-48	27-35	1.40-1.50	4.00-14.00	0.16-0.20	3.0-6.0	0.4-1.0	.32	.32	3	6	48
	8-25	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	25-32	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.1-0.3	.32	.32			
	32-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
644:														
Mercey loam, eroded---------------	0-3	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.4-1.0	.43	.43	3	6	48
	3-6	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.3-0.5	.43	.43			
	6-14	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.2-0.5	.43	.43			
	14-21	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.3	.43	.43			
	21-30	---	---	---	---	0.42-1.40	---	---	---	---	---			
Kettleman clay loam, eroded-------	0-8	25-45	20-48	27-35	1.40-1.50	4.00-14.00	0.16-0.20	3.0-6.0	0.4-1.0	.32	.32	3	6	48
	8-20	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	20-27	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.1-0.3	.32	.32			
	27-60	---	---	---	---	0.42-1.40	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
644:														
Delgado sandy loam, eroded--------	0-2	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.24	.28	1	3	86
	2-6	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.2-0.5	.24	.28			
	6-10	60-80	10-35	5-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.4	.24	.28			
	10-14	---	---	---	---	0.02-0.42	---	---	---	---	---			
645:														
Delgado sandy loam----------------	0-2	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.24	.28	1	3	86
	2-6	60-80	10-32	8-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.2-0.5	.24	.28			
	6-13	60-80	10-35	5-15	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.4	.24	.28			
	13-17	---	---	---	---	0.02-0.42	---	---	---	---	---			
Mercey loam-----------------------	0-6	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.4-1.0	.43	.43	3	6	48
	6-9	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.3-0.5	.43	.43			
	9-14	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.2-0.5	.43	.43			
	14-24	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.3	.43	.43			
	24-30	---	---	---	---	0.42-1.40	---	---	---	---	---			
Kettleman clay loam---------------	0-8	25-45	20-48	27-35	1.40-1.50	4.00-14.00	0.16-0.20	3.0-6.0	0.4-1.0	.32	.32	3	6	48
	8-25	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	25-32	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.1-0.3	.32	.32			
	32-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
670:														
Badland.														
Kettleman clay loam---------------	0-8	25-45	20-48	27-35	1.40-1.50	4.00-14.00	0.16-0.20	3.0-6.0	0.4-1.0	.32	.32	3	6	48
	8-25	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	25-32	25-45	20-48	18-35	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.1-0.3	.32	.32			
	32-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
Mercey loam-----------------------	0-6	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.4-1.0	.43	.43	3	6	48
	6-9	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.3-0.5	.43	.43			
	9-14	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.2-0.5	.43	.43			
	14-24	13-40	40-60	20-27	1.45-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.3	.43	.43			
	24-30	---	---	---	---	0.42-1.40	---	---	---	---	---			
680:														
Arburua loam----------------------	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
Morenogulch parachannery silty clay-----------------------------	0-3	2-20	40-58	40-55	1.00-1.10	0.42-1.40	0.12-0.17	6.0-9.0	1.0-2.0	.28	.32	1	4	86
	3-6	2-20	40-63	35-55	1.00-1.10	0.42-1.40	0.12-0.18	6.0-9.0	0.8-2.0	.24	.32			
	6-10	2-20	40-63	35-55	1.00-1.10	0.42-1.40	0.12-0.18	6.0-9.0	0.3-0.8	.28	.32			
	10-33	---	---	---	---	0.42-1.40	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
704:														
Franciscan gravelly sandy loam----	0-5	52-65	15-38	10-20	1.50-1.60	4.00-14.00	0.07-0.11	0.0-3.0	2.0-3.0	.20	.32	2	5	56
	5-9	40-50	20-50	10-20	1.45-1.55	4.00-14.00	0.07-0.15	0.0-3.0	2.0-3.0	.20	.32			
	9-15	35-52	20-45	20-35	1.40-1.55	1.40-4.00	0.09-0.14	3.0-6.0	1.0-2.0	.17	.32			
	15-26	35-52	20-45	20-35	1.40-1.55	1.40-4.00	0.09-0.14	3.0-6.0	0.5-1.0	.15	.32			
	26-31	---	---	---	---	0.02-0.42	---	---	---	---	---			
705:														
Roacha silty clay loam------------	0-5	10-20	40-60	30-40	1.45-1.55	1.40-4.00	0.15-0.19	3.0-6.0	1.0-2.0	.28	.32	3	4	86
	5-10	10-20	25-50	40-55	1.35-1.50	0.42-1.40	0.13-0.16	6.0-9.0	0.7-1.0	.28	.32			
	10-25	10-20	25-50	40-55	1.35-1.50	0.42-1.40	0.13-0.16	6.0-9.0	0.5-0.7	.24	.28			
	25-36	10-30	20-55	35-50	1.35-1.45	0.42-1.40	0.09-0.17	6.0-9.0	0.2-0.5	.15	.28			
	36-40	---	---	---	---	0.42-1.40	---	---	---	---	---			
706:														
Sagaser loam----------------------	0-7	23-45	28-50	20-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	2.0-3.0	.37	.37	4	6	48
	7-17	20-45	25-53	27-35	1.40-1.50	1.40-4.00	0.15-0.20	3.0-6.0	1.0-2.0	.32	.32			
	17-29	20-45	25-53	27-35	1.40-1.50	1.40-4.00	0.15-0.20	3.0-6.0	0.3-0.8	.28	.32			
	29-50	20-45	25-53	27-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-6.0	0.2-0.4	.24	.32			
	50-60	---	---	---	---	1.40-4.00	---	---	---	---	---			
709:														
Sagaser loam----------------------	0-7	23-45	28-50	20-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	2.0-3.0	.37	.37	4	6	48
	7-17	20-45	25-53	27-35	1.40-1.50	1.40-4.00	0.15-0.20	3.0-6.0	1.0-2.0	.32	.32			
	17-29	20-45	25-53	27-35	1.40-1.50	1.40-4.00	0.15-0.20	3.0-6.0	0.3-0.8	.28	.32			
	29-50	20-45	25-53	27-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-6.0	0.2-0.4	.24	.32			
	50-60	---	---	---	---	1.40-4.00	---	---	---	---	---			
Gaviota sandy loam----------------	0-3	52-80	10-33	10-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.7-1.0	.24	.24	1	3	86
	3-10	52-80	10-33	10-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.6	.24	.24			
	10-15	---	---	---	---	0.02-0.42	---	---	---	---	---			
Borreguero sandy loam-------------	0-2	52-78	10-36	12-20	1.50-1.60	4.00-14.00	0.09-0.13	0.0-3.0	1.0-2.0	.24	.24	1	3	86
	2-5	45-76	10-41	14-25	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	1.0-2.0	.20	.20			
	5-11	52-76	10-35	14-23	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	0.1-0.8	.15	.20			
	11-17	---	---	---	---	0.42-1.40	---	---	---	---	---			
710:														
Monoridge fine sand---------------	0-7	85-94	5-13	2-7	1.60-1.70	42.00-141.00	0.05-0.08	0.0-3.0	0.3-0.5	.20	.20	3	1	250
	7-25	85-94	5-13	2-10	1.55-1.70	42.00-141.00	0.05-0.08	0.0-3.0	0.1-0.4	.20	.20			
	25-29	---	---	---	---	4.00-14.00	---	---	---	---	---			
Exclose clay loam-----------------	0-5	30-45	20-43	27-35	1.40-1.50	1.40-4.00	0.16-0.19	3.0-6.0	2.0-3.0	.20	.20	5	4L	86
	5-12	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	1.0-2.0	.24	.24			
	12-19	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.24	.24			
	19-29	30-55	10-43	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.20	.20			
	29-84	30-50	10-43	27-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.4	.24	.24			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
710:														
Badland.														
711:														
Currymountain loam	0-3	23-52	28-50	15-27	1.45-1.55	4.00-14.00	0.13-0.18	0.0-3.0	1.0-2.0	.32	.32	2	6	48
	3-13	23-52	20-50	18-35	1.40-1.55	1.40-4.00	0.12-0.19	3.0-6.0	1.0-2.0	.28	.28			
	13-24	23-52	20-50	18-35	1.40-1.55	1.40-4.00	0.12-0.19	3.0-6.0	0.1-0.5	.24	.32			
	24-30	---	---	---	---	1.40-4.00	---	---	---	---	---			
Wisflat sandy loam	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Borreguero sandy loam	0-2	52-78	10-36	12-20	1.50-1.60	4.00-14.00	0.09-0.13	0.0-3.0	1.0-2.0	.24	.24	2	3	86
	2-5	45-76	10-41	14-25	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	1.0-2.0	.20	.20			
	5-11	52-76	10-35	14-23	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	0.1-0.8	.15	.20			
	11-17	---	---	---	---	0.42-1.40	---	---	---	---	---			
712:														
Altamont clay	0-9	20-35	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.7-2.0	.28	.28	3	4	86
	9-22	20-35	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.5-1.0	.24	.24			
	22-31	20-35	20-40	40-50	1.40-1.50	0.42-1.40	0.14-0.16	6.0-9.0	0.3-0.7	.24	.24			
	31-54	20-40	20-40	35-39	1.40-1.50	0.42-1.40	0.17-0.19	3.0-6.0	0.2-0.4	.28	.28			
	54-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
Roacha silty clay loam	0-5	10-20	40-60	30-40	1.45-1.55	1.40-4.00	0.15-0.19	3.0-6.0	1.0-2.0	.28	.32	3	4	86
	5-10	10-20	25-50	40-55	1.35-1.50	0.42-1.40	0.13-0.16	6.0-9.0	0.7-1.0	.28	.32			
	10-25	10-20	25-50	40-55	1.35-1.50	0.42-1.40	0.13-0.16	6.0-9.0	0.5-0.7	.24	.28			
	25-36	10-30	20-55	35-50	1.35-1.45	0.42-1.40	0.09-0.17	6.0-9.0	0.2-0.5	.15	.28			
	36-40	---	---	---	---	0.42-1.40	---	---	---	---	---			
Borreguero sandy loam	0-2	52-78	10-36	12-20	1.50-1.60	4.00-14.00	0.09-0.13	0.0-3.0	1.0-2.0	.24	.24	2	3	86
	2-5	45-76	10-41	14-25	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	1.0-2.0	.20	.20			
	5-11	52-76	10-35	14-23	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	0.1-0.8	.15	.20			
	11-17	---	---	---	---	0.42-1.40	---	---	---	---	---			
713:														
Currymountain loam	0-2	30-52	28-50	10-20	1.45-1.55	4.00-14.00	0.12-0.16	0.0-3.0	1.0-2.0	.24	.32	2	6	48
	2-5	30-52	28-50	12-27	1.45-1.55	4.00-14.00	0.12-0.16	0.0-3.0	1.0-2.0	.24	.32			
	5-13	30-52	28-50	12-27	1.45-1.55	0.42-1.40	0.05-0.12	0.0-3.0	1.0-2.0	.10	.32			
	13-21	30-52	28-50	15-27	1.50-1.55	0.42-1.40	0.05-0.12	3.0-6.0	0.3-0.7	.10	.32			
	21-60	---	---	---	---	0.02-0.42	---	---	---	---	---			
Rock outcrop.														

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
713:														
Quinto gravelly sandy loam--------	0-6	52-70	10-38	10-20	1.50-1.60	14.00-42.00	0.07-0.11	0.0-3.0	1.0-3.0	.15	.24	1	5	56
	6-11	45-70	10-28	20-35	1.45-1.55	1.40-4.00	0.09-0.15	3.0-6.0	0.4-1.0	.15	.24			
	11-17	45-70	10-28	20-35	1.45-1.55	1.40-4.00	0.09-0.15	3.0-6.0	0.2-0.5	.10	.20			
	17-19	---	---	---	---	1.40-4.00	---	---	---	---	---			
	19-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
714:														
Gaviota sandy loam----------------	0-3	52-80	10-33	10-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.7-1.0	.24	.24	1	3	86
	3-10	52-80	10-33	10-18	1.50-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.1-0.6	.24	.24			
	10-15	---	---	---	---	0.02-0.42	---	---	---	---	---			
Borreguero sandy loam-------------	0-2	52-78	10-36	12-20	1.50-1.60	4.00-14.00	0.09-0.13	0.0-3.0	1.0-2.0	.24	.24	2	3	86
	2-5	45-76	10-41	14-25	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	1.0-2.0	.20	.20			
	5-11	52-76	10-35	14-23	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	0.1-0.8	.15	.20			
	11-17	---	---	---	---	0.42-1.40	---	---	---	---	---			
Rock outcrop.														
715:														
Belgarra clay---------------------	0-4	10-35	20-35	45-55	1.30-1.40	0.42-1.40	0.16-0.20	3.0-6.0	1.0-3.0	.24	.24	5	4	86
	4-10	10-35	20-35	45-55	1.30-1.40	0.42-1.40	0.15-0.20	3.0-6.0	1.0-2.0	.24	.24			
	10-21	5-40	20-40	40-55	1.30-1.40	0.42-1.40	0.14-0.19	3.0-6.0	1.0-2.0	.24	.24			
	21-32	5-40	20-40	40-55	1.30-1.40	0.42-1.40	0.10-0.18	3.0-6.0	0.3-0.6	.28	.28			
	32-45	5-40	20-40	40-55	1.30-1.40	0.42-1.40	0.10-0.18	3.0-6.0	0.3-0.6	.28	.28			
	45-72	5-40	20-45	40-50	1.30-1.45	0.42-1.40	0.08-0.18	3.0-6.0	0.3-0.6	.24	.28			
Wisflat sandy loam----------------	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
717:														
Belgarra clay---------------------	0-4	10-35	20-35	45-55	1.30-1.40	0.42-1.40	0.16-0.20	3.0-6.0	1.0-3.0	.24	.24	5	4	86
	4-10	10-35	20-35	45-55	1.30-1.40	0.42-1.40	0.15-0.20	3.0-6.0	1.0-2.0	.24	.24			
	10-21	5-40	20-40	40-55	1.30-1.40	0.42-1.40	0.14-0.19	3.0-6.0	1.0-2.0	.24	.24			
	21-32	5-40	20-40	40-55	1.30-1.40	0.42-1.40	0.10-0.18	3.0-6.0	0.3-0.6	.28	.28			
	32-45	5-40	20-40	40-55	1.30-1.40	0.42-1.40	0.10-0.18	3.0-6.0	0.3-0.6	.28	.28			
	45-72	5-40	20-45	40-50	1.30-1.45	0.42-1.40	0.08-0.18	3.0-6.0	0.3-0.6	.24	.28			
Arburua loam----------------------	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
717:														
Morenogulch parachannery silty clay	0-3	2-20	40-58	40-55	1.00-1.10	0.42-1.40	0.12-0.17	6.0-9.0	1.0-2.0	.28	.32	1	4	86
	3-6	2-20	40-63	35-55	1.00-1.10	0.42-1.40	0.12-0.18	6.0-9.0	0.8-2.0	.24	.32			
	6-10	2-20	40-63	35-55	1.00-1.10	0.42-1.40	0.12-0.18	6.0-9.0	0.3-0.8	.28	.32			
	10-33	---	---	---	---	0.42-1.40	---	---	---	---	---			
718:														
Nodhill loam	0-10	23-52	28-50	18-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	1.0-2.0	.37	.37	3	4L	86
	10-17	20-48	28-50	24-35	1.40-1.55	4.00-14.00	0.13-0.19	3.0-6.0	0.4-0.8	.37	.37			
	17-28	20-52	28-50	18-32	1.40-1.55	4.00-14.00	0.10-0.18	3.0-6.0	0.1-0.5	.24	.37			
	28-60	---	---	---	---	0.02-0.42	---	---	---	---	---			
Wisflat sandy loam	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Rock outcrop.														
719:														
Nodhill loam	0-10	23-52	28-50	18-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	1.0-2.0	.37	.37	3	4L	86
	10-17	20-48	28-50	24-35	1.40-1.55	4.00-14.00	0.13-0.19	3.0-6.0	0.4-0.8	.37	.37			
	17-28	20-52	28-50	18-32	1.40-1.55	4.00-14.00	0.10-0.18	3.0-6.0	0.1-0.5	.24	.37			
	28-60	---	---	---	---	0.02-0.42	---	---	---	---	---			
Arburua loam	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
Wisflat sandy loam	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
720:														
Exclose clay loam	0-5	30-45	20-43	27-35	1.40-1.50	1.40-4.00	0.16-0.19	3.0-6.0	2.0-3.0	.20	.20	5	4L	86
	5-12	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	1.0-2.0	.24	.24			
	12-19	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.24	.24			
	19-29	30-55	10-43	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.20	.20			
	29-84	30-50	10-43	27-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.4	.24	.24			
Wisflat sandy loam	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
720:														
Morenogulch parachannery silty clay	0-3	2-20	40-58	40-55	1.00-1.10	0.42-1.40	0.12-0.17	6.0-9.0	1.0-2.0	.28	.32	1	4	86
	3-6	2-20	40-63	35-55	1.00-1.10	0.42-1.40	0.12-0.18	6.0-9.0	0.8-2.0	.24	.32			
	6-10	2-20	40-63	35-55	1.00-1.10	0.42-1.40	0.12-0.18	6.0-9.0	0.3-0.8	.28	.32			
	10-33	---	---	---	---	0.42-1.40	---	---	---	---	---			
722:														
Exclose clay loam	0-5	30-45	20-43	27-35	1.40-1.50	1.40-4.00	0.16-0.19	3.0-6.0	2.0-3.0	.20	.20	5	4L	86
	5-12	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	1.0-2.0	.24	.24			
	12-19	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.24	.24			
	19-29	30-55	10-43	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.20	.20			
	29-84	30-50	10-43	27-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.4	.24	.24			
Wisflat sandy loam	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Rock outcrop.														
723:														
Exclose clay loam	0-5	30-45	20-43	27-35	1.40-1.50	1.40-4.00	0.16-0.19	3.0-6.0	2.0-3.0	.20	.20	5	4L	86
	5-12	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	1.0-2.0	.24	.24			
	12-19	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.24	.24			
	19-29	30-55	10-43	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.20	.20			
	29-84	30-50	10-43	27-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.4	.24	.24			
Wisflat sandy loam	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Grazer silty clay loam	0-4	5-20	40-68	30-40	1.45-1.55	1.40-4.00	0.16-0.20	6.0-9.0	0.8-2.0	.37	.37	4	4	86
	4-11	5-25	35-55	40-50	1.35-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.8-2.0	.32	.32			
	11-34	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.7-1.0	.32	.32			
	34-47	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.4-0.9	.32	.32			
	47-80	---	---	---	---	0.42-1.40	---	---	---	---	---			
725:														
Gewter clay	0-4	3-20	25-40	55-65	1.00-1.10	0.42-1.40	0.14-0.17	6.0-9.0	0.8-2.0	.17	.24	3	4	86
	4-13	3-15	25-37	60-65	1.00-1.10	0.42-1.40	0.13-0.17	6.0-9.0	0.5-1.0	.17	.24			
	13-23	3-15	25-37	60-65	1.00-1.10	0.42-1.40	0.12-0.17	6.0-9.0	0.5-1.0	.10	.24			
	23-30	---	---	---	---	0.42-1.40	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
727:														
Reliz channery loam	0-3	25-45	30-50	20-27	1.40-1.55	4.00-14.00	0.11-0.15	0.0-3.0	0.5-1.0	.24	.37	2	6	48
	3-7	20-45	25-52	27-34	1.35-1.50	1.40-4.00	0.07-0.13	3.0-6.0	0.3-0.8	.10	.32			
	7-15	20-45	25-52	30-35	1.35-1.50	1.40-4.00	0.04-0.08	3.0-6.0	0.2-0.7	.05	.32			
	15-20	---	---	---	---	0.42-1.40	---	---	---	---	---			
Gewter loam	0-1	---	---	---	---	141.00-705.00	---	---	100-100	---	---	2	6	48
	1-6	23-40	33-50	20-27	1.30-1.40	4.00-14.00	0.13-0.17	0.0-3.0	0.8-2.0	.28	.32			
	6-13	20-40	20-50	27-40	1.25-1.35	1.40-4.00	0.10-0.17	3.0-6.0	0.5-1.0	.17	.32			
	13-25	10-40	15-40	40-60	1.25-1.35	0.42-1.40	0.08-0.14	3.0-6.0	0.3-1.0	.10	.20			
	25-30	---	---	---	---	0.42-1.40	---	---	---	---	---			
Rock outcrop.												-		
728:														
Climara clay	0-26	15-40	15-40	40-55	1.30-1.40	0.42-1.40	0.12-0.15	6.0-9.0	1.0-2.0	.17	.20	2	4	86
	26-36	15-45	10-40	45-60	1.25-1.40	0.42-1.40	0.13-0.15	6.0-9.0	0.5-1.0	.17	.20			
	36-39	15-45	10-40	45-60	1.25-1.40	0.42-1.40	0.13-0.15	6.0-9.0	0.4-0.8	.17	.20			
	39-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
733:														
Hentine very gravelly sandy loam	0-2	52-70	10-38	10-20	1.50-1.60	4.00-14.00	0.04-0.09	0.0-3.0	1.0-3.0	.05	.32	1	6	48
	2-15	30-45	20-45	25-35	1.45-1.55	1.40-4.00	0.04-0.12	3.0-6.0	1.0-2.0	.10	.32			
	15-18	30-45	20-45	25-35	1.45-1.55	1.40-4.00	0.04-0.12	3.0-6.0	0.5-1.0	.10	.32			
	18-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Climara clay	0-26	15-40	15-40	40-55	1.30-1.40	0.42-1.40	0.12-0.15	6.0-9.0	1.0-2.0	.17	.20	2	4	86
	26-36	15-45	10-40	45-60	1.25-1.40	0.42-1.40	0.13-0.15	6.0-9.0	0.5-1.0	.17	.20			
	36-39	15-45	10-40	45-60	1.25-1.40	0.42-1.40	0.13-0.15	6.0-9.0	0.4-0.8	.17	.20			
	39-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
735:														
Getrail clay	0-4	10-35	15-40	45-60	1.25-1.35	0.42-1.40	0.14-0.16	6.0-9.0	2.0-3.0	.24	.24	4	4	86
	4-15	10-35	15-40	45-60	1.25-1.35	0.42-1.40	0.14-0.16	6.0-9.0	1.0-2.0	.24	.24			
	15-24	10-35	10-40	45-60	1.25-1.35	0.42-1.40	0.14-0.16	6.0-9.0	1.0-2.0	.17	.17			
	24-36	10-35	15-40	45-60	1.25-1.35	0.42-1.40	0.14-0.16	6.0-9.0	0.3-0.7	.20	.20			
	36-43	15-35	15-35	50-55	1.25-1.35	0.42-1.40	0.14-0.16	6.0-9.0	0.1-0.3	.24	.24			
	43-48	---	---	---	---	0.42-1.40	---	---	---	---	---			
Vernado sandy loam	0-6	52-70	10-34	14-20	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	2.0-3.0	.24	.24	2	3	86
	6-13	52-70	10-34	14-20	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	1.0-2.0	.24	.24			
	13-22	52-70	10-34	14-20	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	1.0-2.0	.24	.24			
	22-29	52-70	10-33	15-20	1.50-1.60	14.00-42.00	0.04-0.07	0.0-3.0	1.0-2.0	.05	.24			
	29-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
Rock outcrop.														
												-		

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
737:														
Grazer silty clay loam------------	0-4	5-20	40-68	30-40	1.45-1.55	1.40-4.00	0.16-0.20	6.0-9.0	0.8-2.0	.37	.37	4	4	86
	4-11	5-25	35-55	40-50	1.35-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.8-2.0	.32	.32			
	11-34	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.7-1.0	.32	.32			
	34-47	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.4-0.9	.32	.32			
	47-80	---	---	---	---	0.42-1.40	---	---	---	---	---			
Badland.														
Wisflat sandy loam----------------	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
738:														
Grazer silty clay loam------------	0-4	5-20	40-68	30-40	1.45-1.55	1.40-4.00	0.16-0.20	6.0-9.0	0.8-2.0	.37	.37	4	4	86
	4-11	5-25	35-55	40-50	1.35-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.8-2.0	.32	.32			
	11-34	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.7-1.0	.32	.32			
	34-47	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.4-0.9	.32	.32			
	47-80	---	---	---	---	0.42-1.40	---	---	---	---	---			
Belgarra clay---------------------	0-4	10-35	20-35	45-55	1.30-1.40	0.42-1.40	0.16-0.20	3.0-6.0	1.0-3.0	.24	.24	5	4	86
	4-10	10-35	20-35	45-55	1.30-1.40	0.42-1.40	0.15-0.20	3.0-6.0	1.0-2.0	.24	.24			
	10-21	5-40	20-40	40-55	1.30-1.40	0.42-1.40	0.14-0.19	3.0-6.0	1.0-2.0	.24	.24			
	21-32	5-40	20-40	40-55	1.30-1.40	0.42-1.40	0.10-0.18	3.0-6.0	0.3-0.6	.28	.28			
	32-45	5-40	20-40	40-55	1.30-1.40	0.42-1.40	0.10-0.18	3.0-6.0	0.3-0.6	.28	.28			
	45-72	5-40	20-45	40-50	1.30-1.45	0.42-1.40	0.08-0.18	3.0-6.0	0.3-0.6	.24	.28			
Arburua loam----------------------	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
739:														
Domengine loam--------------------	0-6	21-52	27-50	20-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	1.0-2.0	.32	.32	3	6	48
	6-17	21-52	27-50	20-29	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	1.0-2.0	.32	.32			
	17-28	20-52	24-50	20-31	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.5-1.0	.32	.32			
	28-39	20-52	24-50	20-31	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	39-45	---	---	---	---	1.40-4.00	---	---	---	---	---			
Wisflat sandy loam----------------	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Rock outcrop.														
												-		

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
740:														
Domengine loam	0-6	21-52	27-50	20-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	1.0-2.0	.32	.32	3	6	48
	6-17	21-52	27-50	20-29	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	1.0-2.0	.32	.32			
	17-28	20-52	24-50	20-31	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.5-1.0	.32	.32			
	28-39	20-52	24-50	20-31	1.40-1.55	4.00-14.00	0.13-0.20	3.0-6.0	0.2-0.5	.32	.32			
	39-45	---	---	---	---	1.40-4.00	---	---	---	---	---			
Lilten silty clay loam	0-2	10-20	40-55	34-40	1.45-1.55	1.40-4.00	0.17-0.20	6.0-9.0	2.0-3.0	.37	.37	4	4	86
	2-8	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	1.0-2.0	.37	.37			
	8-18	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	0.8-2.0	.37	.37			
	18-28	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.14-0.20	6.0-9.0	0.4-0.7	.37	.37			
	28-41	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.13-0.20	6.0-9.0	0.4-0.6	.37	.37			
	41-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
Rock outcrop.														
741:														
Anela very gravelly sandy loam	0-7	65-75	20-35	5-10	1.55-1.65	14.00-42.00	0.05-0.08	0.0-1.0	0.4-2.0	.05	.17	3	6	48
	7-15	65-75	15-35	5-10	1.50-1.65	14.00-42.00	0.04-0.07	0.0-1.0	0.1-0.2	.05	.17			
	15-22	65-75	18-35	5-10	1.50-1.70	14.00-42.00	0.04-0.07	0.0-1.0	0.1-0.2	.05	.17			
	22-49	70-77	15-25	5-10	1.50-1.70	14.00-42.00	0.03-0.07	0.0-1.0	0.0-0.2	.05	.17			
	49-65	75-86	8-20	4-7	1.80-1.90	1.40-4.00	0.01-0.03	0.0-0.0	0.0-0.1	.02	.10			
Vernalis loam	0-7	23-49	28-50	23-27	1.45-1.55	4.00-14.00	0.13-0.17	3.0-6.0	1.0-2.0	.28	.32	5	6	48
	7-28	20-45	23-53	27-32	1.40-1.50	4.00-14.00	0.17-0.19	3.0-6.0	0.5-0.9	.28	.32			
	28-50	20-45	23-53	27-32	1.40-1.50	4.00-14.00	0.15-0.18	3.0-6.0	0.3-0.5	.24	.32			
	50-60	20-52	12-50	18-32	1.40-1.55	4.00-14.00	0.12-0.15	3.0-6.0	0.0-0.1	.20	.28			
742:														
Millsholm clay loam	0-7	20-40	28-53	27-32	1.40-1.50	4.00-14.00	0.15-0.20	3.0-6.0	1.0-2.0	.37	.37	1	6	48
	7-13	20-40	25-50	30-35	1.40-1.50	4.00-14.00	0.11-0.20	3.0-6.0	0.5-1.0	.17	.37			
	13-16	---	---	---	---	1.40-4.00	---	---	---	---	---			
	16-19	---	---	---	---	0.02-0.42	---	---	---	---	---			
Wisflat sandy loam	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Lilten silty clay loam	0-2	10-20	40-55	34-40	1.45-1.55	1.40-4.00	0.17-0.20	6.0-9.0	2.0-3.0	.37	.37	4	4	86
	2-8	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	1.0-2.0	.37	.37			
	8-18	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	0.8-2.0	.37	.37			
	18-28	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.14-0.20	6.0-9.0	0.4-0.7	.37	.37			
	28-41	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.13-0.20	6.0-9.0	0.4-0.6	.37	.37			
	41-60	---	---	---	---	0.42-1.40	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
743:														
Millsholm clay loam---------------	0-7	20-40	28-53	27-32	1.40-1.50	4.00-14.00	0.15-0.20	3.0-6.0	1.0-2.0	.37	.37	1	6	48
	7-13	20-40	25-50	30-35	1.40-1.50	4.00-14.00	0.11-0.20	3.0-6.0	0.5-1.0	.17	.37			
	13-16	---	---	---	---	1.40-4.00	---	---	---	---	---			
	16-19	---	---	---	---	0.02-0.42	---	---	---	---	---			
Borreguero sandy loam-------------	0-2	52-78	10-36	12-20	1.50-1.60	4.00-14.00	0.09-0.13	0.0-3.0	1.0-2.0	.24	.24	2	3	86
	2-5	45-76	10-41	14-25	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	1.0-2.0	.20	.20			
	5-11	52-76	10-35	14-23	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	0.1-0.8	.15	.20			
	11-17	---	---	---	---	0.42-1.40	---	---	---	---	---			
744:														
Lilten silty clay loam------------	0-2	10-20	40-55	34-40	1.45-1.55	1.40-4.00	0.17-0.20	6.0-9.0	2.0-3.0	.37	.37	4	4	86
	2-8	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	1.0-2.0	.37	.37			
	8-18	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	0.8-2.0	.37	.37			
	18-28	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.14-0.20	6.0-9.0	0.4-0.7	.37	.37			
	28-41	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.13-0.20	6.0-9.0	0.4-0.6	.37	.37			
	41-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
Millsholm clay loam---------------	0-7	20-40	28-53	27-32	1.40-1.50	4.00-14.00	0.15-0.20	3.0-6.0	1.0-2.0	.37	.37	1	6	48
	7-13	20-40	25-50	30-35	1.40-1.50	4.00-14.00	0.11-0.20	3.0-6.0	0.5-1.0	.17	.37			
	13-16	---	---	---	---	1.40-4.00	---	---	---	---	---			
	16-19	---	---	---	---	0.02-0.42	---	---	---	---	---			
745:														
Grazer silty clay loam------------	0-4	5-20	40-68	30-40	1.45-1.55	1.40-4.00	0.16-0.20	6.0-9.0	0.8-2.0	.37	.37	4	4	86
	4-11	5-25	35-55	40-50	1.35-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.8-2.0	.32	.32			
	11-34	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.7-1.0	.32	.32			
	34-47	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.4-0.9	.32	.32			
	47-80	---	---	---	---	0.42-1.40	---	---	---	---	---			
Wisflat sandy loam----------------	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Arburua loam----------------------	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
746:														
Rock outcrop, sandstone and shale.														
Wisflat sandy loam----------------	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
746:														
Arburua loam	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
747:														
Lilten silty clay	0-2	10-20	40-55	34-40	1.45-1.55	1.40-4.00	0.17-0.20	6.0-9.0	2.0-3.0	.37	.37	4	4	86
	2-8	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	1.0-2.0	.37	.37			
	8-18	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	0.8-2.0	.37	.37			
	18-28	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.14-0.20	6.0-9.0	0.4-0.7	.37	.37			
	28-41	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.13-0.20	6.0-9.0	0.4-0.6	.37	.37			
	41-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
Grazer silty clay loam	0-4	5-20	40-68	30-40	1.45-1.55	1.40-4.00	0.16-0.20	6.0-9.0	0.8-2.0	.37	.37	4	4	86
	4-11	5-25	35-55	40-50	1.35-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.8-2.0	.32	.32			
	11-34	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.7-1.0	.32	.32			
	34-47	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.4-0.9	.32	.32			
	47-80	---	---	---	---	0.42-1.40	---	---	---	---	---			
Arburua loam	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
748:														
Vaquero clay	0-3	5-25	20-40	40-60	1.30-1.40	0.42-1.40	0.13-0.16	9.0-12.0	1.0-3.0	.20	.20	3	4	86
	3-17	5-25	20-40	40-60	1.30-1.40	0.42-1.40	0.13-0.16	9.0-14.0	0.8-2.0	.20	.20			
	17-25	5-25	20-40	40-60	1.30-1.40	0.42-1.40	0.11-0.15	9.0-14.0	0.5-1.0	.20	.20			
	25-36	5-25	20-40	40-60	1.30-1.40	0.42-1.40	0.11-0.15	9.0-12.0	0.3-0.7	.24	.24			
	36-40	---	---	---	---	0.42-1.40	---	---	---	---	---			
Grazer silty clay loam	0-4	5-20	40-68	30-40	1.45-1.55	1.40-4.00	0.16-0.20	6.0-9.0	0.8-2.0	.37	.37	4	4	86
	4-11	5-25	35-55	40-50	1.35-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.8-2.0	.32	.32			
	11-34	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.7-1.0	.32	.32			
	34-47	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.4-0.9	.32	.32			
	47-80	---	---	---	---	0.42-1.40	---	---	---	---	---			
749:														
Grazer silty clay loam	0-4	5-20	40-68	30-40	1.45-1.55	1.40-4.00	0.16-0.20	6.0-9.0	0.8-2.0	.37	.37	4	4	86
	4-11	5-25	35-55	40-50	1.35-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.8-2.0	.32	.32			
	11-34	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.7-1.0	.32	.32			
	34-47	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.4-0.9	.32	.32			
	47-80	---	---	---	---	0.42-1.40	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
749:														
Wisflat sandy loam----------------	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Exclose clay loam-----------------	0-5	30-45	20-43	27-35	1.40-1.50	1.40-4.00	0.16-0.19	3.0-6.0	2.0-3.0	.20	.20	5	4L	86
	5-12	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	1.0-2.0	.24	.24			
	12-19	30-55	10-45	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.24	.24			
	19-29	30-55	10-43	25-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.5-1.0	.20	.20			
	29-84	30-50	10-43	27-35	1.40-1.55	1.40-4.00	0.13-0.19	3.0-6.0	0.1-0.4	.24	.24			
750:														
Monvero sand----------------------	0-15	87-94	2-9	4-7	1.60-1.70	14.00-42.00	0.05-0.08	0.0-3.0	0.4-1.0	.20	.20	5	1	220
	15-31	74-88	5-15	4-7	1.55-1.65	14.00-42.00	0.06-0.08	0.0-3.0	0.1-0.3	.20	.20			
	31-60	75-88	5-23	2-7	1.60-1.70	14.00-42.00	0.05-0.07	0.0-3.0	0.1-0.2	.15	.20			
Monoridge fine sand---------------	0-7	85-94	5-13	2-7	1.60-1.70	42.00-141.00	0.05-0.08	0.0-3.0	0.3-0.5	.20	.20	3	1	250
	7-25	85-94	5-13	2-10	1.55-1.70	42.00-141.00	0.05-0.08	0.0-3.0	0.1-0.4	.20	.20			
	25-29	---	---	---	---	4.00-14.00	---	---	---	---	---			
752:														
Cyvar loam------------------------	0-2	25-52	28-50	15-25	1.45-1.55	4.00-14.00	0.12-0.15	0.0-3.0	1.0-2.0	.32	.37	1	4L	86
	2-7	23-52	28-50	20-27	1.45-1.55	4.00-14.00	0.14-0.17	0.0-3.0	0.5-1.0	.28	.32			
	7-15	20-45	22-53	27-35	1.40-1.50	1.40-4.00	0.16-0.20	3.0-6.0	0.2-0.6	.28	.32			
	15-34	---	---	---	---	0.02-0.42	---	---	---	---	---			
	34-60	---	---	---	---	0.02-0.42	---	---	---	---	---			
Nodhill loam----------------------	0-10	23-52	28-50	18-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	1.0-2.0	.37	.37	3	4L	86
	10-17	20-48	28-50	24-35	1.40-1.55	4.00-14.00	0.13-0.19	3.0-6.0	0.4-0.8	.37	.37			
	17-28	20-52	28-50	18-32	1.40-1.55	4.00-14.00	0.10-0.18	3.0-6.0	0.1-0.5	.24	.37			
	28-60	---	---	---	---	0.02-0.42	---	---	---	---	---			
753:														
Cyvar loam------------------------	0-2	25-52	28-50	15-25	1.45-1.55	4.00-14.00	0.12-0.15	0.0-3.0	1.0-2.0	.32	.37	1	4L	86
	2-7	23-52	28-50	20-27	1.45-1.55	4.00-14.00	0.14-0.17	0.0-3.0	0.5-1.0	.28	.32			
	7-15	20-45	22-53	27-35	1.40-1.50	1.40-4.00	0.16-0.20	3.0-6.0	0.2-0.6	.28	.32			
	15-34	---	---	---	---	0.02-0.42	---	---	---	---	---			
	34-60	---	---	---	---	0.02-0.42	---	---	---	---	---			
Nodhill loam----------------------	0-10	23-52	28-50	18-27	1.45-1.55	4.00-14.00	0.13-0.18	3.0-6.0	1.0-2.0	.37	.37	3	4L	86
	10-17	20-48	28-50	24-35	1.40-1.55	4.00-14.00	0.13-0.19	3.0-6.0	0.4-0.8	.37	.37			
	17-28	20-52	28-50	18-32	1.40-1.55	4.00-14.00	0.10-0.18	3.0-6.0	0.1-0.5	.24	.37			
	28-60	---	---	---	---	0.02-0.42	---	---	---	---	---			
Pits, gypsiferous.														

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
755:														
Borreguero sandy loam-------------	0-2	52-78	10-36	12-20	1.50-1.60	4.00-14.00	0.09-0.13	0.0-3.0	1.0-2.0	.24	.24	2	3	86
	2-5	45-76	10-41	14-25	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	1.0-2.0	.20	.20			
	5-11	52-76	10-35	14-23	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	0.1-0.8	.15	.20			
	11-17	---	---	---	---	0.42-1.40	---	---	---	---	---			
Grazer silty clay loam------------	0-4	5-20	40-68	30-40	1.45-1.55	1.40-4.00	0.16-0.20	6.0-9.0	0.8-2.0	.37	.37	4	4	86
	4-11	5-25	35-55	40-50	1.35-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.8-2.0	.32	.32			
	11-34	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.7-1.0	.32	.32			
	34-47	5-25	25-55	40-55	1.25-1.50	0.42-1.40	0.13-0.17	6.0-9.0	0.4-0.9	.32	.32			
	47-80	---	---	---	---	0.42-1.40	---	---	---	---	---			
Rock outcrop.														
757:														
Rock outcrop.														
Borreguero sandy loam-------------	0-2	52-78	10-36	12-20	1.50-1.60	4.00-14.00	0.09-0.13	0.0-3.0	1.0-2.0	.24	.24	2	3	86
	2-5	45-76	10-41	14-25	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	1.0-2.0	.20	.20			
	5-11	52-76	10-35	14-23	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	0.1-0.8	.15	.20			
	11-17	---	---	---	---	0.42-1.40	---	---	---	---	---			
758:														
Wisflat sandy loam----------------	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Borreguero sandy loam-------------	0-2	52-78	10-36	12-20	1.50-1.60	4.00-14.00	0.09-0.13	0.0-3.0	1.0-2.0	.24	.24	2	3	86
	2-5	45-76	10-41	14-25	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	1.0-2.0	.20	.20			
	5-11	52-76	10-35	14-23	1.45-1.60	1.40-4.00	0.09-0.18	0.0-3.0	0.1-0.8	.15	.20			
	11-17	---	---	---	---	0.42-1.40	---	---	---	---	---			
Rock outcrop.														
761:														
Atravesada gravelly sandy loam----	0-7	52-75	10-42	12-18	1.40-1.60	14.00-42.00	0.07-0.10	1.0-3.0	0.5-1.0	.20	.32	3	5	56
	7-15	30-52	28-50	18-25	1.35-1.45	4.00-14.00	0.11-0.14	3.0-6.0	0.4-0.8	.24	.37			
	15-21	30-52	23-50	15-22	1.35-1.45	4.00-14.00	0.11-0.14	3.0-6.0	0.3-0.7	.24	.37			
	21-60	---	---	---	---	0.02-1.40	---	---	---	---	---			
765, 767:														
Atravesada sandy loam-------------	0-0	---	---	---	---	141.00-705.00	---	---	100-100	---	---	2	3	86
	0-6	45-70	25-35	16-26	1.40-1.60	14.00-42.00	0.09-0.15	1.0-3.0	5.0-8.0	.15	.20			
	6-12	45-65	15-30	20-34	1.40-1.60	4.00-14.00	0.12-0.16	3.0-6.0	2.0-4.0	.15	.20			
	12-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-27	---	---	---	---	0.02-0.42	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
765, 767:														
Pits, asbestos.														
769.														
Dumps-Pits, asbestos.														
770:														
Roacha silty clay loam------------	0-4	10-20	40-60	30-40	1.45-1.55	1.40-4.00	0.15-0.19	3.0-6.0	1.0-3.0	.28	.32	3	4	86
	4-14	10-20	25-50	40-55	1.35-1.50	0.42-1.40	0.13-0.16	6.0-9.0	1.0-2.0	.28	.32			
	14-22	10-20	25-50	40-55	1.35-1.50	0.42-1.40	0.13-0.16	6.0-9.0	0.7-1.0	.24	.28			
	22-28	10-30	20-55	35-50	1.35-1.45	0.42-1.40	0.09-0.17	6.0-9.0	0.4-0.8	.17	.28			
	28-37	---	---	---	---	0.42-1.40	---	---	---	---	---			
Millsholm clay loam---------------	0-7	20-40	28-53	27-32	1.40-1.50	4.00-14.00	0.15-0.20	3.0-6.0	1.0-2.0	.37	.37	1	6	48
	7-13	20-40	25-50	30-35	1.40-1.50	4.00-14.00	0.11-0.20	3.0-6.0	0.5-1.0	.17	.37			
	13-16	---	---	---	---	1.40-4.00	---	---	---	---	---			
	16-19	---	---	---	---	0.02-0.42	---	---	---	---	---			
Lilten silty clay loam------------	0-2	10-20	40-55	34-40	1.45-1.55	1.40-4.00	0.17-0.20	6.0-9.0	2.0-3.0	.37	.37	4	4	86
	2-8	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	1.0-2.0	.37	.37			
	8-18	10-20	30-55	35-50	1.35-1.55	1.40-4.00	0.14-0.20	6.0-9.0	0.8-2.0	.37	.37			
	18-28	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.14-0.20	6.0-9.0	0.4-0.7	.37	.37			
	28-41	5-20	30-60	35-50	1.35-1.55	0.42-1.40	0.13-0.20	6.0-9.0	0.4-0.6	.37	.37			
	41-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
773:														
Hentine very gravelly sandy loam--	0-2	52-70	10-38	10-20	1.50-1.60	4.00-14.00	0.04-0.09	0.0-3.0	1.0-3.0	.05	.32	1	6	48
	2-15	30-45	20-45	25-35	1.45-1.55	1.40-4.00	0.04-0.12	3.0-6.0	1.0-2.0	.10	.32			
	15-18	30-45	20-45	25-35	1.45-1.55	1.40-4.00	0.04-0.12	3.0-6.0	0.5-1.0	.10	.32			
	18-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Rock outcrop.														
774:														
Hentine very gravelly sandy loam--	0-2	52-70	10-38	10-20	1.50-1.60	4.00-14.00	0.04-0.09	0.0-3.0	1.0-3.0	.05	.32	1	6	48
	2-15	30-45	20-45	25-35	1.45-1.55	1.40-4.00	0.04-0.12	3.0-6.0	1.0-2.0	.10	.32			
	15-18	30-45	20-45	25-35	1.45-1.55	1.40-4.00	0.04-0.12	3.0-6.0	0.5-1.0	.10	.32			
	18-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Franciscan gravelly sandy loam----	0-5	52-65	15-38	10-20	1.50-1.60	4.00-14.00	0.07-0.11	0.0-3.0	2.0-3.0	.20	.32	2	5	56
	5-9	40-50	20-50	10-20	1.45-1.55	4.00-14.00	0.07-0.15	0.0-3.0	2.0-3.0	.20	.32			
	9-15	35-52	20-45	20-35	1.40-1.55	1.40-4.00	0.09-0.14	3.0-6.0	1.0-2.0	.17	.32			
	15-26	35-52	20-45	20-35	1.40-1.55	1.40-4.00	0.09-0.14	3.0-6.0	0.5-1.0	.15	.32			
	26-31	---	---	---	---	0.02-0.42	---	---	---	---	---			
Rock outcrop.														

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
782, 783:														
Vaquero clay	0-3	5-25	20-40	40-60	1.30-1.40	0.42-1.40	0.13-0.16	9.0-12.0	1.0-3.0	.20	.20	3	4	86
	3-17	5-25	20-40	40-60	1.30-1.40	0.42-1.40	0.13-0.16	9.0-14.0	0.8-2.0	.20	.20			
	17-25	5-25	20-40	40-60	1.30-1.40	0.42-1.40	0.11-0.15	9.0-14.0	0.5-1.0	.20	.20			
	25-36	5-25	20-40	40-60	1.30-1.40	0.42-1.40	0.11-0.15	9.0-12.0	0.3-0.7	.24	.24			
	36-40	---	---	---	---	0.42-1.40	---	---	---	---	---			
Altamont clay	0-9	20-35	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.7-2.0	.28	.28	3	4	86
	9-22	20-35	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.5-1.0	.24	.24			
	22-31	20-35	20-40	40-50	1.40-1.50	0.42-1.40	0.14-0.16	6.0-9.0	0.3-0.7	.24	.24			
	31-54	20-40	20-40	35-39	1.40-1.50	0.42-1.40	0.17-0.19	3.0-6.0	0.2-0.4	.28	.28			
	54-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
817, 818, 819, 820:														
Arburua loam	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
822:														
Altamont clay	0-9	20-35	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.7-2.0	.28	.28	3	4	86
	9-22	20-35	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	0.5-1.0	.24	.24			
	22-31	20-35	20-40	40-50	1.40-1.50	0.42-1.40	0.14-0.16	6.0-9.0	0.3-0.7	.24	.24			
	31-54	20-40	20-40	35-39	1.40-1.50	0.42-1.40	0.17-0.19	3.0-6.0	0.2-0.4	.28	.28			
	54-60	---	---	---	---	0.42-1.40	---	---	---	---	---			
823:														
Ayar clay	0-7	15-40	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-2.0	.28	.28	4	4	86
	7-16	15-40	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-2.0	.28	.28			
	16-34	20-40	20-40	35-50	1.40-1.50	0.42-1.40	0.14-0.19	6.0-9.0	0.5-1.0	.28	.28			
	34-59	20-40	20-40	35-50	1.40-1.50	0.42-1.40	0.14-0.19	6.0-9.0	0.2-0.8	.28	.28			
	59-72	---	---	---	---	0.42-1.40	---	---	---	---	---			
827:														
Ayar clay	0-7	15-40	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-2.0	.28	.28	4	4	86
	7-16	15-40	20-40	40-50	1.35-1.45	0.42-1.40	0.14-0.16	6.0-9.0	1.0-2.0	.28	.28			
	16-34	20-40	20-40	35-50	1.40-1.50	0.42-1.40	0.14-0.19	6.0-9.0	0.5-1.0	.28	.28			
	34-59	20-40	20-40	35-50	1.40-1.50	0.42-1.40	0.14-0.19	6.0-9.0	0.2-0.8	.28	.28			
	59-72	---	---	---	---	0.42-1.40	---	---	---	---	---			
Arburua loam	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
834:														
Bapos clay loam	0-8	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.15-0.20	3.0-6.0	1.0-2.0	.32	.32	3	6	48
	8-33	15-45	10-40	42-55	1.30-1.45	0.02-0.42	0.12-0.16	3.0-6.0	0.5-1.0	.24	.24			
	33-42	20-45	15-50	30-40	1.40-1.50	1.40-4.00	0.15-0.20	3.0-6.0	0.1-0.4	.28	.28			
	42-60	20-45	15-50	30-40	1.40-1.50	0.02-0.42	0.11-0.17	3.0-6.0	0.1-0.3	.10	.28			
835:														
Pedcat loam, eroded	0-2	30-52	28-50	12-20	1.45-1.55	4.00-14.00	0.11-0.18	0.0-3.0	0.5-1.0	.43	.43	2	3	86
	2-5	30-60	20-50	12-20	1.45-1.60	0.42-1.40	0.10-0.18	0.0-3.0	0.1-0.3	.37	.37			
	5-13	20-45	15-53	27-40	1.40-1.50	0.02-0.42	0.10-0.20	3.0-6.0	0.1-0.5	.32	.32			
	13-28	20-40	10-45	35-50	1.35-1.50	0.02-0.42	0.08-0.20	3.0-6.0	0.1-0.5	.28	.28			
	28-50	20-40	10-45	35-50	1.35-1.50	0.02-0.42	0.08-0.20	3.0-6.0	0.1-0.3	.28	.28			
	50-60	38-65	15-28	20-35	1.40-1.55	0.42-1.40	0.08-0.20	3.0-6.0	0.0-0.2	.28	.28			
842:														
Quinto gravelly sandy loam	0-6	52-70	10-38	10-20	1.50-1.60	14.00-42.00	0.07-0.11	0.0-3.0	1.0-3.0	.15	.24	1	5	56
	6-11	45-70	10-28	20-35	1.45-1.55	1.40-4.00	0.09-0.15	3.0-6.0	0.4-1.0	.15	.24			
	11-17	45-70	10-28	20-35	1.45-1.55	1.40-4.00	0.09-0.15	3.0-6.0	0.2-0.5	.10	.20			
	17-19	---	---	---	---	1.40-4.00	---	---	---	---	---			
	19-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Millsholm clay loam	0-7	20-40	28-53	27-32	1.40-1.50	4.00-14.00	0.15-0.20	3.0-6.0	1.0-2.0	.37	.37	1	6	48
	7-13	20-40	25-50	30-35	1.40-1.50	4.00-14.00	0.11-0.20	3.0-6.0	0.5-1.0	.17	.37			
	13-16	---	---	---	---	1.40-4.00	---	---	---	---	---			
	16-19	---	---	---	---	0.02-0.42	---	---	---	---	---			
Rock outcrop.														
847:														
Carranza gravelly sandy loam	0-7	52-70	10-33	15-20	1.50-1.60	4.00-14.00	0.07-0.11	0.0-3.0	1.0-2.0	.10	.20	4	5	56
	7-14	52-70	10-33	15-20	1.50-1.60	4.00-14.00	0.07-0.11	0.0-3.0	1.0-2.0	.15	.24			
	14-20	45-70	10-28	20-35	1.50-1.60	1.40-4.00	0.10-0.15	3.0-6.0	0.3-0.8	.10	.20			
	20-25	45-70	10-28	20-35	1.50-1.60	1.40-4.00	0.07-0.12	3.0-6.0	0.1-0.4	.10	.20			
	25-60	45-70	10-28	20-35	1.50-1.60	1.40-4.00	0.09-0.15	3.0-6.0	0.1-0.3	.10	.20			
849:														
Chaqua loam	0-6	25-52	28-50	18-25	1.45-1.55	4.00-14.00	0.13-0.17	0.0-3.0	1.0-2.0	.32	.32	4	4L	86
	6-19	25-52	28-50	18-25	1.45-1.55	4.00-14.00	0.13-0.17	0.0-3.0	0.6-1.0	.28	.32			
	19-25	23-52	28-50	20-27	1.45-1.55	1.40-4.00	0.13-0.17	0.0-3.0	0.4-0.7	.37	.37			
	25-35	23-52	28-50	20-27	1.45-1.50	1.40-4.00	0.13-0.17	0.0-3.0	0.1-0.3	.32	.37			
	35-47	23-52	28-50	20-27	1.45-1.50	1.40-4.00	0.13-0.17	0.0-3.0	0.1-0.2	.37	.37			
	47-60	---	---	---	---	1.40-4.00	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
851, 852:														
Los Banos clay loam	0-2	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-6.0	2.0-4.0	.24	.32	4	6	48
	2-13	20-45	15-53	27-40	1.40-1.50	1.40-4.00	0.15-0.19	3.0-6.0	0.7-1.0	.24	.32			
	13-20	20-45	5-45	35-50	1.35-1.50	0.42-1.40	0.13-0.19	3.0-6.0	0.3-0.6	.24	.32			
	20-53	20-40	5-40	40-55	1.30-1.45	0.42-1.40	0.12-0.15	3.0-6.0	0.1-0.3	.20	.28			
	53-60	20-45	5-45	35-50	1.40-1.55	0.42-1.40	0.06-0.15	3.0-6.0	0.0-0.1	.05	.32			
853:														
Los Banos clay loam	0-2	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-6.0	2.0-4.0	.24	.32	4	6	48
	2-13	20-45	15-53	27-40	1.40-1.50	1.40-4.00	0.15-0.19	3.0-6.0	0.7-1.0	.24	.32			
	13-20	20-45	5-45	35-50	1.35-1.50	0.42-1.40	0.13-0.19	3.0-6.0	0.3-0.6	.24	.32			
	20-53	20-40	5-40	40-55	1.30-1.45	0.42-1.40	0.12-0.15	3.0-6.0	0.1-0.3	.20	.28			
	53-60	20-45	5-45	35-50	1.40-1.55	0.42-1.40	0.06-0.15	3.0-6.0	0.0-0.1	.05	.32			
Pleito gravelly clay loam	0-2	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.13-0.17	3.0-6.0	1.0-2.0	.20	.32	4	7	38
	2-9	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.14-0.19	3.0-6.0	1.0-2.0	.28	.32			
	9-17	30-60	20-50	20-35	1.40-1.55	1.40-4.00	0.12-0.19	3.0-6.0	1.0-2.0	.28	.32			
	17-22	30-60	20-50	20-35	1.40-1.55	1.40-4.00	0.12-0.19	3.0-6.0	0.6-1.0	.28	.32			
	22-27	30-60	20-50	20-35	1.40-1.55	1.40-4.00	0.12-0.19	3.0-6.0	0.3-0.7	.28	.32			
	27-60	30-60	20-50	20-30	1.40-1.55	1.40-4.00	0.08-0.16	3.0-6.0	0.1-0.3	.10	.28			
855:														
Pleito gravelly clay loam	0-2	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.13-0.17	3.0-6.0	1.0-2.0	.20	.32	4	7	38
	2-9	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.14-0.19	3.0-6.0	1.0-2.0	.28	.32			
	9-17	30-60	20-50	20-35	1.40-1.55	1.40-4.00	0.12-0.19	3.0-6.0	1.0-2.0	.28	.32			
	17-22	30-60	20-50	20-35	1.40-1.55	0.42-1.40	0.12-0.19	3.0-6.0	1.0-2.0	.28	.32			
	22-27	30-60	20-50	20-35	1.40-1.55	0.42-1.40	0.12-0.19	3.0-6.0	0.3-0.7	.28	.32			
	27-60	30-60	20-50	20-30	1.40-1.55	1.40-4.00	0.08-0.16	3.0-6.0	0.1-0.3	.10	.28			
863:														
Vernalis loam	0-7	23-49	28-50	23-27	1.45-1.55	4.00-14.00	0.13-0.17	3.0-6.0	1.0-2.0	.28	.32	5	6	48
	7-28	20-45	23-53	27-32	1.40-1.50	4.00-14.00	0.17-0.19	3.0-6.0	0.5-0.9	.28	.32			
	28-50	20-45	23-53	27-32	1.40-1.50	4.00-14.00	0.15-0.18	3.0-6.0	0.3-0.5	.24	.32			
	50-60	20-52	12-50	18-32	1.40-1.55	4.00-14.00	0.12-0.15	3.0-6.0	0.0-0.1	.20	.28			
865:														
Conosta clay loam	0-5	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-6.0	1.0-2.0	.20	.28	2	6	48
	5-14	20-45	10-40	40-45	1.35-1.45	0.42-1.40	0.12-0.15	6.0-9.0	1.0-2.0	.20	.24			
	14-19	20-45	10-40	40-45	1.35-1.45	0.42-1.40	0.09-0.14	6.0-9.0	0.6-1.0	.15	.24			
	19-27	20-45	10-40	40-45	1.35-1.45	0.42-1.40	0.09-0.14	6.0-9.0	0.3-0.7	.15	.24			
	27-32	20-45	15-45	35-40	1.40-1.50	0.42-1.40	0.09-0.13	3.0-6.0	0.1-0.3	.10	.24			
	32-40	---	---	---	---	0.42-1.40	---	---	---	---	---			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
870, 871:														
Wisflat sandy loam	0-6	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	0.5-1.0	.28	.32	1	3	86
	6-14	52-77	15-43	5-18	1.50-1.60	14.00-42.00	0.09-0.12	0.0-3.0	0.1-0.4	.28	.37			
	14-16	---	---	---	---	0.42-1.40	---	---	---	---	---			
	16-20	---	---	---	---	0.02-0.42	---	---	---	---	---			
Rock outcrop.														
Arburua loam	0-10	30-45	30-40	18-27	1.45-1.55	4.00-14.00	0.13-0.16	3.0-6.0	0.4-1.0	.32	.37	2	4L	86
	10-27	25-45	30-40	18-30	1.40-1.55	4.00-14.00	0.12-0.18	3.0-6.0	0.2-0.7	.28	.37			
	27-32	---	---	---	---	0.42-1.40	---	---	---	---	---			
	32-40	---	---	---	---	0.02-0.42	---	---	---	---	---			
872:														
Vernalis loam	0-7	23-49	28-50	23-27	1.45-1.55	4.00-14.00	0.13-0.17	3.0-6.0	1.0-2.0	.28	.32	5	6	48
	7-28	20-45	23-53	27-32	1.40-1.50	4.00-14.00	0.17-0.19	3.0-6.0	0.5-0.9	.28	.32			
	28-50	20-45	23-53	27-32	1.40-1.50	4.00-14.00	0.15-0.18	3.0-6.0	0.3-0.5	.24	.32			
	50-60	20-52	12-50	18-32	1.40-1.55	4.00-14.00	0.12-0.15	3.0-6.0	0.0-0.1	.20	.28			
873:														
Narbaitz loam	0-3	40-52	28-45	15-27	1.45-1.55	4.00-14.00	0.12-0.17	0.0-3.0	1.0-2.0	.24	.32	3	5	56
	3-9	45-60	13-28	20-27	1.45-1.55	1.40-4.00	0.12-0.17	0.0-3.0	0.7-1.0	.17	.24			
	9-22	20-35	5-25	50-65	1.30-1.40	0.02-0.42	0.12-0.15	9.0-12.0	0.5-1.0	.15	.20			
	22-38	45-55	5-20	35-45	1.45-1.55	0.02-0.42	0.03-0.07	6.0-9.0	0.1-0.2	.02	.20			
	38-60	45-60	10-28	20-35	1.45-1.55	0.42-1.40	0.06-0.09	3.0-6.0	0.0-0.1	.05	.24			
Pleito gravelly clay loam	0-2	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.13-0.17	3.0-6.0	1.0-2.0	.20	.32	4	7	38
	2-9	20-45	20-53	27-35	1.40-1.50	1.40-4.00	0.14-0.19	3.0-6.0	1.0-2.0	.28	.32			
	9-17	30-60	20-50	20-35	1.40-1.55	1.40-4.00	0.12-0.19	3.0-6.0	1.0-2.0	.28	.32			
	17-22	30-60	20-50	20-35	1.40-1.55	1.40-4.00	0.12-0.19	3.0-6.0	0.6-1.0	.28	.32			
	22-27	30-60	20-50	20-35	1.40-1.55	1.40-4.00	0.12-0.19	3.0-6.0	0.3-0.7	.28	.32			
	27-60	30-60	20-50	20-30	1.40-1.55	1.40-4.00	0.08-0.16	3.0-6.0	0.1-0.3	.10	.28			
940:														
Milham sandy loam, organic surface	0-4	---	---	---	0.70-0.90	0.42-1.40	0.25-0.30	0.0-0.0	100-100	---	---	5	3	86
	4-6	52-70	15-28	15-20	0.90-1.75	1.40-4.00	0.20-0.25	0.0-1.0	20-40	.20	.20			
	6-12	52-70	15-28	15-20	1.70-1.80	0.02-0.42	0.10-0.13	0.0-3.0	0.6-1.0	.32	.32			
	12-22	52-70	10-20	22-35	1.40-1.55	1.40-4.00	0.13-0.17	3.0-6.0	0.2-0.5	.28	.28			
	22-37	52-70	10-25	22-35	1.45-1.60	1.40-4.00	0.13-0.17	3.0-6.0	0.1-0.4	.28	.28			
	37-66	55-75	15-30	6-15	1.40-1.60	14.00-42.00	0.09-0.11	0.0-3.0	0.1-0.3	.28	.28			

Table 26.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
940:														
Polvadero sandy loam, organic surface	0-4	---	---	---	0.70-0.90	0.42-1.40	0.25-0.30	0.0-0.0	90-100	---	---	5	3	86
	4-6	52-77	15-40	6-18	0.90-1.75	1.40-4.00	0.20-0.25	0.0-1.0	20-40	.17	.20			
	6-13	52-77	15-40	6-18	1.70-1.75	0.02-0.42	0.09-0.15	0.0-3.0	0.6-1.0	.28	.32			
	13-18	52-77	15-40	6-18	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.3-0.6	.28	.32			
	18-36	45-70	10-35	18-30	1.45-1.55	1.40-4.00	0.09-0.18	3.0-6.0	0.2-0.4	.24	.28			
	36-58	45-70	10-35	18-30	1.45-1.55	1.40-4.00	0.09-0.18	3.0-6.0	0.1-0.3	.24	.28			
	58-66	45-80	10-40	6-25	1.45-1.55	4.00-14.00	0.09-0.17	0.0-3.0	0.1-0.2	.28	.32			
941:														
Bisgani loamy sand	0-10	72-90	1-28	1-10	1.50-1.60	42.00-141.00	0.06-0.08	0.0-3.0	1.0-2.0	.20	.20	5	2	134
	10-13	72-90	1-28	1-10	1.55-1.65	42.00-141.00	0.06-0.08	0.0-3.0	0.5-1.0	.20	.20			
	13-60	72-98	1-28	1-10	1.55-1.70	42.00-141.00	0.05-0.08	0.0-3.0	0.0-0.4	.15	.15			
Elnido sandy loam	0-14	52-75	7-38	10-18	1.50-1.60	14.00-42.00	0.10-0.13	0.0-3.0	1.0-2.0	.24	.24	4	3	86
	14-32	52-75	7-43	5-18	1.50-1.60	14.00-42.00	0.10-0.15	0.0-3.0	0.5-1.0	.28	.28			
	32-40	52-75	7-43	5-18	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.5-0.8	.32	.32			
	40-53	52-75	7-43	5-18	1.50-1.60	14.00-42.00	0.09-0.15	0.0-3.0	0.4-0.7	.32	.32			
	53-60	69-98	1-28	1-8	1.60-1.70	42.00-141.00	0.05-0.08	0.0-3.0	0.1-0.3	.15	.15			
950. Pits, gravel.														
960:														
Excelsior sandy loam, sandy substratum	0-7	52-75	7-43	5-18	1.40-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.5-1.0	.28	.28	4	3	86
	7-23	52-75	7-43	5-18	1.40-1.60	14.00-42.00	0.09-0.13	0.0-3.0	0.3-0.8	.28	.28			
	23-53	20-85	5-75	5-18	1.30-1.60	4.00-14.00	0.08-0.15	0.0-3.0	0.1-0.7	.32	.32			
	53-72	73-87	3-23	3-10	1.45-1.65	42.00-141.00	0.05-0.08	0.0-3.0	0.1-0.2	.17	.17			
Westhaven loam	0-7	23-40	33-50	18-27	1.45-1.55	4.00-14.00	0.13-0.18	0.0-3.0	0.7-2.0	.37	.37	5	6	48
	7-17	23-40	33-50	18-27	1.45-1.55	4.00-14.00	0.13-0.18	0.0-3.0	0.5-1.0	.43	.43			
	17-42	10-40	25-70	20-35	1.40-1.55	1.40-4.00	0.13-0.20	3.0-6.0	0.2-0.7	.49	.49			
	42-65	10-87	10-70	3-35	1.40-1.65	1.40-4.00	0.10-0.18	3.0-6.0	0.1-0.5	.43	.43			
	65-72	10-40	25-70	20-35	1.40-1.55	1.40-4.00	0.13-0.20	3.0-6.0	0.1-0.5	.49	.49			
980. Urban land.														
981. Sewage disposal ponds.														
982. Water.														

Table 27.--Chemical Properties of the Soils

(Soil properties are measured or inferred from direct observations in the field or laboratory. Laboratory data for selected pedons are included in the Appendix. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
101:								
Armona loam, partially drained	0-14	18-27	12-25	7.4-8.4	1-2	0-2	0.0-8.0	5-20
	14-22	20-35	15-25	7.4-8.4	1-5	0-4	0.0-8.0	2-20
	22-42	20-35	15-25	7.4-8.4	1-10	0-4	0.0-8.0	13-40
	42-60	20-35	15-25	7.4-8.4	1-10	0-4	0.0-8.0	2-30
107:								
Anela very gravelly sandy loam	0-7	5-10	8.0-12	5.6-7.3	0-1	0-1	0.0-2.0	0-1
	7-15	5-10	8.0-12	7.4-7.8	0-1	0-1	0.0-2.0	0-1
	15-22	5-10	8.0-12	7.4-8.4	1-2	0-1	0.0-2.0	0-1
	22-49	5-10	8.0-12	7.4-8.4	1-2	0-1	0.0-2.0	0-1
	49-65	4-7	4.0-6.0	7.9-9.0	1-4	0-1	0.0-2.0	0
115:								
Bolfar loam, drained	0-29	18-27	15-25	6.6-7.3	0	0-1	0.0-2.0	1-5
	29-34	7-25	5.0-15	6.6-7.8	0	0-1	0.0-2.0	2-8
	34-39	10-25	10-20	6.6-7.8	0	0-1	0.0-2.0	1-8
	39-44	7-25	5.0-15	6.6-7.8	0	0-1	0.0-2.0	1-8
	44-87	10-30	10-20	6.6-7.8	0	0-1	0.0-2.0	1-8
120:								
Altaslough clay loam	0-13	27-35	20-30	7.4-8.4	1-5	0-1	2.0-4.0	5-20
	13-24	27-35	20-30	7.4-8.4	1-5	0-1	4.0-16.0	5-20
	24-51	27-35	20-30	7.9-9.0	15-30	0-1	4.0-16.0	20-60
	51-72	15-35	10-30	7.9-9.0	5-10	0-1	8.0-16.0	30-80
130:								
Gepford clay	0-13	40-60	35-55	7.4-8.4	1-3	0-2	2.0-8.0	4-20
	13-26	40-60	35-55	7.9-9.0	2-5	0-2	2.0-16.0	13-50
	26-60	35-55	30-50	7.9-9.0	2-5	1-5	2.0-16.0	8-50
282:								
Tachi clay	0-14	60-75	40-55	7.9-8.4	1-2	0	1.0-4.0	2-20
	14-35	60-75	40-55	8.4-9.0	1-3	0-1	2.0-4.0	13-25
	35-70	40-70	30-50	8.4-9.0	1-5	0-1	2.0-8.0	13-50
284:								
Lillis clay	0-2	60-70	37-45	7.9-9.0	1-3	2-8	4.0-20.0	13-40
	2-7	60-70	37-45	7.9-9.0	1-3	3-8	4.0-20.0	25-60
	7-13	60-70	37-45	7.9-9.0	1-3	3-8	8.0-30.0	40-80
	13-21	60-70	37-45	7.9-9.0	1-2	3-8	20.0-35.0	50-80
	21-28	60-70	37-45	7.9-9.0	1-2	4-8	25.0-40.0	50-85
	28-39	60-70	37-45	7.9-9.0	1-2	4-8	32.0-45.0	50-90
	39-48	60-70	37-45	7.9-9.0	1-2	4-8	25.0-45.0	50-90
	48-60	40-70	35-45	7.9-9.0	1-2	4-8	30.0-50.0	50-85
285:								
Tranquillity clay, saline-sodic	0-22	40-60	35-40	7.9-8.4	1-3	0-1	0.0-4.0	4-15
	22-53	40-60	30-40	7.9-8.4	2-5	0-3	2.0-8.0	8-20
	53-71	40-60	30-40	7.9-8.4	2-5	1-3	4.0-8.0	10-20
Tranquillity clay, saline-sodic, wet	0-6	40-60	30-40	7.9-8.4	1-3	0-1	2.0-8.0	13-25
	6-16	40-60	30-40	7.9-8.4	1-4	0-3	4.0-15.0	13-40
	16-31	40-60	30-40	7.9-8.4	2-5	1-5	8.0-15.0	20-50
	31-48	40-60	30-40	7.9-8.4	2-5	1-5	8.0-15.0	20-50
	48-65	40-60	30-40	7.9-8.4	2-5	1-8	8.0-15.0	20-50

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
286:								
Tranquillity clay, saline-sodic, wet--	0-6	40-60	30-40	7.9-8.4	1-3	0-1	2.0-8.0	13-25
	6-16	40-60	30-40	7.9-8.4	1-4	0-3	4.0-15.0	13-40
	16-31	40-60	30-40	7.9-8.4	2-5	1-5	8.0-15.0	20-50
	31-48	40-60	30-40	7.9-8.4	2-5	1-5	8.0-15.0	20-50
	48-65	40-60	30-40	7.9-8.4	2-5	1-8	8.0-15.0	20-50
311:								
Bisgani sandy loam, drained-----------	0-10	1-10	5.0-10	6.1-7.8	0	0	0.0-2.0	0-4
	10-13	1-10	5.0-10	6.1-7.8	0	0	0.0-2.0	0-4
	13-60	1-10	2.0-6.0	6.1-7.8	0	0	0.0-2.0	0-4
320:								
Elnido sandy loam, drained------------	0-14	10-18	10-15	6.1-7.3	0	0	1.0-2.0	1-10
	14-32	5-18	5.0-15	6.6-7.8	0	0	1.0-2.0	3-12
	32-40	5-18	5.0-15	7.4-7.8	1-3	0	1.0-4.0	5-20
	40-53	5-18	5.0-15	6.6-7.8	0	0	1.0-4.0	5-20
	53-60	1-8	1.0-5.0	6.6-7.3	0	0	1.0-2.0	5-12
325:								
Palazzo sandy loam, drained-----------	0-10	10-18	10-15	6.6-7.8	0	0	0.0-4.0	1-8
	10-31	10-18	10-15	6.6-7.8	0	0	0.0-2.0	1-8
	31-60	20-35	15-25	6.6-7.8	0-1	0	0.0-4.0	2-12
375:								
Lethent silt loam---------------------	0-7	15-27	15-25	7.4-8.4	0-3	0-1	2.0-4.0	1-20
	7-20	35-55	25-45	7.9-9.0	1-3	0-4	16.0-30.0	20-60
	20-39	30-55	20-45	7.9-9.0	2-5	0-4	30.0-50.0	20-60
	39-60	20-35	15-30	7.9-9.0	2-5	0-4	30.0-60.0	20-60
376:								
Agnal silty clay----------------------	0-6	50-58	35-45	7.4-9.0	0-1	0-1	13.0-30.0	45-110
	6-9	50-58	32-40	7.9-9.0	0-1	1-4	50.0-90.0	220-300
	9-70	50-58	35-40	8.5-11.0	0-2	1-6	15.0-40.0	40-120
404:								
Milham sandy loam---------------------	0-6	15-20	10-15	7.4-7.8	1-3	0-1	0.0-2.0	1-8
	6-16	22-35	14-25	7.4-7.8	1-3	0-1	0.0-2.0	1-8
	16-31	22-35	14-25	7.4-8.4	3-8	0-1	0.0-4.0	1-12
	31-60	6-15	4.0-10	7.9-8.4	3-5	0-1	0.0-4.0	1-8
Guijarral sandy loam------------------	0-3	3-15	2.0-10	6.6-8.4	1-3	0	0.0-2.0	0-5
	3-6	3-15	2.0-10	7.4-8.4	1-4	0	0.0-2.0	0-5
	6-12	3-15	2.0-10	7.4-8.4	1-4	0	0.0-2.0	0-5
	12-24	3-15	2.0-10	7.9-9.0	5-10	0	0.0-2.0	1-10
	24-36	3-15	2.0-10	7.9-9.0	6-10	0	0.0-2.0	1-10
	36-60	3-15	2.0-10	7.9-9.0	1-5	0-1	0.0-2.0	1-10
405:								
Polvadero sandy loam------------------	0-7	6-18	5.0-15	7.4-8.4	0-7	0-2	0.0-2.0	0-8
	7-12	6-18	5.0-15	7.4-8.4	1-7	0-2	1.0-2.0	1-8
	12-30	18-30	12-20	7.9-9.0	15-30	0-2	1.0-2.0	13-50
	30-52	18-30	12-20	7.9-9.0	5-15	0-2	1.0-2.0	13-50
	52-60	6-25	5.0-15	7.9-9.0	1-10	0-2	1.0-2.0	8-50
Guijarral sandy loam------------------	0-3	3-15	2.0-10	6.6-8.4	1-3	0	0.0-2.0	0-5
	3-6	3-15	2.0-10	7.4-8.4	1-4	0	0.0-2.0	0-5
	6-12	3-15	2.0-10	7.4-8.4	1-4	0	0.0-2.0	0-5
	12-24	3-15	2.0-10	7.9-9.0	5-10	0	0.0-2.0	1-10
	24-36	3-15	2.0-10	7.9-9.0	6-10	0	0.0-2.0	1-10
	36-60	3-15	2.0-10	7.9-9.0	1-5	0-1	0.0-2.0	1-10

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
406:								
Guijarral sandy loam------------------	0-3	3-15	2.0-10	6.6-8.4	1-3	0	0.0-2.0	0-5
	3-6	3-15	2.0-10	7.4-8.4	1-4	0	0.0-2.0	0-5
	6-12	3-15	2.0-10	7.4-8.4	1-4	0	0.0-2.0	0-5
	12-24	3-15	2.0-10	7.9-9.0	5-10	0	0.0-2.0	1-10
	24-36	3-15	2.0-10	7.9-9.0	6-10	0	0.0-2.0	1-10
	36-60	3-15	2.0-10	7.9-9.0	1-5	0-1	0.0-2.0	1-10
412:								
Yribarren clay loam-------------------	0-9	27-35	20-30	7.9-8.4	0-2	0-1	0.0-2.0	2-10
	9-16	27-35	20-30	7.9-8.4	1-2	0-1	0.0-4.0	2-10
	16-31	35-50	25-40	7.9-8.4	2-4	0-3	2.0-4.0	3-10
	31-51	20-35	15-30	7.9-8.4	2-4	1-4	2.0-8.0	5-15
	51-60	20-35	15-30	7.9-8.4	1-3	0-1	2.0-8.0	5-15
414:								
Dospalos clay loam, drained-----------	0-17	35-40	20-30	6.6-7.8	0-1	0-1	0.0-2.0	0-5
	17-25	50-60	45-50	6.6-8.4	0-1	0-1	0.0-2.0	0-5
	25-43	50-60	30-40	7.9-8.4	1-5	0-2	2.0-4.0	1-7
	43-73	27-40	20-30	7.9-8.4	2-7	0-2	0.0-4.0	0-7
415:								
Dospalos clay, drained----------------	0-17	50-65	45-55	6.6-7.8	0-1	0-1	0.0-2.0	0-5
	17-25	50-60	45-50	6.6-8.4	0-1	0-1	0.0-2.0	0-5
	25-43	50-60	30-40	7.9-8.4	1-5	0-2	2.0-4.0	1-7
	43-73	27-40	20-30	7.9-8.4	2-7	0-2	0.0-4.0	0-7
425, 426:								
Kimberlina sandy loam-----------------	0-14	5-18	5.0-15	7.4-8.4	1-2	0	0.0-2.0	0-5
	14-72	5-18	5.0-15	7.9-8.4	1-3	0	0.0-2.0	0-8
434:								
Lethent clay loam, wet----------------	0-7	27-35	20-30	7.9-8.4	1-2	0-2	2.0-8.0	2-20
	7-16	27-35	20-30	7.9-8.4	1-2	0-2	2.0-8.0	2-20
	16-25	27-35	20-30	7.9-8.4	1-2	0-2	2.0-8.0	2-20
	25-33	35-50	25-35	7.9-9.0	1-2	0-2	4.0-16.0	13-40
	33-62	33-50	25-35	7.9-9.0	1-2	0-2	4.0-16.0	13-40
	62-72	20-40	20-30	7.9-9.0	1-2	0-2	4.0-16.0	13-40
435:								
Lethent clay loam---------------------	0-7	27-35	20-30	7.9-8.4	1-2	0-2	1.0-4.0	2-13
	7-16	27-35	20-30	7.9-8.4	1-2	0-2	1.0-4.0	2-13
	16-25	27-35	20-30	7.9-8.4	1-2	0-2	1.0-4.0	2-13
	25-33	35-50	25-35	7.9-9.0	1-2	0-2	1.0-16.0	13-40
	33-62	33-50	25-35	7.9-9.0	1-2	0-2	2.0-16.0	13-40
	62-72	20-40	20-30	7.9-9.0	1-2	0-2	4.0-16.0	13-40
436:								
Panoche loam--------------------------	0-7	15-27	15-25	7.4-8.4	1-2	0-1	0.0-4.0	0-8
	7-16	18-35	15-25	7.9-8.4	1-3	0-1	0.0-4.0	0-8
	16-27	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	27-43	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	43-57	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	57-72	10-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
437:								
Panoche sandy loam--------------------	0-7	10-20	10-20	7.4-8.4	1-2	0-1	0.0-4.0	0-8
	7-16	18-35	15-25	7.9-8.4	1-3	0-1	0.0-4.0	0-8
	16-27	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	27-43	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	43-57	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	57-72	10-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
438:								
Panoche loam	0-7	15-27	15-25	7.4-8.4	1-2	0-1	0.0-4.0	0-8
	7-16	18-35	15-25	7.9-8.4	1-3	0-1	0.0-4.0	0-8
	16-27	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	27-43	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	43-57	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	57-72	10-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
442:								
Panoche clay loam	0-7	27-35	18-25	7.4-8.4	1-2	0-1	0.0-4.0	0-8
	7-16	18-35	15-25	7.9-8.4	1-3	0-1	0.0-4.0	0-8
	16-27	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	27-43	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	43-57	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	57-72	10-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
445:								
Excelsior sandy loam	0-7	5-18	5.0-15	7.4-8.4	1-2	0	0.0-4.0	0-10
	7-23	5-18	5.0-15	7.4-8.4	1-2	0	0.0-4.0	0-10
	23-72	5-18	5.0-20	7.9-8.4	1-3	0-1	0.0-4.0	0-10
447:								
Excelsior sandy loam, sandy substratum	0-7	5-18	5.0-15	7.4-8.4	1-2	0	0.0-4.0	0-10
	7-23	5-18	5.0-15	7.4-8.4	1-2	0	0.0-4.0	0-10
	23-53	5-18	5.0-20	7.9-8.4	1-3	0-1	0.0-4.0	0-10
	53-72	3-10	5.0-10	7.9-8.4	1-2	0	0.0-4.0	0-10
448:								
Excelsior loamy sand, sandy substratum, eroded	0-8	3-14	5.0-10	7.4-8.4	1-2	0	0.0-2.0	0-10
	8-38	5-18	5.0-20	7.9-8.4	1-5	0-1	0.0-4.0	0-10
	38-60	2-10	5.0-10	7.9-8.4	1-3	0	0.0-4.0	0-10
451, 452, 453:								
Milham sandy loam	0-6	15-20	10-15	7.4-7.8	1-3	0-1	0.0-2.0	1-8
	6-16	22-35	14-25	7.4-7.8	1-3	0-1	0.0-2.0	1-8
	16-31	22-35	14-25	7.4-8.4	3-8	0-1	0.0-4.0	1-12
	31-60	6-15	4.0-10	7.9-8.4	3-5	0-1	0.0-4.0	1-8
454, 455:								
Polvadero sandy loam	0-7	6-18	5.0-15	7.4-8.4	0-7	0-2	0.0-2.0	0-8
	7-12	6-18	5.0-15	7.4-8.4	1-7	0-2	1.0-2.0	1-8
	12-30	18-30	12-20	7.9-9.0	15-30	0-2	1.0-2.0	13-50
	30-52	18-30	12-20	7.9-9.0	5-15	0-2	1.0-2.0	13-50
	52-60	6-25	5.0-15	7.9-9.0	1-10	0-2	1.0-2.0	8-50
459:								
Ciervo clay	0-17	35-55	25-40	7.9-8.4	1-5	0-2	0.0-4.0	1-12
	17-27	35-55	25-40	7.9-8.4	1-5	0-2	0.0-4.0	1-12
	27-41	35-50	25-40	7.9-8.4	2-5	1-5	0.0-4.0	1-12
	41-60	20-40	20-35	7.9-8.4	2-5	1-2	0.0-4.0	1-12
461:								
Ciervo clay, saline-sodic, wet	0-17	35-55	25-40	7.9-8.4	1-5	0-2	2.0-16.0	5-35
	17-27	35-55	25-40	7.9-9.0	1-5	0-2	2.0-16.0	13-50
	27-41	35-50	25-40	7.9-9.0	2-5	1-5	8.0-16.0	13-50
	41-60	20-40	20-35	7.9-9.0	2-5	1-2	8.0-16.0	13-50
462:								
Ciervo clay, saline-sodic, wet	0-17	35-55	25-40	7.9-8.4	1-5	0-2	2.0-16.0	5-35
	17-27	35-55	25-40	7.9-9.0	1-5	0-2	2.0-16.0	13-50
	27-41	35-50	25-40	7.9-9.0	2-5	1-5	8.0-16.0	13-50
	41-60	20-40	20-35	7.9-9.0	2-5	1-2	8.0-16.0	13-50

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
462:								
Ciervo clay, saline-sodic-------------	0-17	35-55	25-40	7.9-8.4	1-5	0-2	0.0-8.0	3-20
	17-27	35-55	25-40	7.9-9.0	1-5	0-2	2.0-8.0	10-25
	27-41	35-50	25-40	7.9-9.0	2-5	1-5	4.0-16.0	13-40
	41-60	20-40	20-35	7.9-9.0	2-5	1-2	4.0-16.0	13-40
466:								
Paver clay loam-----------------------	0-6	27-35	20-30	7.4-7.8	0	0-1	0.0-2.0	1-6
	6-19	27-35	20-30	7.4-7.8	0	0-1	0.0-2.0	1-6
	19-26	23-35	15-30	7.4-8.4	0-2	0-1	0.0-4.0	1-7
	26-48	23-35	15-30	7.4-8.4	5-10	0-1	0.0-4.0	1-7
	48-60	23-35	15-30	7.4-8.4	2-5	0-1	0.0-4.0	1-7
468:								
Deldota clay, partially drained-------	0-17	40-50	25-40	7.4-8.4	0-2	0-1	0.0-2.0	2-7
	17-24	35-50	25-40	7.9-8.4	0-5	0-1	0.0-2.0	2-7
	24-54	35-50	25-40	7.9-8.4	5-20	0-1	0.0-2.0	2-7
	54-65	30-40	20-30	7.9-8.4	1-16	0-1	0.0-2.0	2-7
470:								
Chateau clay, partially drained-------	0-6	40-60	30-40	7.9-9.0	0-1	0-2	4.0-16.0	13-30
	6-20	40-60	30-40	7.9-9.0	0-1	0-4	8.0-16.0	13-30
	20-43	35-50	25-40	7.9-9.0	0-2	0-4	8.0-16.0	13-30
	43-60	40-50	30-40	7.9-9.0	0-2	0-4	8.0-16.0	13-30
472:								
Wekoda clay, partially drained--------	0-7	50-60	35-50	7.9-8.4	0-1	0-1	0.0-4.0	1-8
	7-12	50-60	35-50	7.9-8.4	0-1	0-1	0.0-4.0	1-8
	12-22	45-60	30-50	7.9-8.4	0-1	0-1	2.0-8.0	1-8
	22-35	45-60	30-50	7.9-8.4	1-3	1-4	2.0-8.0	1-12
	35-47	45-60	30-50	7.9-8.4	1-4	1-4	2.0-8.0	1-12
	47-60	45-60	30-50	7.9-8.4	1-4	0-1	2.0-8.0	1-12
474:								
Westhaven loam------------------------	0-7	18-27	15-25	7.4-8.4	1-2	0	0.0-2.0	0-8
	7-17	18-27	15-25	7.4-8.4	1-2	0	0.0-2.0	0-8
	17-42	20-35	15-30	7.9-8.4	1-4	0-1	0.0-4.0	0-12
	42-65	3-35	5.0-30	7.9-8.4	1-4	0-1	0.0-4.0	0-12
	65-72	20-35	15-30	7.9-8.4	1-2	0-1	0.0-4.0	0-12
475:								
Posochanet clay loam, saline-sodic, wet----------------------------------	0-7	27-35	20-30	7.9-8.4	1-2	0-2	0.0-8.0	0-13
	7-15	27-35	20-30	7.9-8.4	1-2	0-2	2.0-8.0	5-13
	15-24	20-35	20-30	7.9-8.4	1-2	0-2	4.0-16.0	20-40
	24-60	20-35	20-30	7.9-8.4	1-2	0-2	4.0-20.0	20-50
476:								
Posochanet clay loam, saline-sodic----	0-7	27-35	20-30	7.9-8.4	1-2	0-2	0.0-8.0	0-13
	7-15	27-35	20-30	7.9-8.4	1-2	0-2	2.0-8.0	5-13
	15-24	20-35	20-30	7.9-8.4	1-2	0-2	4.0-8.0	13-30
	24-60	20-35	20-30	7.9-8.4	1-2	0-2	4.0-8.0	13-30
477:								
Westhaven clay loam-------------------	0-12	27-35	20-30	7.4-8.4	1-2	0	0.0-2.0	0-8
	12-21	27-35	20-30	7.4-8.4	1-2	0-1	0.0-2.0	0-8
	21-61	20-35	15-30	7.9-8.4	1-4	0-1	0.0-4.0	0-12
	61-72	3-35	5.0-30	7.9-8.4	1-2	0-1	0.0-4.0	0-12

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
478:								
Cerini sandy loam---------------------	0-5	10-20	10-20	6.6-8.4	1-2	0-2	0.0-4.0	0-8
	5-25	15-35	15-25	7.4-8.4	1-2	0-2	0.0-4.0	0-8
	25-35	15-35	15-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
	35-62	8-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
479:								
Cerini clay loam----------------------	0-5	27-35	18-25	6.6-8.4	1-2	0-2	0.0-4.0	0-8
	5-25	15-35	15-25	7.4-8.4	1-2	0-2	0.0-4.0	0-8
	25-35	15-35	15-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
	35-62	8-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
480:								
Calflax clay loam, saline-sodic-------	0-8	27-40	20-30	7.4-8.4	1-2	0-3	2.0-8.0	2-12
	8-26	27-40	20-30	7.4-8.4	1-3	0-3	2.0-8.0	2-20
	26-33	18-35	15-30	7.4-8.4	1-3	2-5	2.0-8.0	3-20
	33-47	18-35	15-30	7.4-9.0	1-3	2-5	2.0-16.0	13-30
	47-65	18-35	15-30	7.4-9.0	1-3	2-5	2.0-16.0	13-30
481:								
Cerini clay loam----------------------	0-5	27-35	18-25	6.6-8.4	1-2	0-2	0.0-4.0	0-8
	5-25	15-35	15-25	7.4-8.4	1-2	0-2	0.0-4.0	0-8
	25-35	15-35	15-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
	35-62	8-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
482:								
Calflax clay loam, saline-sodic, wet--	0-8	27-40	20-30	7.4-8.4	1-2	0-3	2.0-8.0	4-12
	8-26	27-40	20-30	7.4-8.4	1-3	0-3	4.0-8.0	4-20
	26-33	18-35	15-30	7.9-8.4	1-3	2-5	4.0-8.0	13-30
	33-47	18-35	15-30	7.9-9.0	1-3	2-5	4.0-16.0	13-40
	47-65	18-35	15-30	7.9-9.0	1-3	2-5	4.0-16.0	13-40
488, 489:								
Wasco sandy loam----------------------	0-8	8-18	5.0-15	6.6-7.3	0	0	0.0-2.0	0-5
	8-21	8-18	5.0-15	6.6-7.3	0	0	0.0-2.0	0-5
	21-50	8-18	5.0-15	7.4-8.4	0-2	0	0.0-2.0	0-5
	50-72	5-18	3.0-15	7.4-8.4	0-2	0	0.0-2.0	0-10
490:								
Cerini sandy loam, subsided-----------	0-5	10-20	10-20	6.6-8.4	1-2	0-2	0.0-4.0	0-8
	5-25	15-35	15-25	7.4-8.4	1-2	0-2	0.0-4.0	0-8
	25-35	15-35	15-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
	35-62	8-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
491:								
Cerini clay loam, subsided------------	0-5	27-35	18-25	6.6-8.4	1-2	0-2	0.0-4.0	0-8
	5-25	15-35	15-25	7.4-8.4	1-2	0-2	0.0-4.0	0-8
	25-35	15-35	15-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
	35-62	8-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
492:								
Panoche loam, subsided----------------	0-7	15-27	15-25	7.4-8.4	1-2	0-1	0.0-4.0	0-8
	7-16	18-35	15-25	7.9-8.4	1-3	0-1	0.0-4.0	0-8
	16-27	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	27-43	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	43-57	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	57-72	10-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
493:								
Panoche clay loam, subsided-----------	0-7	27-35	18-25	7.4-8.4	1-2	0-1	0.0-4.0	0-8
	7-16	18-35	15-25	7.9-8.4	1-3	0-1	0.0-4.0	0-8
	16-27	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	27-43	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	43-57	18-35	15-25	7.9-8.4	1-4	0-2	0.0-4.0	0-8
	57-72	10-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-8
587, 588:								
Mugatu fine sandy loam----------------	0-2	10-18	15-25	6.6-7.8	1-3	0-1	0.0-4.0	0-5
	2-10	10-18	15-25	7.4-8.4	1-3	0-1	0.0-4.0	0-5
	10-24	10-18	15-25	7.4-8.4	1-3	0-1	0.0-4.0	0-5
	24-41	27-35	20-30	7.9-8.4	0-5	15-25	4.0-8.0	5-12
	41-60	2-15	5.0-20	7.9-8.4	0-3	1-5	2.0-8.0	5-12
590:								
Cerini sandy loam---------------------	0-5	10-20	10-20	6.6-8.4	1-2	0-2	0.0-4.0	0-12
	5-25	15-35	15-25	7.4-8.4	1-2	0-2	0.0-4.0	0-12
	25-35	15-35	15-25	7.4-8.4	1-4	0-2	0.0-4.0	0-12
	35-62	8-30	10-25	7.4-8.4	1-4	0-2	0.0-4.0	0-12
Anela very gravelly sandy loam--------	0-7	5-10	8.0-12	5.6-7.3	0-1	0-1	0.0-2.0	0-1
	7-15	5-10	8.0-12	7.4-7.8	0-1	0-1	0.0-2.0	0-1
	15-22	5-10	8.0-12	7.4-8.4	1-2	0-1	0.0-2.0	0-1
	22-49	5-10	8.0-12	7.4-8.4	1-2	0-1	0.0-2.0	0-1
	49-65	4-7	4.0-6.0	7.9-9.0	1-4	0-1	0.0-2.0	0
Fluvaquents, saline-sodic-------------	0-5	2-18	5.0-20	7.9-9.0	1-3	0-3	16.0-60.0	30-70
	5-10	2-18	5.0-20	7.9-9.0	1-3	0-3	8.0-50.0	20-60
	10-18	2-18	5.0-20	7.9-9.0	1-3	1-4	8.0-50.0	20-60
	18-60	2-18	5.0-20	7.9-9.0	3-10	1-4	8.0-40.0	15-50
620:								
Delgado sandy loam, eroded------------	0-2	8-18	5.0-15	6.6-7.8	0-1	0	0.0-2.0	2-8
	2-5	8-18	5.0-15	6.6-8.4	0-1	0	0.0-2.0	2-8
	5-15	5-15	5.0-15	7.4-8.4	1-3	0-1	0.0-2.0	2-8
	15-20	---	---	---	---	---	---	---
621:								
Delgado sandy loam, eroded------------	0-2	8-18	5.0-15	6.6-7.8	1-2	0	0.0-2.0	2-8
	2-6	8-18	5.0-15	6.6-8.4	1-2	0	0.0-2.0	2-8
	6-10	5-15	5.0-15	7.4-8.4	1-3	0-1	0.0-2.0	2-8
	10-14	---	---	---	---	---	---	---
640:								
Kettleman clay loam, eroded-----------	0-8	27-35	18-25	6.6-8.4	0-2	0-1	0.0-2.0	1-8
	8-20	18-35	12-25	7.4-8.4	0-2	0-1	0.0-2.0	2-12
	20-27	18-35	12-25	7.9-8.4	1-4	0-1	0.0-2.0	2-12
	27-60	---	---	---	---	---	---	---
Delgado sandy loam, eroded------------	0-2	8-18	5.0-15	6.6-7.8	0-1	0	0.0-2.0	2-8
	2-5	8-18	5.0-15	6.6-8.4	0-1	0	0.0-2.0	2-8
	5-15	5-15	5.0-15	7.4-8.4	1-3	0-1	0.0-2.0	2-8
	15-20	---	---	---	---	---	---	---
Mercey loam, eroded-------------------	0-3	20-27	13-25	6.6-7.8	0-1	0	0.0-2.0	2-8
	3-6	20-27	13-20	6.6-8.4	1-2	0	0.0-2.0	2-8
	6-14	20-27	13-20	7.4-8.4	2-5	0-1	0.0-2.0	2-8
	14-21	20-27	13-20	7.4-8.4	3-7	0-1	0.0-2.0	2-8
	21-30	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
641:								
Mercey loam	0-6	20-27	13-25	6.6-7.8	0-1	0	0.0-2.0	2-8
	6-9	20-27	13-20	6.6-8.4	1-2	0	0.0-2.0	2-8
	9-14	20-27	13-20	7.4-8.4	2-5	0-1	0.0-2.0	2-8
	14-24	20-27	13-20	7.4-8.4	3-7	0-1	0.0-2.0	2-8
	24-30	---	---	---	---	---	---	---
Delgado sandy loam	0-4	8-18	5.0-15	6.6-7.8	0-1	0	0.0-2.0	2-8
	4-8	8-18	5.0-15	6.6-8.4	0-1	0	0.0-2.0	2-8
	8-18	5-15	5.0-15	7.4-8.4	1-3	0-1	0.0-2.0	2-8
	18-22	---	---	---	---	---	---	---
Kettleman clay loam	0-8	27-35	18-25	6.6-8.4	0-2	0-1	0.0-2.0	1-8
	8-25	18-35	12-25	7.4-8.4	0-2	0-1	0.0-2.0	2-12
	25-32	18-35	12-25	7.9-8.4	1-4	0-1	0.0-2.0	2-12
	32-60	---	---	---	---	---	---	---
642:								
Mercey loam, eroded	0-3	20-27	13-25	6.6-7.8	0-1	0	0.0-2.0	2-8
	3-6	20-27	13-20	6.6-8.4	1-2	0	0.0-2.0	2-8
	6-14	20-27	13-20	7.4-8.4	2-5	0-1	0.0-2.0	2-8
	14-21	20-27	13-20	7.4-8.4	3-7	0-1	0.0-2.0	2-8
	21-30	---	---	---	---	---	---	---
Delgado sandy loam, eroded	0-2	8-18	5.0-15	6.6-7.8	1-2	0	0.0-2.0	2-8
	2-6	8-18	5.0-15	6.6-8.4	1-2	0	0.0-2.0	2-8
	6-10	5-15	5.0-15	7.4-8.4	1-3	0-1	0.0-2.0	2-8
	10-14	---	---	---	---	---	---	---
Kettleman clay loam, eroded	0-8	27-35	18-25	6.6-8.4	0-2	0-1	0.0-2.0	1-8
	8-20	18-35	12-25	7.4-8.4	0-2	0-1	0.0-2.0	2-12
	20-27	18-35	12-25	7.9-8.4	1-4	0-1	0.0-2.0	2-12
	27-60	---	---	---	---	---	---	---
643:								
Mercey loam	0-6	20-27	13-25	6.6-7.8	0-1	0	0.0-2.0	2-8
	6-9	20-27	13-20	6.6-8.4	1-2	0	0.0-2.0	2-8
	9-14	20-27	13-20	7.4-8.4	2-5	0-1	0.0-2.0	2-8
	14-24	20-27	13-20	7.4-8.4	3-7	0-1	0.0-2.0	2-8
	24-30	---	---	---	---	---	---	---
Delgado sandy loam	0-2	8-18	5.0-15	6.6-7.8	1-2	0	0.0-2.0	2-8
	2-6	8-18	5.0-15	6.6-8.4	1-2	0	0.0-2.0	2-8
	6-13	5-15	5.0-15	7.4-8.4	1-3	0-1	0.0-2.0	2-8
	13-17	---	---	---	---	---	---	---
Kettleman clay loam	0-8	27-35	18-25	6.6-8.4	0-2	0-1	0.0-2.0	1-8
	8-25	18-35	12-25	7.4-8.4	0-2	0-1	0.0-2.0	2-12
	25-32	18-35	12-25	7.9-8.4	1-4	0-1	0.0-2.0	2-12
	32-60	---	---	---	---	---	---	---
644:								
Mercey loam, eroded	0-3	20-27	13-25	6.6-7.8	0-1	0	0.0-2.0	2-8
	3-6	20-27	13-20	6.6-8.4	1-2	0	0.0-2.0	2-8
	6-14	20-27	13-20	7.4-8.4	2-5	0-1	0.0-2.0	2-8
	14-21	20-27	13-20	7.4-8.4	3-7	0-1	0.0-2.0	2-8
	21-30	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
644:								
Kettleman clay loam, eroded-----------	0-8	27-35	18-25	6.6-8.4	0-2	0-1	0.0-2.0	1-8
	8-20	18-35	12-25	7.4-8.4	0-2	0-1	0.0-2.0	2-12
	20-27	18-35	12-25	7.9-8.4	1-4	0-1	0.0-2.0	2-12
	27-60	---	---	---	---	---	---	---
Delgado sandy loam, eroded------------	0-2	8-18	5.0-15	6.6-7.8	1-2	0	0.0-2.0	2-8
	2-6	8-18	5.0-15	6.6-8.4	1-2	0	0.0-2.0	2-8
	6-10	5-15	5.0-15	7.4-8.4	1-3	0-1	0.0-2.0	2-8
	10-14	---	---	---	---	---	---	---
645:								
Delgado sandy loam--------------------	0-2	8-18	5.0-15	6.6-7.8	1-2	0	0.0-2.0	2-8
	2-6	8-18	5.0-15	6.6-8.4	1-2	0	0.0-2.0	2-8
	6-13	5-15	5.0-15	7.4-8.4	1-3	0-1	0.0-2.0	2-8
	13-17	---	---	---	---	---	---	---
Mercey loam---------------------------	0-6	20-27	13-25	6.6-7.8	0-1	0	0.0-2.0	2-8
	6-9	20-27	13-20	6.6-8.4	1-2	0	0.0-2.0	2-8
	9-14	20-27	13-20	7.4-8.4	2-5	0-1	0.0-2.0	2-8
	14-24	20-27	13-20	7.4-8.4	3-7	0-1	0.0-2.0	2-8
	24-30	---	---	---	---	---	---	---
Kettleman clay loam-------------------	0-8	27-35	18-25	6.6-8.4	0-2	0-1	0.0-2.0	1-8
	8-25	18-35	12-25	7.4-8.4	0-2	0-1	0.0-2.0	2-12
	25-32	18-35	12-25	7.9-8.4	1-4	0-1	0.0-2.0	2-12
	32-60	---	---	---	---	---	---	---
670:								
Badland.								
Kettleman clay loam-------------------	0-8	27-35	18-25	6.6-8.4	0-2	0-1	0.0-2.0	1-8
	8-25	18-35	12-25	7.4-8.4	0-2	0-1	0.0-2.0	2-12
	25-32	18-35	12-25	7.9-8.4	1-4	0-1	0.0-2.0	2-12
	32-60	---	---	---	---	---	---	---
Mercey loam---------------------------	0-6	20-27	13-25	6.6-7.8	0-1	0	0.0-2.0	2-8
	6-9	20-27	13-20	6.6-8.4	1-2	0	0.0-2.0	2-8
	9-14	20-27	13-20	7.4-8.4	2-5	0-1	0.0-2.0	2-8
	14-24	20-27	13-20	7.4-8.4	3-7	0-1	0.0-2.0	2-8
	24-30	---	---	---	---	---	---	---
680:								
Arburua loam--------------------------	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---
Morenogulch parachannery silty clay---	0-3	40-55	40-50	4.5-5.5	0	0-5	0.0-2.0	0-2
	3-6	35-55	40-50	4.5-5.5	0	1-5	2.0-4.0	0-2
	6-10	35-55	40-50	3.5-5.0	0	2-5	0.0-4.0	0-2
	10-33	---	---	---	---	---	---	---
704:								
Franciscan gravelly sandy loam--------	0-5	10-20	8.0-15	6.1-7.3	0	0	0.0-2.0	0-2
	5-9	10-20	8.0-15	6.1-7.3	0	0	0.0-2.0	0-2
	9-15	20-35	15-25	6.1-7.3	0	0	0.0-2.0	0-2
	15-26	20-35	15-25	6.1-7.3	0	0	0.0-2.0	0-2
	26-31	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
705:								
Roacha silty clay loam----------------	0-5	30-40	20-30	6.1-6.5	0	0	0.0-2.0	0-4
	5-10	40-55	25-45	6.1-6.5	0	0	0.0-2.0	0-4
	10-25	40-55	25-40	6.1-6.5	0	0	0.0-2.0	0-4
	25-36	35-50	22-40	6.1-7.3	0-2	0-1	0.0-2.0	0-4
	36-40	---	---	---	---	---	---	---
706:								
Sagaser loam-------------------------	0-7	20-27	15-25	6.6-7.3	0	0	0.0-2.0	0-3
	7-17	27-35	20-25	6.6-7.8	0	0	0.0-2.0	0-3
	17-29	27-35	20-25	6.6-7.8	0	0	0.0-2.0	0-3
	29-50	27-35	20-25	6.6-7.8	0	0	0.0-2.0	0-3
	50-60	---	---	---	---	---	---	---
709:								
Sagaser loam-------------------------	0-7	20-27	15-25	6.6-7.3	0	0	0.0-2.0	0-3
	7-17	27-35	20-25	6.6-7.8	0	0	0.0-2.0	0-3
	17-29	27-35	20-25	6.6-7.8	0	0	0.0-2.0	0-3
	29-50	27-35	20-25	6.6-7.8	0	0	0.0-2.0	0-3
	50-60	---	---	---	---	---	---	---
Gaviota sandy loam--------------------	0-3	10-18	7.0-15	6.6-7.3	0	0	0.0-2.0	0-4
	3-10	10-18	6.0-12	6.6-7.3	0	0-1	0.0-2.0	0-6
	10-15	---	---	---	---	---	---	---
Borreguero sandy loam-----------------	0-2	12-20	10-20	6.1-7.3	0	0	0.0-2.0	0-4
	2-5	14-25	15-25	6.1-7.3	0-1	0	0.0-2.0	0-4
	5-11	14-23	15-25	6.6-7.3	0-1	0-1	0.0-2.0	0-4
	11-17	---	---	---	---	---	---	---
710:								
Monoridge fine sand-------------------	0-7	2-7	5.0-10	7.4-8.4	0-2	1-3	0.0-2.0	1-3
	7-25	2-10	5.0-10	7.4-8.4	1-2	5-10	2.0-4.0	1-3
	25-29	---	---	---	---	---	---	---
Exclose clay loam---------------------	0-5	27-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	5-12	25-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	12-19	25-35	20-30	7.9-8.4	1-5	0	0.0-2.0	0-6
	19-29	25-35	20-30	7.9-8.4	2-7	0	0.0-2.0	0-6
	29-84	27-35	25-35	7.9-8.4	5-10	0-1	0.0-4.0	0-6
Badland.								
711:								
Currymountain loam--------------------	0-3	15-27	15-20	6.1-7.3	0	0	0.0-2.0	0-5
	3-13	18-35	15-25	6.1-7.8	0-1	0	0.0-2.0	0-5
	13-24	18-35	15-25	6.1-7.8	0-1	0-1	0.0-2.0	0-5
	24-30	---	---	---	---	---	---	---
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Borreguero sandy loam-----------------	0-2	12-20	10-20	6.1-7.3	0	0	0.0-2.0	0-4
	2-5	14-25	15-25	6.1-7.3	0-1	0	0.0-2.0	0-4
	5-11	14-23	15-25	6.6-7.3	0-1	0-1	0.0-2.0	0-4
	11-17	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
712:								
Altamont clay	0-9	40-50	30-40	6.6-7.3	0	0	0.1-2.0	1-7
	9-22	40-50	30-40	6.6-7.8	0	0	0.5-2.0	1-7
	22-31	40-50	30-40	7.9-8.4	1-2	0-1	0.5-2.0	1-7
	31-54	35-39	25-35	7.9-8.4	1-4	0-1	0.5-2.0	1-7
	54-60	---	---	---	---	---	---	---
Roacha silty clay loam	0-5	30-40	20-30	6.1-6.5	0	0	0.0-2.0	0-4
	5-10	40-55	25-45	6.1-6.5	0	0	0.0-2.0	0-4
	10-25	40-55	25-40	6.1-6.5	0	0	0.0-2.0	0-4
	25-36	35-50	22-40	6.1-7.3	0-2	0-1	0.0-2.0	0-4
	36-40	---	---	---	---	---	---	---
Borreguero sandy loam	0-2	12-20	10-20	6.1-7.3	0	0	0.0-2.0	0-4
	2-5	14-25	15-25	6.1-7.3	0-1	0	0.0-2.0	0-4
	5-11	14-23	15-25	6.6-7.3	0-1	0-1	0.0-2.0	0-4
	11-17	---	---	---	---	---	---	---
713:								
Currymountain loam	0-2	10-20	7.0-15	6.1-7.3	0	0	0.0-2.0	0-2
	2-5	12-27	8.0-20	6.1-7.3	0	0	0.0-2.0	0-2
	5-13	12-27	8.0-20	6.1-7.3	0	0	0.0-2.0	0-2
	13-21	15-27	10-20	6.1-7.3	0	0	0.0-2.0	0-2
	21-60	---	---	---	---	---	---	---
Rock outcrop.								
Quinto gravelly sandy loam	0-6	10-20	10-20	6.6-7.8	1-2	0	0.0-2.0	0-3
	6-11	20-35	15-25	7.4-7.8	1-3	0	0.0-2.0	0-3
	11-17	20-35	15-25	7.4-7.8	3-5	0	0.0-2.0	0-3
	17-19	---	---	---	---	---	---	---
	19-20	---	---	---	---	---	---	---
714:								
Gaviota sandy loam	0-3	10-18	7.0-15	6.6-7.3	0	0	0.0-2.0	0-4
	3-10	10-18	6.0-12	6.6-7.3	0	0-1	0.0-2.0	0-6
	10-15	---	---	---	---	---	---	---
Borreguero sandy loam	0-2	12-20	10-20	6.1-7.3	0	0	0.0-2.0	0-4
	2-5	14-25	15-25	6.1-7.3	0-1	0	0.0-2.0	0-4
	5-11	14-23	15-25	6.6-7.3	0-1	0-1	0.0-2.0	0-4
	11-17	---	---	---	---	---	---	---
Rock outcrop.								
715:								
Belgarra clay	0-4	45-55	35-50	6.6-8.4	0-1	1-5	0.0-2.0	1-4
	4-10	45-55	35-50	6.6-8.4	0-1	1-5	0.0-4.0	1-8
	10-21	40-55	30-45	6.6-8.4	0-1	10-20	2.0-8.0	2-12
	21-32	40-55	25-40	5.1-8.4	0-1	10-20	4.0-16.0	5-12
	32-45	40-55	25-40	5.1-8.4	0-1	10-20	4.0-16.0	5-12
	45-72	40-50	25-40	5.1-8.4	0-1	5-10	4.0-16.0	5-12
Wisflat sandy loam	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
717:								
Belgarra clay-------------------------	0-4	45-55	35-50	6.6-8.4	0-1	1-5	0.0-2.0	1-4
	4-10	45-55	35-50	6.6-8.4	0-1	1-5	0.0-4.0	1-8
	10-21	40-55	30-45	6.6-8.4	0-1	10-20	2.0-8.0	2-12
	21-32	40-55	25-40	5.1-8.4	0-1	10-20	4.0-16.0	5-12
	32-45	40-55	25-40	5.1-8.4	0-1	10-20	4.0-16.0	5-12
	45-72	40-50	25-40	5.1-8.4	0-1	5-10	4.0-16.0	5-12
Arburua loam--------------------------	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---
Morenogulch parachannery silty clay---	0-3	40-55	40-50	4.5-5.5	0	0-5	0.0-2.0	0-2
	3-6	35-55	40-50	4.5-5.5	0	1-5	2.0-4.0	0-2
	6-10	35-55	40-50	3.5-5.0	0	2-5	0.0-4.0	0-2
	10-33	---	---	---	---	---	---	---
718:								
Nodhill loam--------------------------	0-10	18-27	12-20	7.9-8.4	2-5	0	0.0-2.0	2-7
	10-17	24-35	15-25	7.9-8.4	5-14	0-2	0.0-2.0	2-7
	17-28	18-32	12-20	7.9-8.4	5-14	0-2	0.0-2.0	2-7
	28-60	---	---	---	---	---	---	---
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Rock outcrop.								
719:								
Nodhill loam--------------------------	0-10	18-27	12-20	7.9-8.4	2-5	0	0.0-2.0	2-7
	10-17	24-35	15-25	7.9-8.4	5-14	0-2	0.0-2.0	2-7
	17-28	18-32	12-20	7.9-8.4	5-14	0-2	0.0-2.0	2-7
	28-60	---	---	---	---	---	---	---
Arburua loam--------------------------	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
720:								
Exclose clay loam---------------------	0-5	27-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	5-12	25-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	12-19	25-35	20-30	7.9-8.4	1-5	0	0.0-2.0	0-6
	19-29	25-35	20-30	7.9-8.4	2-7	0	0.0-2.0	0-6
	29-84	27-35	25-35	7.9-8.4	5-10	0-1	0.0-4.0	0-6
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Morenogulch parachannery silty clay---	0-3	40-55	40-50	4.5-5.5	0	0-5	0.0-2.0	0-2
	3-6	35-55	40-50	4.5-5.5	0	1-5	2.0-4.0	0-2
	6-10	35-55	40-50	3.5-5.0	0	2-5	0.0-4.0	0-2
	10-33	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
722:								
Exclose clay loam	0-5	27-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	5-12	25-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	12-19	25-35	20-30	7.9-8.4	1-5	0	0.0-2.0	0-6
	19-29	25-35	20-30	7.9-8.4	2-7	0	0.0-2.0	0-6
	29-84	27-35	25-35	7.9-8.4	5-10	0-1	0.0-4.0	0-6
Wisflat sandy loam	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Rock outcrop.								
723:								
Exclose clay loam	0-5	27-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	5-12	25-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	12-19	25-35	20-30	7.9-8.4	1-5	0	0.0-2.0	0-6
	19-29	25-35	20-30	7.9-8.4	2-7	0	0.0-2.0	0-6
	29-84	27-35	25-35	7.9-8.4	5-10	0-1	0.0-4.0	0-6
Wisflat sandy loam	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Grazer silty clay loam	0-4	30-40	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	4-11	40-50	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	11-34	40-55	30-45	7.9-8.4	2-5	0-1	0.0-2.0	1-10
	34-47	40-55	30-45	7.9-8.4	2-4	0-1	0.0-2.0	1-10
	47-80	---	---	---	---	---	---	---
725:								
Gewter clay	0-4	55-65	35-50	3.5-6.0	0	0-4	0.0-2.0	0-5
	4-13	60-65	40-50	3.5-5.0	0	1-4	0.0-2.0	0-5
	13-23	60-65	40-50	3.5-5.0	0	1-4	0.0-2.0	0-5
	23-30	---	---	---	---	---	---	---
727:								
Reliz, channery loam	0-3	20-27	7.0-10	4.5-5.5	0	0	0.0-2.0	0-2
	3-7	27-34	10-13	3.5-4.4	0	0	0.0-2.0	0-2
	7-15	30-35	11-14	3.5-4.4	0	0	0.0-2.0	0-2
	15-20	---	---	---	---	---	---	---
Gewter loam	0-1	---	---	5.1-6.0	0	0	0	0
	1-6	20-27	6.0-10	3.5-5.0	0	0	0.0-2.0	0-2
	6-13	27-40	10-15	3.5-5.0	0	0	0.0-2.0	0-2
	13-25	40-60	15-22	3.5-5.0	0	0	0.0-2.0	0-2
	25-30	---	---	---	---	---	---	---
Rock outcrop.								
728:								
Climara clay	0-26	40-55	30-40	7.4-8.4	0-1	0	0.0-2.0	1-3
	26-36	45-60	35-45	7.9-8.4	0-2	0	0.0-2.0	1-5
	36-39	45-60	35-45	7.9-8.4	2-5	0	0.0-2.0	1-6
	39-40	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
733:								
Hentine very gravelly sandy loam------	0-2	10-20	15-30	6.6-7.8	0	0	0	0
	2-15	25-35	20-30	7.4-8.4	0	0	0	0
	15-18	25-35	20-30	7.4-8.4	0	0	0	0
	18-20	---	---	---	---	---	---	---
Climara clay--------------------------	0-26	40-55	30-40	7.4-8.4	0-1	0	0.0-2.0	1-3
	26-36	45-60	35-45	7.9-8.4	0-2	0	0.0-2.0	1-5
	36-39	45-60	35-45	7.9-8.4	2-5	0	0.0-2.0	1-6
	39-40	---	---	---	---	---	---	---
735:								
Getrail clay--------------------------	0-4	45-60	35-50	6.6-7.3	0	0	0.0-2.0	1-4
	4-15	45-60	35-50	6.6-7.3	0	0	0.0-2.0	1-6
	15-24	45-60	35-50	6.6-7.3	0	0	0.0-2.0	1-6
	24-36	45-60	30-45	7.9-8.4	0	0	0.0-2.0	1-6
	36-43	50-55	30-45	7.9-8.4	0-1	0	0.0-2.0	1-6
	43-48	---	---	---	---	---	---	---
Vernado sandy loam--------------------	0-6	14-20	10-15	5.6-7.3	0	0	0.0-2.0	0-3
	6-13	14-20	10-15	6.1-7.3	0	0	0.0-2.0	0-3
	13-22	14-20	10-15	6.1-7.3	0	0	0.0-2.0	0-5
	22-29	15-20	10-15	5.6-7.3	0	0	0.0-2.0	0-5
	29-32	---	---	---	---	---	---	---
Rock outcrop.								
737:								
Grazer silty clay loam----------------	0-4	30-40	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	4-11	40-50	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	11-34	40-55	30-45	7.9-8.4	2-5	0-1	0.0-2.0	1-10
	34-47	40-55	30-45	7.9-8.4	2-4	0-1	0.0-2.0	1-10
	47-80	---	---	---	---	---	---	---
Badland.								
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
738:								
Grazer silty clay loam----------------	0-4	30-40	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	4-11	40-50	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	11-34	40-55	30-45	7.9-8.4	2-5	0-1	0.0-2.0	1-10
	34-47	40-55	30-45	7.9-8.4	2-4	0-1	0.0-2.0	1-10
	47-80	---	---	---	---	---	---	---
Belgarra clay-------------------------	0-4	45-55	35-50	6.6-8.4	0-1	1-5	0.0-2.0	1-4
	4-10	45-55	35-50	6.6-8.4	0-1	1-5	0.0-4.0	1-8
	10-21	40-55	30-45	6.6-8.4	0-1	10-20	2.0-8.0	2-12
	21-32	40-55	25-40	5.1-8.4	0-1	10-20	4.0-16.0	5-12
	32-45	40-55	25-40	5.1-8.4	0-1	10-20	4.0-16.0	5-12
	45-72	40-50	25-40	5.1-8.4	0-1	5-10	4.0-16.0	5-12
Arburua loam--------------------------	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
739:								
Domengine loam------------------------	0-6	20-27	15-25	6.6-7.8	0-1	0	0.0-2.0	0-4
	6-17	20-29	15-25	6.6-7.8	0-1	0	0.0-2.0	1-6
	17-28	20-31	15-25	7.9-8.4	0-1	0	0.0-2.0	1-6
	28-39	20-31	15-25	7.9-8.4	5-10	0-1	0.0-2.0	1-6
	39-45	---	---	---	---	---	---	---
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Rock outcrop.								
740:								
Domengine loam------------------------	0-6	20-27	15-25	6.6-7.8	0-1	0	0.0-2.0	0-4
	6-17	20-29	15-25	6.6-7.8	0-1	0	0.0-2.0	1-6
	17-28	20-31	15-25	7.9-8.4	0-1	0	0.0-2.0	1-6
	28-39	20-31	15-25	7.9-8.4	5-10	0-1	0.0-2.0	1-6
	39-45	---	---	---	---	---	---	---
Lilten silty clay loam----------------	0-2	34-40	25-35	6.6-7.8	0-2	0	0.0-2.0	0-4
	2-8	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	8-18	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	18-28	35-50	25-35	6.1-8.4	1-2	0-1	0.0-2.0	0-4
	28-41	35-50	25-35	6.6-8.4	1-3	0-1	0.0-2.0	0-4
	41-60	---	---	---	---	---	---	---
Rock outcrop.								
741:								
Anela very gravelly sandy loam--------	0-7	5-10	8.0-12	5.6-7.3	0-1	0-1	0.0-2.0	0-1
	7-15	5-10	8.0-12	7.4-7.8	0-1	0-1	0.0-2.0	0-1
	15-22	5-10	8.0-12	7.4-8.4	1-2	0-1	0.0-2.0	0-1
	22-49	5-10	8.0-12	7.4-8.4	1-2	0-1	0.0-2.0	0-1
	49-65	4-7	4.0-6.0	7.9-9.0	1-4	0-1	0.0-2.0	0
Vernalis loam-------------------------	0-7	23-27	15-20	6.1-7.8	0	0	0.0-2.0	0-5
	7-28	27-32	17-20	6.6-7.8	0-2	0	0.0-2.0	0-5
	28-50	27-32	17-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	50-60	18-32	12-20	7.9-8.4	1-3	0-1	0.0-2.0	0-5
742:								
Millsholm clay loam-------------------	0-7	27-32	17-25	6.6-7.8	0	0	0.0-2.0	0-4
	7-13	30-35	18-25	6.6-7.8	0	0	0.0-2.0	0-4
	13-16	---	---	---	---	---	---	---
	16-19	---	---	---	---	---	---	---
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Lilten silty clay loam----------------	0-2	34-40	25-35	6.6-7.8	0-2	0	0.0-2.0	0-4
	2-8	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	8-18	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	18-28	35-50	25-35	6.1-8.4	1-2	0-1	0.0-2.0	0-4
	28-41	35-50	25-35	6.6-8.4	1-3	0-1	0.0-2.0	0-4
	41-60	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
743:								
Millsholm clay loam-------------------	0-7	27-32	17-25	6.6-7.8	0	0	0.0-2.0	0-4
	7-13	30-35	18-25	6.6-7.8	0	0	0.0-2.0	0-4
	13-16	---	---	---	---	---	---	---
	16-19	---	---	---	---	---	---	---
Borreguero sandy loam-----------------	0-2	12-20	10-20	6.1-7.3	0	0	0.0-2.0	0-4
	2-5	14-25	15-25	6.1-7.3	0-1	0	0.0-2.0	0-4
	5-11	14-23	15-25	6.6-7.3	0-1	0-1	0.0-2.0	0-4
	11-17	---	---	---	---	---	---	---
744:								
Lilten silty clay loam----------------	0-2	34-40	25-35	6.6-7.8	0-2	0	0.0-2.0	0-4
	2-8	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	8-18	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	18-28	35-50	25-35	6.1-8.4	1-2	0-1	0.0-2.0	0-4
	28-41	35-50	25-35	6.6-8.4	1-3	0-1	0.0-2.0	0-4
	41-60	---	---	---	---	---	---	---
Millsholm clay loam-------------------	0-7	27-32	17-25	6.6-7.8	0	0	0.0-2.0	0-4
	7-13	30-35	18-25	6.6-7.8	0	0	0.0-2.0	0-4
	13-16	---	---	---	---	---	---	---
	16-19	---	---	---	---	---	---	---
745:								
Grazer silty clay loam----------------	0-4	30-40	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	4-11	40-50	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	11-34	40-55	30-45	7.9-8.4	2-5	0-1	0.0-2.0	1-10
	34-47	40-55	30-45	7.9-8.4	2-4	0-1	0.0-2.0	1-10
	47-80	---	---	---	---	---	---	---
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Arburua loam--------------------------	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---
746:								
Rock outcrop, sandstone and shale.								
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Arburua loam--------------------------	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---
747:								
Lilten silty clay---------------------	0-2	34-40	25-35	6.6-7.8	0-2	0	0.0-2.0	0-4
	2-8	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	8-18	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	18-28	35-50	25-35	6.1-8.4	1-2	0-1	0.0-2.0	0-4
	28-41	35-50	25-35	6.6-8.4	1-3	0-1	0.0-2.0	0-4
	41-60	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
747:								
Grazer silty clay loam	0-4	30-40	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	4-11	40-50	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	11-34	40-55	30-45	7.9-8.4	2-5	0-1	0.0-2.0	1-10
	34-47	40-55	30-45	7.9-8.4	2-4	0-1	0.0-2.0	1-10
	47-80	---	---	---	---	---	---	---
Arburua loam	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---
748:								
Vaquero clay	0-3	40-60	30-50	6.6-7.8	0	0-2	0.0-2.0	0-8
	3-17	40-60	30-50	7.4-8.4	0-1	0-2	0.0-4.0	0-12
	17-25	40-60	30-50	7.4-8.4	1-3	0-2	2.0-4.0	4-12
	25-36	40-60	30-50	7.4-8.4	1-3	0-2	2.0-8.0	4-12
	36-40	---	---	---	---	---	---	---
Grazer silty clay loam	0-4	30-40	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	4-11	40-50	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	11-34	40-55	30-45	7.9-8.4	2-5	0-1	0.0-2.0	1-10
	34-47	40-55	30-45	7.9-8.4	2-4	0-1	0.0-2.0	1-10
	47-80	---	---	---	---	---	---	---
749:								
Grazer silty clay loam	0-4	30-40	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	4-11	40-50	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	11-34	40-55	30-45	7.9-8.4	2-5	0-1	0.0-2.0	1-10
	34-47	40-55	30-45	7.9-8.4	2-4	0-1	0.0-2.0	1-10
	47-80	---	---	---	---	---	---	---
Wisflat sandy loam	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Exclose clay loam	0-5	27-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	5-12	25-35	25-35	7.9-8.4	1-3	0	0.0-2.0	0-4
	12-19	25-35	20-30	7.9-8.4	1-5	0	0.0-2.0	0-6
	19-29	25-35	20-30	7.9-8.4	2-7	0	0.0-2.0	0-6
	29-84	27-35	25-35	7.9-8.4	5-10	0-1	0.0-4.0	0-6
750:								
Monvero sand	0-15	4-7	8.0-12	7.9-8.4	0-2	0	0.0-2.0	0-3
	15-31	4-7	8.0-12	7.9-8.4	1-3	0	0.0-2.0	0-3
	31-60	2-7	8.0-12	7.4-8.4	2-5	0	0.0-2.0	0-3
Monoridge fine sand	0-7	2-7	5.0-10	7.4-8.4	0-2	1-3	0.0-2.0	1-3
	7-25	2-10	5.0-10	7.4-8.4	1-2	5-10	2.0-4.0	1-3
	25-29	---	---	---	---	---	---	---
752:								
Cyvar loam	0-2	15-25	10-15	7.4-7.8	5-15	0-2	2.0-8.0	2-8
	2-7	20-27	15-20	7.4-7.8	10-20	0-2	0.0-2.0	1-6
	7-15	27-35	20-25	7.9-8.4	15-35	0-2	0.0-2.0	1-5
	15-34	---	---	---	30-60	1-2	---	---
	34-60	---	---	---	30-60	1-5	---	---
Nodhill loam	0-10	18-27	12-20	7.9-8.4	2-5	0	0.0-2.0	2-7
	10-17	24-35	15-25	7.9-8.4	5-14	0-2	0.0-2.0	2-7
	17-28	18-32	12-20	7.9-8.4	5-14	0-2	0.0-2.0	2-7
	28-60	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
753:								
Cyvar loam	0-2	15-25	10-15	7.4-7.8	5-15	0-2	2.0-8.0	2-8
	2-7	20-27	15-20	7.4-7.8	10-20	0-2	0.0-2.0	1-6
	7-15	27-35	20-25	7.9-8.4	15-35	0-2	0.0-2.0	1-5
	15-34	---	---	---	30-60	1-2	---	---
	34-60	---	---	---	30-60	1-5	---	---
Nodhill loam	0-10	18-27	12-20	7.9-8.4	2-5	0	0.0-2.0	2-7
	10-17	24-35	15-25	7.9-8.4	5-14	0-2	0.0-2.0	2-7
	17-28	18-32	12-20	7.9-8.4	5-14	0-2	0.0-2.0	2-7
	28-60	---	---	---	---	---	---	---
Pits, gypsiferous.								
755:								
Borreguero sandy loam	0-2	12-20	10-20	6.1-7.3	0	0	0.0-2.0	0-4
	2-5	14-25	15-25	6.1-7.3	0-1	0	0.0-2.0	0-4
	5-11	14-23	15-25	6.6-7.3	0-1	0-1	0.0-2.0	0-4
	11-17	---	---	---	---	---	---	---
Grazer silty clay loam	0-4	30-40	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	4-11	40-50	30-45	7.4-8.4	1-3	0-1	0.0-2.0	1-10
	11-34	40-55	30-45	7.9-8.4	2-5	0-1	0.0-2.0	1-10
	34-47	40-55	30-45	7.9-8.4	2-4	0-1	0.0-2.0	1-10
	47-80	---	---	---	---	---	---	---
Rock outcrop.								
757:								
Rock outcrop.								
Borreguero sandy loam	0-2	12-20	10-20	6.1-7.3	0	0	0.0-2.0	0-4
	2-5	14-25	15-25	6.1-7.3	0-1	0	0.0-2.0	0-4
	5-11	14-23	15-25	6.6-7.3	0-1	0-1	0.0-2.0	0-4
	11-17	---	---	---	---	---	---	---
758:								
Wisflat sandy loam	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---
Borreguero sandy loam	0-2	12-20	10-20	6.1-7.3	0	0	0.0-2.0	0-4
	2-5	14-25	15-25	6.1-7.3	0-1	0	0.0-2.0	0-4
	5-11	14-23	15-25	6.6-7.3	0-1	0-1	0.0-2.0	0-4
	11-17	---	---	---	---	---	---	---
Rock outcrop.								
761:								
Atravesada gravelly sandy loam	0-7	12-18	8.0-15	7.4-7.8	0	0	0.0-2.0	1-3
	7-15	18-25	12-20	7.4-7.8	0	0	1.0-2.0	2-4
	15-21	15-22	10-20	7.4-7.8	1-3	0	1.0-2.0	2-4
	21-60	---	---	---	4-10	---	---	---
765, 767:								
Atravesada sandy loam	0-0	---	---	5.6-6.5	0	0	0	0
	0-6	16-26	20-30	6.6-7.8	0	0	0	0
	6-12	20-34	15-22	6.6-7.8	0	0	0	0
	12-16	---	---	---	---	---	---	---
	16-27	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
765, 767:								
Pits, asbestos.								
769:								
Dumps-Pits, asbestos.								
770:								
Roacha silty clay loam----------------	0-4	30-40	20-30	6.6-7.8	0	0	0.0-2.0	0-4
	4-14	40-55	25-45	6.6-7.8	0	0	0.0-2.0	0-4
	14-22	40-55	25-40	6.6-7.8	0	0	0.0-2.0	0-4
	22-28	35-50	22-40	6.6-7.8	0-2	0-1	0.0-2.0	0-4
	28-37	---	---	---	---	---	---	---
Millsholm clay loam-------------------	0-7	27-32	17-25	6.6-7.8	0	0	0.0-2.0	0-4
	7-13	30-35	18-25	6.6-7.8	0	0	0.0-2.0	0-4
	13-16	---	---	---	---	---	---	---
	16-19	---	---	---	---	---	---	---
Lilten silty clay loam----------------	0-2	34-40	25-35	6.6-7.8	0-2	0	0.0-2.0	0-4
	2-8	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	8-18	35-50	25-35	6.6-7.8	1-2	0	0.0-2.0	0-4
	18-28	35-50	25-35	6.1-8.4	1-2	0-1	0.0-2.0	0-4
	28-41	35-50	25-35	6.6-8.4	1-3	0-1	0.0-2.0	0-4
	41-60	---	---	---	---	---	---	---
773:								
Hentine very gravelly sandy loam------	0-2	10-20	15-30	6.6-7.8	0	0	0	0
	2-15	25-35	20-30	7.4-8.4	0	0	0	0
	15-18	25-35	20-30	7.4-8.4	0	0	0	0
	18-20	---	---	---	---	---	---	---
Rock outcrop.								
774:								
Hentine very gravelly sandy loam------	0-2	10-20	15-30	6.6-7.8	0	0	0	0
	2-15	25-35	20-30	7.4-8.4	0	0	0	0
	15-18	25-35	20-30	7.4-8.4	0	0	0	0
	18-20	---	---	---	---	---	---	---
Franciscan gravelly sandy loam--------	0-5	10-20	8.0-15	6.1-7.3	0	0	0.0-2.0	0-2
	5-9	10-20	8.0-15	6.1-7.3	0	0	0.0-2.0	0-2
	9-15	20-35	15-25	6.1-7.3	0	0	0.0-2.0	0-2
	15-26	20-35	15-25	6.1-7.3	0	0	0.0-2.0	0-2
	26-31	---	---	---	---	---	---	---
Rock outcrop.								
782, 783:								
Vaquero clay--------------------------	0-3	40-60	30-50	6.6-7.8	0	0-2	0.0-2.0	0-8
	3-17	40-60	30-50	7.4-8.4	0-1	0-2	0.0-4.0	0-12
	17-25	40-60	30-50	7.4-8.4	1-3	0-2	2.0-4.0	4-12
	25-36	40-60	30-50	7.4-8.4	1-3	0-2	2.0-8.0	4-12
	36-40	---	---	---	---	---	---	---
Altamont clay-------------------------	0-9	40-50	30-40	6.6-7.3	0	0	0.1-2.0	1-7
	9-22	40-50	30-40	6.6-7.8	0	0	0.5-2.0	1-7
	22-31	40-50	30-40	7.9-8.4	1-2	0-1	0.5-2.0	1-7
	31-54	35-39	25-35	7.9-8.4	1-4	0-1	0.5-2.0	1-7
	54-60	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
817, 818, 819, 820:								
Arburua loam-------------------------	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---
822:								
Altamont clay------------------------	0-9	40-50	30-40	6.6-7.3	0	0	0.1-2.0	1-7
	9-22	40-50	30-40	6.6-7.8	0	0	0.5-2.0	1-7
	22-31	40-50	30-40	7.9-8.4	1-2	0-1	0.5-2.0	1-7
	31-54	35-39	25-35	7.9-8.4	1-4	0-1	0.5-2.0	1-7
	54-60	---	---	---	---	---	---	---
823:								
Ayar clay----------------------------	0-7	40-50	30-40	7.4-7.8	1-4	0-1	0.0-2.0	1-3
	7-16	40-50	30-40	7.4-8.4	1-4	0-1	0.0-2.0	1-3
	16-34	35-50	30-40	7.4-8.4	4-10	0-1	0.0-2.0	1-3
	34-59	35-50	30-40	7.4-8.4	2-10	0-1	0.0-2.0	1-3
	59-72	---	---	---	---	---	---	---
827:								
Ayar clay----------------------------	0-7	40-50	30-40	7.4-7.8	1-4	0-1	0.0-2.0	1-3
	7-16	40-50	30-40	7.4-8.4	1-4	0-1	0.0-2.0	1-3
	16-34	35-50	30-40	7.4-8.4	4-10	0-1	0.0-2.0	1-3
	34-59	35-50	30-40	7.4-8.4	2-10	0-1	0.0-2.0	1-3
	59-72	---	---	---	---	---	---	---
Arburua loam-------------------------	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---
834:								
Bapos clay loam----------------------	0-8	27-35	20-25	7.4-8.4	0-2	0-1	0.0-2.0	1-6
	8-33	42-55	30-40	7.9-8.4	5-15	0-1	0.0-2.0	2-7
	33-42	30-40	20-30	7.9-8.4	1-2	0-2	0.0-2.0	5-12
	42-60	30-40	20-30	7.4-8.4	1-2	5-20	2.0-4.0	3-12
835:								
Pedcat loam, eroded------------------	0-2	12-20	10-15	6.1-7.3	0	0	1.0-8.0	7-20
	2-5	12-20	10-15	7.4-7.8	0	0	1.0-8.0	7-20
	5-13	27-40	20-25	8.5-11.0	0-2	0	1.0-16.0	13-80
	13-28	35-50	25-35	8.5-11.0	0-2	0	1.0-16.0	13-80
	28-50	35-50	25-35	8.5-11.0	2-8	0	1.0-16.0	13-80
	50-60	20-35	15-25	8.5-11.0	2-8	0	1.0-16.0	13-80
842:								
Quinto gravelly sandy loam-----------	0-6	10-20	10-20	6.6-7.8	1-2	0	0.0-2.0	0-3
	6-11	20-35	15-25	7.4-7.8	1-3	0	0.0-2.0	0-3
	11-17	20-35	15-25	7.4-7.8	3-5	0	0.0-2.0	0-3
	17-19	---	---	---	---	---	---	---
	19-20	---	---	---	---	---	---	---
Millsholm clay loam------------------	0-7	27-32	17-25	6.6-7.8	0	0	0.0-2.0	0-4
	7-13	30-35	18-25	6.6-7.8	0	0	0.0-2.0	0-4
	13-16	---	---	---	---	---	---	---
	16-19	---	---	---	---	---	---	---
Rock outcrop.								

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
847:								
Carranza gravelly sandy loam----------	0-7	15-20	10-15	6.6-7.3	0	0	0.0-2.0	0-6
	7-14	15-20	10-15	6.6-7.3	0	0	0.0-2.0	0-6
	14-20	20-35	15-25	6.6-7.8	0	0	0.0-2.0	0-6
	20-25	20-35	15-25	6.6-7.8	0	0	0.0-2.0	0-6
	25-60	20-35	15-25	6.6-7.8	0-1	0	0.0-2.0	0-6
849:								
Chaqua loam---------------------------	0-6	18-25	15-20	7.4-8.4	5-10	0	0.0-2.0	0-4
	6-19	18-25	15-20	7.4-8.4	5-10	0	0.0-2.0	0-5
	19-25	20-27	15-20	7.4-8.4	10-15	0	0.0-2.0	0-5
	25-35	20-27	15-20	7.4-8.4	15-25	0	0.0-2.0	0-6
	35-47	20-27	15-20	7.4-8.4	15-25	0-1	0.0-2.0	0-6
	47-60	---	---	---	---	---	---	---
851, 852:								
Los Banos clay loam-------------------	0-2	27-35	30-35	7.4-7.8	1-3	0	0.0-2.0	0-3
	2-13	27-40	25-35	7.4-8.4	1-3	0	0.0-2.0	0-3
	13-20	35-50	25-40	7.9-8.4	15-30	0-1	0.0-2.0	0-5
	20-53	40-55	30-45	7.9-8.4	15-30	0-1	0.0-4.0	0-10
	53-60	35-50	25-40	7.9-8.4	15-25	0-1	0.0-4.0	0-10
853:								
Los Banos clay loam-------------------	0-2	27-35	30-35	7.4-7.8	1-3	0	0.0-2.0	0-3
	2-13	27-40	25-35	7.4-8.4	1-3	0	0.0-2.0	0-3
	13-20	35-50	25-40	7.9-8.4	15-30	0-1	0.0-2.0	0-5
	20-53	40-55	30-45	7.9-8.4	15-30	0-1	0.0-4.0	0-10
	53-60	35-50	25-40	7.9-8.4	15-25	0-1	0.0-4.0	0-10
Pleito gravelly clay loam-------------	0-2	27-35	25-30	7.4-8.4	0-2	0	0.0-2.0	0-5
	2-9	27-35	25-30	7.9-8.4	0-2	0-1	0.0-2.0	0-5
	9-17	20-35	20-30	7.9-8.4	1-5	0-1	0.0-4.0	0-7
	17-22	20-35	20-30	7.9-8.4	3-7	0-1	0.0-4.0	0-7
	22-27	20-35	20-30	7.9-8.4	3-7	0-1	0.0-4.0	0-7
	27-60	20-30	20-25	7.9-8.4	2-7	0-1	0.0-4.0	0-7
855:								
Pleito gravelly clay loam-------------	0-2	27-35	25-30	7.4-8.4	0-2	0	0.0-2.0	0-5
	2-9	27-35	25-30	7.9-8.4	0-2	0-1	0.0-2.0	0-5
	9-17	20-35	20-30	7.9-8.4	1-5	0-1	0.0-4.0	0-7
	17-22	20-35	20-30	7.9-8.4	3-7	0-1	0.0-4.0	0-7
	22-27	20-35	20-30	7.9-8.4	3-7	0-1	0.0-4.0	0-7
	27-60	20-30	20-25	7.9-8.4	2-7	0-1	0.0-4.0	0-7
863:								
Vernalis loam-------------------------	0-7	23-27	15-20	6.1-7.8	0	0	0.0-2.0	0-5
	7-28	27-32	17-20	6.6-7.8	0-2	0	0.0-2.0	0-5
	28-50	27-32	17-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	50-60	18-32	12-20	7.9-8.4	1-3	0-1	0.0-2.0	0-5
865:								
Conosta clay loam---------------------	0-5	27-35	20-25	6.6-7.8	0	0	0.0-2.0	0-2
	5-14	40-45	25-30	7.4-7.8	0	0	0.0-2.0	0-3
	14-19	40-45	25-30	7.4-7.8	0	0	0.0-2.0	0-3
	19-27	40-45	25-30	7.4-8.4	1-6	0	0.0-2.0	0-5
	27-32	35-40	25-30	7.4-8.4	1-6	0	0.0-2.0	0-5
	32-40	---	---	---	---	---	---	---
870, 871:								
Wisflat sandy loam--------------------	0-6	5-18	3.0-12	6.6-8.4	0-3	0-1	0.0-2.0	0-5
	6-14	5-18	3.0-12	7.4-8.4	1-4	0-1	0.0-2.0	0-5
	14-16	---	---	---	---	---	---	---
	16-20	---	---	---	---	---	---	---

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
870, 871:								
Rock outcrop.								
Arburua loam	0-10	18-27	12-17	6.6-8.4	1-4	0-1	0.0-2.0	0-5
	10-27	18-30	12-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	27-32	---	---	---	---	---	---	---
	32-40	---	---	---	---	---	---	---
872:								
Vernalis loam	0-7	23-27	15-20	6.1-7.8	0	0	0.0-2.0	0-5
	7-28	27-32	17-20	6.6-7.8	0-2	0	0.0-2.0	0-5
	28-50	27-32	17-20	7.9-8.4	2-5	0-1	0.0-2.0	0-5
	50-60	18-32	12-20	7.9-8.4	1-3	0-1	0.0-2.0	0-5
873:								
Narbaitz loam	0-3	15-27	15-25	6.1-7.3	0	0	0.0-2.0	0-6
	3-9	20-27	15-25	6.1-7.3	0	0	0.0-2.0	0-6
	9-22	50-65	30-50	7.4-8.4	0-1	0	0.0-2.0	0-6
	22-38	35-45	23-35	7.4-8.4	3-10	0	2.0-4.0	2-8
	38-60	20-35	14-30	7.4-8.4	2-4	0	2.0-4.0	2-6
Pleito gravelly clay loam	0-2	27-35	25-30	7.4-8.4	0-2	0	0.0-2.0	0-5
	2-9	27-35	25-30	7.9-8.4	0-2	0-1	0.0-2.0	0-5
	9-17	20-35	20-30	7.9-8.4	1-5	0-1	0.0-4.0	0-7
	17-22	20-35	20-30	7.9-8.4	3-7	0-1	0.0-4.0	0-7
	22-27	20-35	20-30	7.9-8.4	3-7	0-1	0.0-4.0	0-7
	27-60	20-30	20-25	7.9-8.4	2-7	0-1	0.0-4.0	0-7
940:								
Milham sandy loam, organic surface	0-4	---	30-60	7.9-9.0	0	0	2.0-4.0	13-40
	4-6	15-20	10-30	7.9-9.0	1-3	0	2.0-4.0	13-40
	6-12	15-20	10-15	7.9-9.0	1-3	0-1	0.0-2.0	1-8
	12-22	22-35	14-25	7.9-8.4	1-3	0-1	0.0-2.0	1-8
	22-37	22-35	14-25	7.9-8.4	3-8	0-1	0.0-4.0	1-12
	37-66	6-15	4.0-10	7.9-8.4	3-5	0-1	0.0-4.0	1-8
Polvadero sandy loam, organic surface	0-4	---	30-60	7.9-9.0	0	0	2.0-4.0	13-40
	4-6	6-18	10-30	7.9-9.0	0-7	0	2.0-4.0	13-40
	6-13	6-18	5.0-15	7.9-9.0	0-7	0-2	0.0-2.0	0-8
	13-18	6-18	5.0-15	7.9-8.4	1-7	0-2	1.0-2.0	1-8
	18-36	18-30	12-20	7.9-9.0	15-30	0-2	1.0-2.0	13-50
	36-58	18-30	12-20	7.9-9.0	5-15	0-2	1.0-2.0	13-50
	58-66	6-25	5.0-15	7.9-9.0	1-10	0-2	1.0-2.0	8-50
941:								
Bisgani loamy sand	0-10	1-10	5.0-10	6.1-7.8	0	0	0.0-2.0	0-4
	10-13	1-10	5.0-10	6.1-7.8	0	0	0.0-2.0	0-4
	13-60	1-10	2.0-6.0	6.1-7.8	0	0	0.0-2.0	0-4
Elnido sandy loam	0-14	10-18	10-15	6.1-7.3	0	0	1.0-2.0	1-10
	14-32	5-18	5.0-15	6.6-7.8	0	0	1.0-2.0	3-12
	32-40	5-18	5.0-15	7.4-7.8	1-3	0	1.0-4.0	5-20
	40-53	5-18	5.0-15	6.6-7.8	0	0	1.0-4.0	5-20
	53-60	1-8	1.0-5.0	6.6-7.3	0	0	1.0-2.0	5-12
950:								
Pits, gravel.								
960:								
Excelsior sandy loam, sandy substratum	0-7	5-18	5.0-15	7.4-8.4	1-2	0	0.0-4.0	0-10
	7-23	5-18	5.0-15	7.4-8.4	1-2	0	0.0-4.0	0-10
	23-53	5-18	5.0-20	7.9-8.4	1-3	0-1	0.0-4.0	0-10
	53-72	3-10	5.0-10	7.9-8.4	1-2	0	0.0-4.0	0-10

Table 27.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	dS/m	
960:								
Westhaven loam	0-7	18-27	15-25	7.4-8.4	1-2	0	0.0-2.0	0-8
	7-17	18-27	15-25	7.4-8.4	1-2	0	0.0-2.0	0-8
	17-42	20-35	15-30	7.9-8.4	1-4	0-1	0.0-4.0	0-12
	42-65	3-35	5.0-30	7.9-8.4	1-4	0-1	0.0-4.0	0-12
	65-72	20-35	15-30	7.9-8.4	1-2	0-1	0.0-4.0	0-12
980. Urban land.								
981. Sewage disposal ponds.								
982. Water.								

Table 28.--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	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
101:									
Armona loam, partially drained	C								
		January	5.0-6.0	>6.0	---	---	None	Brief	Rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Rare
107:									
Anela very gravelly sandy loam	A								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
115:									
Bolfar loam, drained	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
120:									
Altaslough clay loam	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
130:									
Gepford clay	D								
		January	5.0-6.0	>6.0	---	---	None	Brief	Rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Rare
282:									
Tachi clay	D								
		January	5.0-6.0	>6.0	---	---	None	Brief	Rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
284:									
Lillis clay	D								
		January	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Very rare
285:									
Tranquillity clay, saline-sodic	D								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
Tranquillity clay, saline-sodic, wet	D								
		January	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Very rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
286:									
Tranquillity clay, saline-sodic, wet-----	D								
		January	5.0-6.0	>6.0	---	---	None	Brief	Rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Rare
311:									
Bisgani sandy loam, drained--------------	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
320:									
Elnido sandy loam, drained---------------	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
325:									
Palazzo sandy loam, drained--------------	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
375:									
Lethent silt loam	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
376:									
Agnal silty clay	D								
		January	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		February	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		March	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		April	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		May	4.0-6.0	>6.0	---	---	None	Brief	Very rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Very rare
404:									
Milham sandy loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Guijarral sandy loam	B								
		Jan-Dec	---	---	---	---	None	---	None
405:									
Polvadero sandy loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Guijarral sandy loam	B								
		Jan-Dec	---	---	---	---	None	---	None
406:									
Guijarral sandy loam	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--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				
412:									
Yribarren clay loam	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
414:									
Dospalos clay loam, drained	D								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
415:									
Dospalos clay, drained	D								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
425, 426:									
Kimberlina sandy loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
434:									
Lethent clay loam, wet	C								
		January	5.0-6.0	>6.0	---	---	None	Brief	Rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Rare
435:									
Lethent clay loam	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
436:									
Panoche loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
437:									
Panoche sandy loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
438:									
Panoche loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
442:									
Panoche clay loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
445:									
Excelsior sandy loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
447:									
Excelsior sandy loam, sandy substratum	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare

Table 28.--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				
448:									
Excelsior loamy sand, sandy substratum, eroded	A								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
451:									
Milham sandy loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
452, 453:									
Milham sandy loam	B								
		Jan-Dec	---	---	---	---	None	---	None
454:									
Polvadero sandy loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
455:									
Polvadero sandy loam	B								
		Jan-Dec	---	---	---	---	None	---	None
459:									
Ciervo clay	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
461:									
Ciervo clay, saline-sodic, wet-----------	D								
		January	5.0-6.0	>6.0	---	---	None	Brief	Rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Rare
462:									
Ciervo clay, saline-sodic, wet-----------	D								
		January	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Very rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Very rare
Ciervo clay, saline-sodic----------------	D								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
466:									
Paver clay loam--------------------------	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic 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				
468:									
Deldota clay, partially drained----------	D								
		January	3.5-5.0	>6.0	---	---	None	Brief	Very rare
		February	3.5-5.0	>6.0	---	---	None	Brief	Very rare
		March	3.5-5.0	>6.0	---	---	None	Brief	Very rare
		April	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		May	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	3.5-5.0	>6.0	---	---	None	Brief	Very rare
470:									
Chateau clay, partially drained----------	D								
		January	3.5-5.0	>6.0	---	---	None	Brief	Very rare
		February	3.5-5.0	>6.0	---	---	None	Brief	Very rare
		March	3.5-5.0	>6.0	---	---	None	Brief	Very rare
		April	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		May	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Very rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	3.5-5.0	>6.0	---	---	None	Brief	Very rare
472:									
Wekoda clay, partially drained-----------	D								
		January	1.5-2.5	>6.0	---	---	None	Brief	Very rare
		February	1.5-2.5	>6.0	---	---	None	Brief	Very rare
		March	1.5-2.5	>6.0	---	---	None	Brief	Very rare
		April	2.5-6.0	>6.0	---	---	None	Brief	Very rare
		May	2.5-6.0	>6.0	---	---	None	Brief	Very rare
		June	2.5-6.0	>6.0	---	---	None	Brief	Very rare
		July	2.5-6.0	>6.0	---	---	None	---	---
		August	2.5-6.0	>6.0	---	---	None	---	---
		September	2.5-6.0	>6.0	---	---	None	---	---
		October	2.5-6.0	>6.0	---	---	None	---	---
		November	2.5-6.0	>6.0	---	---	None	---	---
		December	1.5-2.5	>6.0	---	---	None	Brief	Very rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
474:									
Westhaven loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
475:									
Posochanet clay loam, saline-sodic, wet	C								
		January	5.0-6.0	>6.0	---	---	None	Brief	Rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Rare
476:									
Posochanet clay loam, saline-sodic	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
477:									
Westhaven clay loam	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
478:									
Cerini sandy loam	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
479:									
Cerini clay loam	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
480:									
Calflax clay loam, saline-sodic	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
481:									
Cerini clay loam	C								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare

Table 28.--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				
482:									
Calflax clay loam, saline-sodic, wet-----	C								
		January	5.0-6.0	>6.0	---	---	None	Brief	Rare
		February	4.0-5.0	>6.0	---	---	None	Brief	Rare
		March	4.0-5.0	>6.0	---	---	None	Brief	Rare
		April	4.0-5.0	>6.0	---	---	None	Brief	Rare
		May	4.0-5.0	>6.0	---	---	None	Brief	Rare
		June	5.0-6.0	>6.0	---	---	None	Brief	Rare
		July	5.0-6.0	>6.0	---	---	None	---	---
		August	5.0-6.0	>6.0	---	---	None	---	---
		September	5.0-6.0	>6.0	---	---	None	---	---
		October	5.0-6.0	>6.0	---	---	None	---	---
		November	5.0-6.0	>6.0	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Brief	Rare
488, 489:									
Wasco sandy loam-------------------------	B								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
490:									
Cerini sandy loam, subsided--------------	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
491:									
Cerini clay loam, subsided---------------	C								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare

Table 28.--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				
492:									
Panoche loam, subsided	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
493:									
Panoche clay loam, subsided	C								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
587, 588:									
Mugatu fine sandy loam	B								
		Jan-Dec	---	---	---	---	None	---	None
590:									
Cerini sandy loam	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
Anela very gravelly sandy loam	A								
		January	5.0-6.0	>6.0	---	---	None	Brief	Occasional
		February	5.0-6.0	>6.0	---	---	None	Brief	Occasional
		March	5.0-6.0	>6.0	---	---	None	Brief	Occasional
		April	5.0-6.0	>6.0	---	---	None	Brief	Occasional
		May	5.0-6.0	>6.0	---	---	None	Brief	Occasional
		June	5.0-6.0	>6.0	---	---	None	Brief	Occasional
		December	5.0-6.0	>6.0	---	---	None	Brief	Occasional

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic 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				
590:									
Fluvaquents, saline-sodic	D								
		January	0.5-2.5	>6.0	---	---	None	Long	Frequent
		February	0.5-2.5	>6.0	---	---	None	Long	Frequent
		March	0.5-2.5	>6.0	---	---	None	Long	Frequent
		April	0.5-2.5	>6.0	---	---	None	Long	Frequent
		May	0.5-2.5	>6.0	---	---	None	Long	Frequent
		June	0.5-2.5	>6.0	---	---	None	Long	Frequent
		July	0.5-2.5	>6.0	---	---	None	---	---
		August	0.5-2.5	>6.0	---	---	None	---	---
		September	0.5-2.5	>6.0	---	---	None	---	---
		October	0.5-2.5	>6.0	---	---	None	---	---
		November	0.5-2.5	>6.0	---	---	None	---	---
		December	0.5-2.5	>6.0	---	---	None	Long	Frequent
620, 621:									
Delgado sandy loam, eroded	D								
		Jan-Dec	---	---	---	---	None	---	None
640:									
Kettleman clay loam, eroded	C								
		Jan-Dec	---	---	---	---	None	---	None
Delgado sandy loam, eroded	D								
		Jan-Dec	---	---	---	---	None	---	None
Mercey loam, eroded	C								
		Jan-Dec	---	---	---	---	None	---	None
641:									
Mercey loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Delgado sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Kettleman clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
642:									
Mercey loam, eroded	C								
		Jan-Dec	---	---	---	---	None	---	None
Delgado sandy loam, eroded	D								
		Jan-Dec	---	---	---	---	None	---	None
Kettleman clay loam, eroded	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
643:									
Mercey loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Delgado sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Kettleman clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
644:									
Mercey loam, eroded	C								
		Jan-Dec	---	---	---	---	None	---	None
Kettleman clay loam, eroded	C								
		Jan-Dec	---	---	---	---	None	---	None
Delgado sandy loam, eroded	D								
		Jan-Dec	---	---	---	---	None	---	None
645:									
Delgado sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Mercey loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Kettleman clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
670:									
Badland	D								
		Jan-Dec	---	---	---	---	None	---	None
Kettleman clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Mercey loam	C								
		Jan-Dec	---	---	---	---	None	---	None
680:									
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Morenogulch parachannery silty clay	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--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				
704:									
Franciscan gravelly sandy loam	C								
		Jan-Dec	---	---	---	---	None	---	None
705:									
Roacha silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
706:									
Sagaser loam	B								
		Jan-Dec	---	---	---	---	None	---	None
709:									
Sagaser loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Gaviota sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Borreguero sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
710:									
Monoridge fine sand	B								
		Jan-Dec	---	---	---	---	None	---	None
Exclose clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Badland	D								
		Jan-Dec	---	---	---	---	None	---	None
711:									
Currymountain loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Borreguero sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
712:									
Altamont clay	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--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				
712:									
Roacha silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Borreguero sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
713:									
Currymountain loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Quinto gravelly sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
714:									
Gaviota sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Borreguero sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
715:									
Belgarra clay	C								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
717:									
Belgarra clay	C								
		Jan-Dec	---	---	---	---	None	---	None
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Morenogulch parachannery silty clay	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
718:									
Nodhill loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
719:									
Nodhill loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
720:									
Exclose clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Morenogulch parachannery silty clay	D								
		Jan-Dec	---	---	---	---	None	---	None
722:									
Exclose clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
723:									
Exclose clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--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				
723:									
Grazer silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
725:									
Gewter clay	D								
		Jan-Dec	---	---	---	---	None	---	None
727:									
Reliz channery loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Gewter loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
728:									
Climara clay	D								
		Jan-Dec	---	---	---	---	None	---	None
733:									
Hentine very gravelly sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Climara clay	D								
		Jan-Dec	---	---	---	---	None	---	None
735:									
Getrail clay	D								
		Jan-Dec	---	---	---	---	None	---	None
Vernado sandy loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
737:									
Grazer silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Badland	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--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				
737:									
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
738:									
Grazer silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Belgarra clay	C								
		Jan-Dec	---	---	---	---	None	---	None
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
739:									
Domengine loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
740:									
Domengine loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Lilten silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
741:									
Anela very gravelly sandy loam	A								
		January	5.0-6.0	>6.0	---	---	None	Long	Occasional
		February	5.0-6.0	>6.0	---	---	None	Long	Occasional
		March	5.0-6.0	>6.0	---	---	None	Long	Occasional
		April	5.0-6.0	>6.0	---	---	None	Long	Occasional
		May	5.0-6.0	>6.0	---	---	None	Long	Occasional
		June	5.0-6.0	>6.0	---	---	None	Long	Occasional
		July	---	---	---	---	None	---	---
		August	---	---	---	---	None	---	---
		September	---	---	---	---	None	---	---
		October	---	---	---	---	None	---	---
		November	---	---	---	---	None	---	---
		December	5.0-6.0	>6.0	---	---	None	Long	Occasional

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
741:									
Vernalis loam	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		July	---	---	---	---	None	---	---
		August	---	---	---	---	None	---	---
		September	---	---	---	---	None	---	---
		October	---	---	---	---	None	---	---
		November	---	---	---	---	None	---	---
		December	---	---	---	---	None	Brief	Rare
742:									
Millsholm clay loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Lilten silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
743:									
Millsholm clay loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Borreguero sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
744:									
Lilten silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Millsholm clay loam	D								
		Jan-Dec	---	---	---	---	None	---	None
745:									
Grazer silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
745:									
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
746:									
Rock outcrop, sandstone and shale	D								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
747:									
Lilten silty clay	C								
		Jan-Dec	---	---	---	---	None	---	None
Grazer silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
748:									
Vaquero clay	D								
		Jan-Dec	---	---	---	---	None	---	None
Grazer silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
749:									
Grazer silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Exclose clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
750:									
Monvero sand	A								
		Jan-Dec	---	---	---	---	None	---	None
Monoridge fine sand	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
752:									
Cyvar loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Nodhill loam	B								
		Jan-Dec	---	---	---	---	None	---	None
753:									
Cyvar loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Nodhill loam	B								
		Jan-Dec	---	---	---	---	None	---	None
Pits, gypsiferous	D								
		January	---	---	0.1-0.3	Brief	Occasional	---	None
		February	---	---	0.1-0.3	Brief	Occasional	---	None
		March	---	---	0.1-0.3	Brief	Occasional	---	None
		April	---	---	0.1-0.3	Brief	Occasional	---	None
		May	---	---	0.1-0.3	Brief	Occasional	---	None
		December	---	---	0.1-0.3	Brief	Occasional	---	None
755:									
Borreguero sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Grazer silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
757:									
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Borreguero sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
758:									
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Borreguero sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic 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				
758:									
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
761:									
Atravesada gravelly sandy loam	C								
		Jan-Dec	---	---	---	---	None	---	None
765, 767:									
Atravesada sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Pits, asbestos	D								
		Jan-Dec	---	---	---	---	None	---	None
769:									
Dumps, asbestos	B								
		Jan-Dec	---	---	---	---	None	---	None
Pits, asbestos	D								
		Jan-Dec	---	---	---	---	None	---	None
770:									
Roacha silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Millsholm clay loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Lilten silty clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
773:									
Hentine very gravelly sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
774:									
Hentine very gravelly sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Franciscan gravelly sandy loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
782, 783:									
Vaquero clay	D								
		Jan-Dec	---	---	---	---	None	---	None
Altamont clay	D								
		Jan-Dec	---	---	---	---	None	---	None
817, 818, 819, 820:									
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
822:									
Altamont clay	D								
		Jan-Dec	---	---	---	---	None	---	None
823:									
Ayar clay	D								
		Jan-Dec	---	---	---	---	None	---	None
827:									
Ayar clay	D								
		Jan-Dec	---	---	---	---	None	---	None
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
834:									
Bapos clay loam	D								
		Jan-Dec	---	---	---	---	None	---	None
835:									
Pedcat loam, eroded	D								
		January	---	---	0.1-0.3	Long	Frequent	Very brief	Occasional
		February	---	---	0.1-0.3	Long	Frequent	Very brief	Occasional
		March	---	---	0.1-0.3	Long	Frequent	Very brief	Occasional
		April	---	---	0.1-0.3	Long	Frequent	Very brief	Occasional
		May	---	---	0.1-0.3	Long	Frequent	Very brief	Occasional
		June	---	---	0.1-0.3	Long	Frequent	Very brief	Occasional
		July	---	---	---	---	---	---	---
		August	---	---	---	---	---	---	---
		September	---	---	---	---	---	---	---
		October	---	---	---	---	---	---	---
		November	---	---	---	---	---	---	---
		December	---	---	0.1-0.3	Long	Frequent	Very brief	Occasional

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
842:									
Quinto gravelly sandy loam	D	Jan-Dec	---	---	---	---	None	---	None
Millsholm clay loam	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
847:									
Carranza gravelly sandy loam	B	Jan-Dec	---	---	---	---	None	---	None
849:									
Chaqua loam	B	Jan-Dec	---	---	---	---	None	---	None
851, 852:									
Los Banos clay loam	C	Jan-Dec	---	---	---	---	None	---	None
853:									
Los Banos clay loam	C	Jan-Dec	---	---	---	---	None	---	None
Pleito gravelly clay loam	C	Jan-Dec	---	---	---	---	None	---	None
855:									
Pleito gravelly clay loam	C	Jan-Dec	---	---	---	---	None	---	None
863:									
Vernalis loam	B	January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		July	---	---	---	---	None	---	---
		August	---	---	---	---	None	---	---
		September	---	---	---	---	None	---	---
		October	---	---	---	---	None	---	---
		November	---	---	---	---	None	---	---
		December	---	---	---	---	None	Brief	Rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
865:									
Conosta clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
870, 871:									
Wisflat sandy loam	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Arburua loam	B								
		Jan-Dec	---	---	---	---	None	---	None
872:									
Vernalis loam	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
873:									
Narbaitz loam	C								
		Jan-Dec	---	---	---	---	None	---	None
Pleito gravelly clay loam	C								
		Jan-Dec	---	---	---	---	None	---	None
940:									
Milham sandy loam, organic surface	D								
		Jan-Dec	---	---	---	---	None	---	None
Polvadero sandy loam, organic surface	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
941:									
Bisgani loamy sand	C								
		January	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		February	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		March	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		April	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		May	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		June	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		July	0.5-6.0	>6.0	---	---	None	---	---
		August	0.5-6.0	>6.0	---	---	None	---	---
		September	0.5-6.0	>6.0	---	---	None	---	---
		October	0.5-6.0	>6.0	---	---	None	---	---
		November	0.5-6.0	>6.0	---	---	None	---	---
		December	0.5-6.0	>6.0	---	---	None	Very long	Frequent
Elnido sandy loam	C								
		January	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		February	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		March	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		April	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		May	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		June	0.5-6.0	>6.0	---	---	None	Very long	Frequent
		July	0.5-6.0	>6.0	---	---	None	---	---
		August	0.5-6.0	>6.0	---	---	None	---	---
		September	0.5-6.0	>6.0	---	---	None	---	---
		October	0.5-6.0	>6.0	---	---	None	---	---
		November	0.5-6.0	>6.0	---	---	None	---	---
		December	0.5-6.0	>6.0	---	---	None	Very long	Frequent
950:									
Pits, gravel	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare

Table 28.--Water Features--Continued

Map symbol and soil name	Hydrologic 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				
960:									
Excelsior sandy loam, sandy substratum---	B								
		January	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		February	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		March	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		April	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		May	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		June	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		July	---	---	---	---	---	---	---
		August	---	---	---	---	---	---	---
		September	---	---	---	---	---	---	---
		October	---	---	---	---	---	---	---
		November	---	---	---	---	---	---	---
		December	---	---	0.5-4.0	Brief	Occasional	Long	Occasional
Westhaven loam---------------------------	B								
		January	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		February	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		March	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		April	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		May	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		June	---	---	0.5-4.0	Very long	Occasional	Long	Occasional
		July	---	---	---	---	---	---	---
		August	---	---	---	---	---	---	---
		September	---	---	---	---	---	---	---
		October	---	---	---	---	---	---	---
		November	---	---	---	---	---	---	---
		December	---	---	0.5-4.0	Brief	Occasional	Long	Occasional
980:									
Urban land-------------------------------	D								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare

Table 28.--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				
981:									
Sewage disposal ponds	---								
		January	---	---	---	---	None	Brief	Very rare
		February	---	---	---	---	None	Brief	Very rare
		March	---	---	---	---	None	Brief	Very rare
		April	---	---	---	---	None	Brief	Very rare
		May	---	---	---	---	None	Brief	Very rare
		June	---	---	---	---	None	Brief	Very rare
		December	---	---	---	---	None	Brief	Very rare
W.									
Water.									

Table 29.--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				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
101:									
Armona loam, partially drained	---	---	---	---	0	0	None	High	High
107:									
Anela very gravelly sandy loam	Dense material	40-60	---	Strongly cemented	0	0	None	Moderate	Low
115:									
Bolfar loam, drained	---	---	---	---	0	0	None	High	Moderate
120:									
Altaslough clay loam	---	---	---	---	0	0	None	High	High
130:									
Gepford clay	---	---	---	---	0	0	None	High	High
282:									
Tachi clay	---	---	---	---	0	0	None	High	Moderate
284:									
Lillis clay	Salic horizon	20-35	---	Noncemented	0	0	None	High	High
285:									
Tranquillity clay, saline-sodic	---	---	---	---	0	0	None	High	High
Tranquillity clay, saline-sodic, wet	---	---	---	---	0	0	None	High	High
286:									
Tranquillity clay, saline-sodic, wet	---	---	---	---	0	0	None	High	High
311:									
Bisgani sandy loam, drained	---	---	---	---	0	0	None	High	Low
320:									
Elnido sandy loam, drained	---	---	---	---	0	0	None	High	Low
325:									
Palazzo sandy loam, drained	---	---	---	---	0	0	None	High	Low
375:									
Lethent silt loam	Natric horizon Salic horizon	4-10 15-25	23-35	Noncemented	0	0	None	High	High
376:									
Agnal silty clay	Salic horizon	6-34	6-54	Noncemented	0	0	None	High	High

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
404:									
Milham sandy loam	---	---	---	---	0	0	None	High	Low
Guijarral sandy loam	---	---	---	---	0	0	None	High	Moderate
405:									
Polvadero sandy loam	Natric horizon	10-20	16-46	Noncemented	0	0	None	High	High
Guijarral sandy loam	---	---	---	---	0	0	None	High	Moderate
406:									
Guijarral sandy loam	---	---	---	---	0	0	None	High	Moderate
412:									
Yribarren clay loam	---	---	---	---	0	0	None	High	High
414:									
Dospalos clay loam, drained	---	---	---	---	0	0	None	High	Moderate
415:									
Dospalos clay, drained	---	---	---	---	0	0	None	High	Moderate
425, 426:									
Kimberlina sandy loam	---	---	---	---	0	0	None	High	Low
434:									
Lethent clay loam, wet	Natric horizon	20-39	16-40	Noncemented	0	0	None	High	High
435:									
Lethent clay loam	Natric horizon	20-39	16-40	Noncemented	0	0	None	High	High
436:									
Panoche loam	---	---	---	---	0	0	None	High	Moderate
437:									
Panoche sandy loam	---	---	---	---	0	0	None	High	Moderate
438:									
Panoche loam	---	---	---	---	0	0	None	High	Moderate
442:									
Panoche clay loam	---	---	---	---	0	0	None	High	Moderate
445:									
Excelsior sandy loam	---	---	---	---	0	0	None	High	Moderate
447:									
Excelsior sandy loam, sandy substratum	---	---	---	---	0	0	None	High	Moderate

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
448:									
Excelsior loamy sand, sandy substratum, eroded	---	---	---	---	0	0	None	High	Moderate
451, 452:									
Milham sandy loam	---	---	---	---	0	0	None	High	Low
453:									
Milham sandy loam	---	---	---	---	0	0	None	High	Moderate
454, 455:									
Polvadero sandy loam	Natric horizon	10-20	16-46	Noncemented	0	0	None	High	High
459:									
Ciervo clay	---	---	---	---	0	0	None	High	High
461:									
Ciervo clay, saline-sodic, wet	---	---	---	---	0	0	None	High	High
462:									
Ciervo clay, saline-sodic, wet	---	---	---	---	0	0	None	High	High
Ciervo clay, saline-sodic	---	---	---	---	0	0	None	High	High
466:									
Paver clay loam	---	---	---	---	0	0	None	High	Moderate
468:									
Deldota clay, partially drained	---	---	---	---	0	0	None	High	Moderate
470:									
Chateau clay, partially drained	---	---	---	---	0	0	None	High	High
472:									
Wekoda clay, partially drained	---	---	---	---	0	0	None	High	High
474:									
Westhaven loam	---	---	---	---	0	0	None	High	Moderate
475:									
Posochanet clay loam, saline-sodic, wet	---	---	---	---	0	0	None	High	High
476:									
Posochanet clay loam, saline-sodic	---	---	---	---	0	0	None	High	High
477:									
Westhaven clay loam	---	---	---	---	0	0	None	High	Moderate

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
478:									
Cerini sandy loam	---	---	---	---	0	0	None	High	Moderate
479:									
Cerini clay loam	---	---	---	---	0	0	None	High	Moderate
480:									
Calflax clay loam, saline-sodic	---	---	---	---	0	0	None	High	High
481:									
Cerini clay loam	---	---	---	---	0	0	None	High	Moderate
482:									
Calflax clay loam, saline-sodic, wet	---	---	---	---	0	0	None	High	High
488:									
Wasco sandy loam	---	---	---	---	0	0	None	High	Low
489:									
Wasco sandy loam	---	---	---	---	0	0	None	High	Moderate
490:									
Cerini sandy loam, subsided	---	---	---	---	0	0	None	High	Moderate
491:									
Cerini clay loam, subsided	---	---	---	---	0	0	None	High	Moderate
492:									
Panoche loam, subsided	---	---	---	---	0	0	None	High	Moderate
493:									
Panoche clay loam, subsided	---	---	---	---	0	0	None	High	Moderate
587, 588:									
Mugatu fine sandy loam	Strongly contrasting textural stratification	40-50	---	Noncemented	0	0	None	High	High
590:									
Cerini sandy loam	---	---	---	---	0	0	None	High	High
Anela very gravelly sandy loam	Dense material	40-60	---	Strongly cemented	0	0	None	Moderate	Moderate
Fluvaquents, saline-sodic	---	---	---	---	0	0	None	High	High
620, 621:									
Delgado sandy loam, eroded	Bedrock (lithic)	10-20	---	Indurated	0	0	None	High	Low

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
640:									
Kettleman clay loam, eroded	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Low
Delgado sandy loam, eroded	Bedrock (lithic)	10-20	---	Indurated	0	0	None	High	Low
Mercey loam, eroded	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
641:									
Mercey loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
Delgado sandy loam	Bedrock (lithic)	10-20	---	Indurated	0	0	None	High	Low
Kettleman clay loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Low
642:									
Mercey loam, eroded	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
Delgado sandy loam, eroded	Bedrock (lithic)	10-20	---	Indurated	0	0	None	High	Low
Kettleman clay loam, eroded	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Low
643:									
Mercey loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
Delgado sandy loam	Bedrock (lithic)	10-20	---	Indurated	0	0	None	High	Low
Kettleman clay loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Low
644:									
Mercey loam, eroded	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
Kettleman clay loam, eroded	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Low
Delgado sandy loam, eroded	Bedrock (lithic)	10-20	---	Indurated	0	0	None	High	Low
645:									
Delgado sandy loam	Bedrock (lithic)	10-20	---	Indurated	0	0	None	High	Low
Mercey loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
645:									
Kettleman clay loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Low
670:									
Badland	---	---	---	---	0	0	None	High	High
Kettleman clay loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
Mercey loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
680:									
Arburua loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
	Bedrock (lithic)	24-41		Strongly cemented					
Morenogulch parachannery silty clay	Bedrock (paralithic)	6-15	---	Moderately cemented	0	0	None	High	High
704:									
Franciscan gravelly sandy loam	Bedrock (lithic)	20-40	---	Strongly cemented	0	0	None	High	Low
705:									
Roacha silty clay loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
706:									
Sagaser loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	Moderate	Low
709:									
Sagaser loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	Moderate	Low
Gaviota sandy loam	Bedrock (lithic)	10-20	---	Strongly cemented	0	0	None	Moderate	Low
Borreguero sandy loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	Moderate	Low
710:									
Monoridge fine sand	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	High
Exclose clay loam	---	---	---	---	0	0	None	High	Moderate
Badland	---	---	---	---	0	0	None	High	High

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
711:									
Currymountain loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	Moderate	Low
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low
Borreguero sandy loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	Moderate	Low
712:									
Altamont clay	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Low
Roacha silty clay loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
Borreguero sandy loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	Moderate	Low
713:									
Currymountain loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	Moderate	Low
Rock outcrop.									
Quinto gravelly sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-18 12-20	---	Moderately cemented Very strongly cemented	0	0	None	Moderate	Low
714:									
Gaviota sandy loam	Bedrock (lithic)	10-20	---	Strongly cemented	0	0	None	Moderate	Low
Borreguero sandy loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	Moderate	Low
Rock outcrop.									
715:									
Belgarra clay	---	---	---	---	0	0	None	High	High
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
717:									
Belgarra clay	---	---	---	---	0	0	None	High	High
Arburua loam	Bedrock (paralithic) Bedrock (lithic)	20-40 24-41	---	Moderately cemented Strongly cemented	0	0	None	High	Moderate
Morenogulch parachannery silty clay	Bedrock (paralithic)	6-15	---	Moderately cemented	0	0	None	High	High
718:									
Nodhill loam	Bedrock (paralithic)	20-40	---	Weakly cemented	0	0	None	High	Moderate
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low
Rock outcrop.									
719:									
Nodhill loam	Bedrock (paralithic)	20-40	---	Weakly cemented	0	0	None	High	Moderate
Arburua loam	Bedrock (paralithic) Bedrock (lithic)	20-40 24-41	---	Moderately cemented Strongly cemented	0	0	None	High	Moderate
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low
720:									
Exclose clay loam	---	---	---	---	0	0	None	High	Moderate
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low
Morenogulch parachannery silty clay	Bedrock (paralithic)	6-15	---	Moderately cemented	0	0	None	High	High

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
722:									
Exclose clay loam	---	---	---	---	0	0	None	High	Moderate
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low
Rock outcrop.									
723:									
Exclose clay loam	---	---	---	---	0	0	None	High	Moderate
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low
Grazer silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
725:									
Gewter clay	Bedrock (paralithic)	20-30	---	Moderately cemented	0	0	None	High	High
727:									
Reliz channery loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	High	High
Gewter loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	High
Rock outcrop.									
728:									
Climara clay	Bedrock (lithic)	30-40	---	Very strongly cemented	0	0	None	High	Low
733:									
Hentine very gravelly sandy loam	Bedrock (lithic)	10-20	---	Very strongly cemented	0	0	None	High	Low
Climara clay	Bedrock (lithic)	30-40	---	Very strongly cemented	0	0	None	High	Low
735:									
Getrail clay	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
735:									
Vernado sandy loam	Bedrock (lithic)	25-35	---	Strongly cemented	0	0	None	High	Moderate
Rock outcrop.									
737:									
Grazer silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
Badland	---	---	---	---	0	0	None	---	---
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low
738:									
Grazer silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
Belgarra clay	---	---	---	---	0	0	None	High	High
Arburua loam	Bedrock (paralithic) Bedrock (lithic)	20-40 24-41	---	Moderately cemented Strongly cemented	0	0	None	High	Moderate
739:									
Domengine loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low
Rock outcrop.									
740:									
Domengine loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
Lilten silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
Rock outcrop.									
741:									
Anela very gravelly sandy loam	Dense material	40-60	---	Strongly cemented	0	0	None	High	Low
Vernalis loam	---	---	---	---	0	0	None	High	Low

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
742:									
Millsholm clay loam	Bedrock (paralithic)	10-19	---	Moderately cemented	0	0	None	Moderate	Moderate
	Bedrock (lithic)	11-20		Strongly cemented					
Wisflat sandy loam	Bedrock (paralithic)	10-19	---	Moderately cemented	0	0	None	High	Low
	Bedrock (lithic)	11-20		Very strongly cemented					
Lilten silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
743:									
Millsholm clay loam	Bedrock (paralithic)	10-19	---	Moderately cemented	0	0	None	Moderate	Moderate
	Bedrock (lithic)	11-20		Strongly cemented					
Borreguero sandy loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	Moderate	Low
744:									
Lilten silty clay loam	Bedrock (paralithic)	40-60	---	---	0	0	None	High	Moderate
Millsholm clay loam	Bedrock (paralithic)	10-19	---	Moderately cemented	0	0	None	Moderate	Moderate
	Bedrock (lithic)	11-20		Strongly cemented					
745:									
Grazer silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
Wisflat sandy loam	Bedrock (paralithic)	10-19	---	Moderately cemented	0	0	None	High	Low
	Bedrock (lithic)	11-20		Very strongly cemented					
Arburua loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
	Bedrock (lithic)	24-41		Strongly cemented					
746:									
Rock outcrop, sandstone and shale.									
Wisflat sandy loam	Bedrock (paralithic)	10-19	---	Moderately cemented	0	0	None	High	Low
	Bedrock (lithic)	11-20		Very strongly cemented					

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
746:									
Arburua loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
	Bedrock (lithic)	24-41		Strongly cemented					
747:									
Lilten silty clay	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
Grazer silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
Arburua loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
	Bedrock (lithic)	24-41		Strongly cemented					
748:									
Vaquero clay	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	High
Grazer silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
749:									
Grazer silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
Wisflat sandy loam	Bedrock (paralithic)	10-19	---	Moderately cemented	0	0	None	High	Low
	Bedrock (lithic)	11-20		Very strongly cemented					
Exclose clay loam	---	---	---	---	0	0	None	High	Moderate
750:									
Monvero sand	---	---	---	---	0	0	None	Moderate	Low
Monoridge fine sand	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	High
752:									
Cyvar loam	Duripan	10-20	---	Indurated	0	0	None	High	Moderate
Nodhill loam	Bedrock (paralithic)	20-40	---	Weakly cemented	0	0	None	High	Moderate

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
753:									
Cyvar loam	Duripan	10-20	---	Indurated	0	0	None	High	Moderate
Nodhill loam	Bedrock (paralithic)	20-40	---	Weakly cemented	0	0	None	High	Moderate
Pits, gypsiferous	---	---	---	---	0	0	None	High	High
755:									
Borreguero sandy loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	Moderate	Low
Grazer silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
Rock outcrop.									
757:									
Rock outcrop.									
Borreguero sandy loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	Moderate	Low
758:									
Wisflat sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Very strongly cemented	0	0	None	High	Low
Borreguero sandy loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	Moderate	Low
Rock outcrop.									
761:									
Atravesada gravelly sandy loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	Moderate	Low
765, 767:									
Atravesada sandy loam	Bedrock (paralithic)	10-20	---	Moderately cemented	0	0	None	Low	Low
Pits, asbestos	---	---	---	---	0	0	None	Low	Low
769:									
Dumps, asbestos	---	---	---	---	0	0	None	Low	Low
Pits, asbestos	---	---	---	---	0	0	None	Low	Low

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
770:									
Roacha silty clay loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
Millsholm clay loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Strongly cemented	0	0	None	Moderate	Moderate
Lilten silty clay loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Moderate
773:									
Hentine very gravelly sandy loam	Bedrock (lithic)	10-20	---	Very strongly cemented	0	0	None	High	Low
Rock outcrop.									
774:									
Hentine very gravelly sandy loam	Bedrock (lithic)	10-20	---	Very strongly cemented	0	0	None	High	Low
Franciscan gravelly sandy loam	Bedrock (lithic)	20-40	---	Strongly cemented	0	0	None	High	Low
Rock outcrop.									
782, 783:									
Vaquero clay	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	High
Altamont clay	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Low
817, 818, 819, 820:									
Arburua loam	Bedrock (paralithic) Bedrock (lithic)	20-40 24-41	---	Moderately cemented Strongly cemented	0	0	None	High	Moderate
822:									
Altamont clay	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Low
823:									
Ayar clay	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Low

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
827:									
Ayar clay	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	High	Low
Arburua loam	Bedrock (paralithic) Bedrock (lithic)	20-40 24-41	---	Moderately cemented Strongly cemented	0	0	None	High	Moderate
834:									
Bapos clay loam	---	---	---	---	0	0	None	High	High
835:									
Pedcat loam, eroded	Natric horizon	0-7	---	Noncemented	0	0	None	High	High
842:									
Quinto gravelly sandy loam	Bedrock (paralithic) Bedrock (lithic)	10-18 12-20	---	Moderately cemented Very strongly cemented	0	0	None	Moderate	Low
Millsholm clay loam	Bedrock (paralithic) Bedrock (lithic)	10-19 11-20	---	Moderately cemented Strongly cemented	0	0	None	Moderate	Moderate
Rock outcrop.									
847:									
Carranza gravelly sandy loam	---	---	---	---	0	0	None	Moderate	Low
849:									
Chaqua loam	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	None	Moderate	Low
851, 852:									
Los Banos clay loam	---	---	---	---	0	0	None	Moderate	Low
853:									
Los Banos clay loam	---	---	---	---	0	0	None	Moderate	Low
Pleito gravelly clay loam	---	---	---	---	0	0	None	High	Low
855:									
Pleito gravelly clay loam	---	---	---	---	0	0	None	High	Low
863:									
Vernalis loam	---	---	---	---	0	0	None	High	Low

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
865:									
Conosta clay loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Low
870, 871:									
Wisflat sandy loam	Bedrock (paralithic)	10-19	---	Moderately cemented	0	0	None	High	Low
	Bedrock (lithic)	11-20		Very strongly cemented					
Rock outcrop.									
Arburua loam	Bedrock (paralithic)	20-40	---	Moderately cemented	0	0	None	High	Moderate
	Bedrock (lithic)	24-41		Strongly cemented					
872:									
Vernalis loam	---	---	---	---	0	0	None	High	Low
873:									
Narbaitz loam	Abrupt textural change	6-12	---	Noncemented	0	0	None	Moderate	Low
	Dense material	18-28							
Pleito gravelly clay loam	---	---	---	---	0	0	None	High	Low
940:									
Milham sandy loam, organic surface	Dense material	4-8	4-8	Extremely weakly cemented	0	0	None	High	Moderate
Polvadero sandy loam, organic surface	Dense material	4-8	4-9	Very weakly cemented	0	0	None	High	High
	Natric horizon	14-26	16-46	Noncemented					
941:									
Bisgani loamy sand	---	---	---	---	0	0	None	High	Low
Elnido sandy loam	---	---	---	---	0	0	None	High	Low
950:									
Pits, gravel	---	---	---	---	0	0	None	---	---

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
960:									
Excelsior sandy loam, sandy substratum	---	---	---	---	0	0	None	High	Moderate
Westhaven loam------------------------	---	---	---	---	0	0	None	High	Moderate
980. Urban land.									
981. Sewage disposal ponds.									
982. Water.									

Table 30.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Agnal	Fine, smectitic, thermic Typic Aquisalids
Altamont	Fine, smectitic, thermic Aridic Haploxererts
Altaslough	Fine-loamy, mixed, superactive, calcareous, thermic Typic Endoaquolls
*Anela	Loamy-skeletal, mixed, superactive, thermic Calcic Haploxerepts
Arburua	Fine-loamy, mixed, superactive, calcareous, thermic Typic Xerorthents
Armona	Fine-loamy, mixed, superactive, calcareous, thermic Fluvaquentic Endoaquolls
Atravesada	Loamy, magnesic, mesic, shallow Typic Argixerolls
*Atravesada	Fine-loamy, magnesic, thermic Typic Haploxeralfs
*Ayar	Fine, smectitic, thermic Aridic Haploxererts
Bapos	Fine, mixed, superactive, thermic Mollic Palexeralfs
Belgarra	Fine, smectitic, thermic Gypsic Haploxerepts
Bisgani	Sandy, mixed, thermic Typic Endoaquolls
*Bolfar	Fine-loamy, mixed, superactive, thermic Cumulic Endoaquolls
Borreguero	Loamy, mixed, superactive, thermic, shallow Typic Haploxerepts
Calflax	Fine-loamy, mixed, superactive, thermic Sodic Haplocambids
*Carranza	Fine-loamy, mixed, superactive, thermic Typic Argixerolls
Cerini	Fine-loamy, mixed, superactive, thermic Fluventic Haplocambids
Chaqua	Fine-loamy, mixed, superactive, thermic Typic Calcixerepts
Chateau	Fine, mixed, superactive, thermic Aquic Haploxerepts
Ciervo	Fine, smectitic, thermic Vertic Haplocambids
Climara	Fine, magnesic, thermic Aridic Haploxererts
Conosta	Fine, mixed, superactive, thermic Mollic Haploxeralfs
Currymountain	Fine-loamy, mixed, superactive, mesic Typic Argixerolls
*Currymountain	Loamy-skeletal, mixed, superactive, mesic Typic Argixerolls
Cyvar	Loamy, mixed, superactive, thermic, shallow Typic Durixeralfs
Deldota	Fine, smectitic, thermic Vertic Haploxerolls
Delgado	Loamy, mixed, superactive, calcareous, thermic Lithic Torriorthents
Domengine	Fine-loamy, mixed, superactive, thermic Calcic Haploxerolls
*Dospalos	Fine, smectitic, thermic Xeric Endoaquerts
Elnido	Coarse-loamy, mixed, superactive, thermic Typic Endoaquolls
Excelsior	Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents
Exclose	Fine-loamy, mixed, superactive, thermic Calcic Haploxerepts
Fluvaquents	Mixed, superactive, thermic Fluvaquents
Franciscan	Fine-loamy, mixed, superactive, thermic Typic Argixerolls
Gaviota	Loamy, mixed, superactive, nonacid, thermic Lithic Xerorthents
Gepford	Fine, smectitic, thermic Typic Natraquerts
Getrail	Fine, smectitic, mesic Aridic Haploxererts
Gewter	Very fine, smectitic, thermic Ultic Haploxeralfs
*Gewter	Fine, mixed, semiactive, thermic Ultic Haploxeralfs
Grazer	Fine, smectitic, thermic Typic Haploxeralfs
Guijarral	Coarse-loamy, mixed, superactive, thermic Typic Haplocalcids
Hentine	Loamy-skeletal, magnesic, thermic Lithic Argixerolls
Kettleman	Fine-loamy, mixed, superactive, thermic Typic Haplocambids
Kimberlina	Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents
Lethent	Fine, smectitic, thermic Typic Natrargids
*Lethent	Fine, smectitic, thermic Typic Haplosalids
Lillis	Very fine, smectitic, thermic Halic Haploxererts
Lilten	Fine, smectitic, calcareous, thermic Typic Xerorthents
Los Banos	Fine, mixed, superactive, thermic Calcic Haploxeralfs
Mercey	Fine-silty, mixed, superactive, thermic Typic Haplocambids
Milham	Fine-loamy, mixed, superactive, thermic Typic Haplargids
Millsholm	Loamy, mixed, superactive, thermic Lithic Haploxerepts
Monoridge	Mixed, thermic Typic Xeropsamments
Monvero	Mixed, thermic Typic Xeropsamments
Morenogulch	Clayey, smectitic, acid, thermic, shallow Xerertic Torriorthents
Mugatu	Fine-loamy, mixed, superactive, thermic Xeric Argigypsids
Narbaitz	Fine, smectitic, thermic Vertic Haploxeralfs

Table 30.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Nodhill	Fine-loamy, mixed, superactive, thermic Typic Haploxeralfs
Palazzo	Fine-loamy, mixed, superactive, thermic Fluvaquentic Endoaquolls
Panoche	Fine-loamy, mixed, superactive, thermic Typic Haplocambids
Paver	Fine-loamy, mixed, superactive, thermic Calcic Haploxerepts
Pedcat	Fine, mixed, superactive, thermic Aquic Natrixeralfs
Pleito	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
*Pleito	Fine-loamy, mixed, superactive, thermic Calcic Haploxerolls
Polvadero	Fine-loamy, mixed, superactive, thermic Typic Natrargids
Posochanet	Fine-silty, mixed, superactive, thermic Sodic Haplocambids
Quinto	Loamy, mixed, superactive, thermic Lithic Mollic Haploxeralfs
*Reliz	Loamy-skeletal, mixed, semiactive, mesic, shallow Ultic Haploxeralfs
Roacha	Fine, smectitic, mesic Typic Argixerolls
*Roacha	Fine, smectitic, mesic Typic Haploxeralfs
Sagaser	Fine-loamy, mixed, superactive, mesic Typic Argixerolls
Tachi	Very fine, smectitic, thermic Typic Natraquerts
Tranquillity	Fine, smectitic, thermic Sodic Haploxererts
Vaquero	Fine, smectitic, thermic Aridic Haploxererts
Vernado	Coarse-loamy, mixed, superactive, mesic Pachic Haploxerolls
Vernalis	Fine-loamy, mixed, superactive, thermic Calcic Haploxerepts
Wasco	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Torriorthents
Wekoda	Fine, smectitic, thermic Aquic Haploxererts
Westhaven	Fine-silty, mixed, superactive, thermic Fluventic Haplocambids
Wisflat	Loamy, mixed, superactive, calcareous, thermic Lithic Xerorthents
*Yribarren	Fine, smectitic, thermic Vertic Haplargids

Appendix

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                                                      Agnal Laboratory Tables
PEDON SAMPLE NUMBER: S87CA-019-014                   (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL:       376
SOIL NAME:        Agnal silty clay, 0 to 1 percent slopes
CLASSIFICATION:   Fine, smectitic, thermic Typic Aquisalids                                 UNITED STATES DEPARTMENT OF AGRICULTURE
                                                                                            NATURAL RESOURCES CONVERVATION SERVICE
SSL - PROJECT 88P  53, (CP88CA079) FRESNO COUNTY                                            NATURAL SOIL SURVEY CENTER
    - PEDON   88P 276, SAMPLES 88P 1478- 1488                                               SOIL SURVEY LABORATORY
    - GENERAL METHODS  1B1A, 2A1, 2B                                                        LINCOLN, NEBRASKA 68508-3866

            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
-----------------------------------------------------------------------------------------------------------------------------------
                             (- - -TOTAL - - -)(- -CLAY- -)(- -SILT- -)(- - - -  - -SAND- -  - - - -)(-COARSE FRACTIONS(MM)-)(>2MM)
                              CLAY  SILT  SAND  FINE   CO3  FINE COARSE  VF     F     M     C    VC   - - - - WEIGHT - - - -   WT
SAMPLE     DEPTH   HORIZON     LT  .002   .05    LT    LT  .002  .02   .05   .10   .25    .5     1    2     5    20    .1- PCT OF
 NO.       (IN)               .002  -.05    -2 .0002  .002  -.02  -.05  -.10  -.25  -.50   -1    -2   -5   -20   -75    75  WHOLE
                              <- - - - - - - - - - - - PCT OF <2MM  (3A1) - - - - - - - - - - - - ->  <- PCT OF <75MM(3B1)->  SOIL

88P1478S   0-  2  Anz1       52.5  42.6   4.9              29.1  13.5   4.0   0.6   0.1   0.2    --  --    --    --     1  --
88P1479S   2-  6  Anz2       57.9  38.6   3.5              26.1  12.5   3.1   0.4    --    --    --  --    --    --    TR  --
88P1480S   6-  9  Bnyz1      56.7  39.7   3.6              28.7  11.0   3.2   0.4    --    --    --  --    --    --    TR  --
88P1481S   9- 10  Bnyz2      56.4  39.5   4.1              28.6  10.9   3.7   0.4    --    --    --  --    --    --    TR  --
88P1482S  10- 17  Bnyz3      57.7  39.6   2.7              28.7  10.9   2.4   0.3    --    --    --  --    --    --    TR  --
88P1483S  17- 25  Bnyz4      54.4  42.2   3.4              33.1   9.1   2.6   0.6   0.2    --    --  --    --    --     1  --
88P1484S  25- 34  Bnyz5      52.3  44.4   3.3              36.0   8.4   2.8   0.5    --    --    --  --    --    --    TR  --
88P1485S  34- 44  Bnyz6      51.2  45.1   3.7              37.1   8.0   3.1   0.5   0.1    --    --  --    --    --     1  --
88P1486S  44- 59  Bnyz7      54.6  43.1   2.3              33.2  10.0   1.7   0.6    --    --    --  --    --    --     1  --
88P1487S  59- 70  Bnyz8      54.1  41.6   4.3              33.1   8.5   3.5   0.8    --    --    --  --    --    --     1  --

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            ORGN TOTAL  EXTR TOTAL (- - DITH-CIT - -)(RATIO/CLAY)(ATTERBERG )(- BULK DENSITY -) COLE (- - -WATER CONTENT - -)  WRD
             C     N      P     S        EXTRACTABLE          15    - LIMITS -  FIELD  1/3  OVEN WHOLE FIELD  1/10   1/3   15  WHOLE
 DEPTH                                FE    AL    MN     CEC   BAR   LL    PI  MOIST  BAR  DRY   SOIL MOIST   BAR   BAR   BAR  SOIL
  (IN)      6A1c  6B3a  6S3   6R3a  6C2b  6G7a  6D2a    8D1   8D1  4F1    4F  4A3a  4A1d  4A1h  4D1   4B4   4B1c  4B1c  4B2a  4C1
            PCT   <2MM   PPM <- PERCENT  OF  <2MM -->             PCT <0.4MM  <- - G/CC - - -> CM/CM  <- - -PCT OF <2MM - -> CM/CM

  0-  2     1.80                     1.3   0.2        0.74  0.44                                                        23.2
  2-  6     0.88                     1.4   0.2        0.72  0.42                                                        24.3
  6-  9     0.70                     1.2   0.1        0.66  0.42                                                        23.7
  9- 10     0.55                     1.2   0.1        0.63  0.42                                                        23.8
 10- 17     0.50                     1.3   0.1        0.67  0.41                    1.10  1.76 0.170              42.9  23.6  0.21
 17- 25     0.37                     1.2   0.1        0.67  0.44                    1.22  1.85 0.149              39.3  23.9  0.19
 25- 34     0.30                     1.3   0.1        0.72  0.46                    1.23  1.90 0.156              38.8  23.8  0.18
 34- 44     0.24                     1.3   0.1        0.74  0.48                    1.27  1.90 0.144              36.9  24.8  0.15
 44- 59     0.21                     1.3   0.1        0.71  0.46                                                        25.3
 59- 70     0.16                     1.3   0.1        0.71  0.44                    1.23  1.83 0.142              39.9  24.0  0.20

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Averages, Depth 10-39 inches: Clay = 54 Pct; 0.1-75mm = 1 Pct; S = All analyses on < 2mm soil material
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Agnal Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S87CA-019-014

DEPTH (IN)	-1-- (- NH4OAC EXTRACTABLE BASES -) CA 5B5a 6N2e	-2-- MG 5B5a 6O2d	-3-- NA 5B5a 6P2b	-4-- K 5B5a 6Q2b	-5-- SUM BASES	-6-- ACID-ITY 6H5a	-7--	-8-- (- -CEC- -) SUM CATS 5A3a	-9-- NH4-OAC 5A8b	-10- EXCH NA 5D2	-11- SAR 5E	-12- BASE SATURATION SUM 5C3	-13- NH4OAC 5C1	-14- CO3 AS CACO3 <2MM 6E1g	-15- RES. OHMS /CM 8E1	-16- CASO4 AS GYPSUM <2MM 6F1a	-17- <20MM 6F4	-18- (- - - -PH - - -) SAT PASTE 8C1b	-19- CACL2 .01M 8C1f	-20- H2O 8C1f
	<- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		PCT		<- -PCT ->			1:2	1:1
0- 2	22.2	2.1	37.7	1.7	63.7			63.7	38.6	47	51	100	100	--		--		7.2	7.3	7.4
2- 6	25.2	2.6	76.3	1.7	105.8			105.8	41.6	82	107	100	100	TR		--		7.8	8.1	8.1
6- 9	51.6	4.5	139.1	1.5	196.7			196.7	37.4	89	265	100	100	TR		2		8.0	8.4	8.3
9- 10	52.2	8.5	151.6	1.4	213.7			213.7	35.7	78	254	100	100	TR		3		8.3	8.6	8.6
10- 17		11.7	79.9	1.5					38.8	75	113	100	100	2		1		8.6	9.0	8.9
17- 25		10.5	72.4	1.2					36.6	70	95	100	100	1		6		8.7	9.0	9.1
25- 34	78.7	11.3	76.0	1.1	167.1			167.1	37.4	72	84	100	100	TR		4		8.6	8.8	8.8
34- 44	66.2	12.7	83.0	1.0	162.9			162.9	37.9	70	92	100	100	TR	90	3		8.4	8.7	8.6
44- 59		10.8	68.8	1.0					39.0	67	70	100	100	1	180	2		8.7	8.8	8.8
59- 70		8.2	49.9	1.1					38.4	54	46	100	100	1		2		8.5	8.6	8.6

DEPTH (IN)	(- - - WATER EXTRACTED FROM SATURATED PASTE- - -) CA 6N1b	MG 6O1b	NA 6P1b	K 6Q1b	CO3 6I1b	HCO3 6J1b	F 6U1a	CL 6K1c	PO4 6S9a	Br 6X1a	OAC 6Y1a	SO4 6L1c	NO2 6W1a	NO3 6M1c	H2O 8A	TOTAL SALTS EST. 8D5	ELEC. COND. 8A3a dS /M	PRED. ELEC. COND. 8I dS /M	TOTAL SELENIUM CONTENT 8P MG/KG (PPM)
	<- - - - - - - - - - - - - - - - - - - MEQ / LITER ->														<- -PCT- ->				
0- 2	21.1	2.4	176.4	0.6	--	11.3	8.5	11.8				204.3	--	0.6	111.5	1.4	14.84	8.20	0.8
2- 6	21.0	3.3	372.5	0.7	--	5.4	14.7	20.7				393.8	--	--	113.8	2.7	27.90	16.50	1.0
6- 9	32.6	15.3	1294.9	1.9	--	7.0	29.9	49.8				1488.1	--	--	81.7	5.2	67.70	34.20	1.4
9- 10	34.7	30.3	1445.7	2.1	--	7.3	29.8	123.5				1456.5	--	--	85.7	5.7	70.80	37.10	2.0
10- 17	23.9	17.5	515.4	0.9	--	9.1	15.0	130.2				447.3	--	--	98.5	3.4	38.60	18.00	1.6
17- 25	24.0	14.1	415.9	0.7	--	6.7	14.7	107.8				368.2	--	--	112.7	3.2	32.90	17.80	1.6
25- 34	22.6	16.1	369.6	0.5	--	5.7	14.4	91.3				340.3	--	--	132.5	3.5	30.40	17.04	1.5
34- 44	24.1	22.7	442.8	0.6	--	4.9	14.7	101.7				407.8	--	--	127.9	3.8	33.90	24.64	1.3
44- 59	22.2	11.9	288.6	0.4	--	4.9	14.8	69.6				303.5	--	--	147.3	3.2	25.10	20.00	1.1
59- 70	21.9	6.6	173.6	0.3	--	2.8	8.6	35.3				189.4	--	--	167.4	2.1	15.54	15.54	0.9

Agnal Laboratory Tables--Continued

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	CLAY MINERALOGY (<.002mm)																			
			FRACT	X-RAY					THERMAL				ELEMENTAL							
SAMPLE	DEPTH		ION						DTA		TGA		SiO2	AL2O3	Fe2O3	MgO	CaO	K2O	Na2O	
				7A2i					7A6		7A4b		7C3							
NUMBER	(IN)			peak size					Percent				Percent							
88P1478	0- 2		TCLY	MT 3	KK 3	MI 2	CL 1	QZ 1						17.0	7.1			1.8		
88P1479	2- 6		TCLY	MT 3	KK 3	MI 2	CL 1	QZ 1						14.0	6.0			1.5		
88P1480	6- 9		TCLY	MT 3	KK 3	MI 2	CA 2	CL 1						11.0	4.7			1.3		
88P1480	6- 9		TCLY	QZ 1																
88P1481	9- 10		TCLY	MT 3	KK 2	MM 2	MI 1	QZ 1						10.0	4.6			1.1		
88P1482	10- 17		TCLY	MT 4	KK 2	MI 1	CL 1	QZ 1						13.0	5.6			1.5		
88P1483	17- 25		TCLY	MT 4	KK 3	MI 1	QZ 1	CL 1						14.0	5.6			1.4		
88P1484	25- 34		TCLY	MT 4	KK 3	MI 1	QZ 1							14.0	5.9			1.4		
88P1485	34- 44		TCLY	MT 4	KK 3	MI 1	CL 1	QZ 1						14.0	6.4			1.5		
88P1486	44- 59		TCLY	MT 4	KK 3	MI 1	QZ 1							15.0	6.0			1.4		
88P1487	59- 70		TCLY	MT 4	KK 3	MI 1	CL 1	QZ 1						16.0	6.3			1.5		

FRACTION INTERPRETATION:

TCLY	Total Clay, <0.002mm

MINERAL INTERPRETATION:

MT	montmorillon
KK	kaolinite
MI	mica
CL	chlorite
QZ	quartz
CA	calcite
MM	mont-mica

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

REMARKS: This Agnal pedon is the typical pedon for the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology."

Anela Laboratory Tables
(FRESNO COUNTY, CALIFORNIA)

PEDON SAMPLE NUMBER: S87CA-019-009

MAP SYMBOL: 107
SOIL NAME: Anela very gravelly sandy loam, 0 to 2 percent slopes
CLASSIFICATION: Loamy-skeletal, mixed, superactive, thermic Calcic Haploxerepts

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

SSL - PROJECT 88P 53, (CP88CA079) FRESNO COUNTY
- PEDON 88P 271, SAMPLES 88P 1430- 1438
- GENERAL METHODS 1B1A, 2A1, 2B

-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
			(- - -TOTAL - - -)			(- -CLAY- -)		(- -SILT- -)		(- - - - - -SAND- - - - - - -)					(-COARSE FRACTIONS(MM)-)				(>2MM)
SAMPLE NO.	DEPTH (IN)	HORIZON	CLAY LT .002	SILT .002 -.05	SAND .05 -2	FINE LT .0002	CO3 LT .002	FINE .002 -.02	COARSE .02 -.05	VF .05 -.10	F .10 -.25	M .25 -.50	C .5 -1	VC 1 -2	- - - - WEIGHT - - - - 2 -5	5 -20	20 -75	.1- 75	WT PCT OF WHOLE SOIL
			<- - - - - - - - - - - - - PCT OF <2MM (3A1) - - - - - - - - - - - - - ->												<- PCT OF <75MM(3B1)->				
88P1430S	0- 2	A1	6.8	22.9	70.3			9.5	13.4	12.9	16.4	16.1	13.1	11.8	10	15	2	69	27
88P1431S	2- 7	A2	8.0	21.2	70.8			9.5	11.7	12.0	16.4	18.0	14.1	10.3	11	18	13	76	42
88P1432S	7- 10	Bt1	8.3	21.6	70.1			8.9	12.7	9.6	15.3	17.7	15.5	12.0	12	11	16	76	39
88P1433S	10- 15	Bt2	9.3	19.9	70.8			8.3	11.6	11.2	16.2	17.2	13.5	12.7	12	11	15	75	38
88P1434S	15- 22	Btk1	9.1	18.4	72.5			7.9	10.5	11.3	17.3	17.8	14.2	11.9	12	15	14	77	41
88P1435S	22- 34	2Btk2	7.2	19.7	73.1			7.9	11.8	6.1	15.2	17.3	16.3	18.2	5	10	57	91	72
88P1436S	34- 49	2Btk3	7.4	15.9	76.7			6.8	9.1	8.2	17.2	19.3	16.2	15.8	11	24	37	91	72
88P1437S	49- 65	2Bdk	4.7	10.4	84.9			5.3	5.1	3.8	12.2	22.0	20.6	26.3	8	19	52	96	80

DEPTH (IN)	ORGN C	TOTAL N	EXTR P	TOTAL S	(- - DITH-CIT - -) EXTRACTABLE FE	AL	MN	(RATIO/CLAY) CEC	15 BAR	(ATTERBERG) - LIMITS - LL	PI	(- BULK DENSITY -) FIELD MOIST	1/3 BAR	OVEN DRY	COLE WHOLE SOIL	(- - -WATER CONTENT - -) FIELD MOIST	1/10 BAR	1/3 BAR	15 BAR	WRD WHOLE SOIL
	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a	8D1	8D1	4F1	4F	4A3a	4A1d	4A1h	4D1	4B4	4B1c	4B1c	4B2a	4C1
	PCT	<2MM	PPM	<- PERCENT OF <2MM -->						PCT <0.4MM		<- - G/CC - - ->			CM/CM	<- - -PCT OF <2MM - ->				CM/CM
0- 2	1.39				0.9	0.1		1.54	0.69										4.7	
2- 7	0.42				0.9	0.1		1.03	0.51										4.1	
7- 10	0.19				0.9	0.1		0.99	0.48				1.64	1.68	0.006			9.5	4.0	0.06
10- 15	0.17				1.0	0.1		0.95	0.48				1.57	1.61	0.006			7.8	4.5	0.04
15- 22	0.12				1.0	0.1		0.98	0.48				1.60	1.63	0.004			7.3	4.4	0.03
22- 34	0.12				0.9	0.1		1.25	0.57										4.1	
34- 49	0.06				0.9	0.1		1.39	0.55										4.1	
49- 65	0.02				0.7	TR		1.43	0.62										2.9	

Averages, Depth 10-39 inches: Clay = 8 Pct; 0.1-75mm = 85 Pct.
S = All analyses on < 2mm soil material
dS/M OF 1:2 Soil:Water Extract (8I) and Exchangeable NA as Extractable NA for Layers 2, 3, 4, 5, 6, 7, 8.

Anela Laboratory Tables--Continued

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CARBONATE		CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		AS CACO3		GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	<20MM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	8E1	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		<- -PCT ->		<- -PCT ->			1:2	1:1
0- 2	8.2	1.8	0.1	0.9	11.0	4.1		15.1	10.5	1	TR	73	100					6.6	5.6	5.8
2- 7	5.5	1.6	0.1	0.9	8.1	0.4		8.5	8.2	1		95	99						6.5	7.1
7- 10	5.9	1.6	0.1	0.7	8.3	0.3		8.6	8.2	1		97	100						6.6	7.3
10- 15	6.1	1.9	0.1	0.6	8.7	4.7		13.4	8.8	1		65	99						6.7	7.5
15- 22	7.3	2.0	0.1	0.3	9.7	--		9.7	8.9	1		100	100						6.9	7.6
22- 34	7.3	2.2	0.2	0.2	9.9			9.9	9.0	2		100	100	TR					7.0	7.8
34- 49		2.4	0.2	0.1					10.3	2		100	100	1					7.7	8.4
49- 65		2.3	0.4	0.1					6.7	6		100	100	4					7.9	8.6

	(- - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - MEQ / LITER ->														<- -PCT- ->		/M	/M	(PPM)
0- 2	11.3	4.6	1.1	2.0	--	4.0	0.5	1.0				2.9	0.1	11.9	34.7	TR	1.95	0.84	0.1
2- 7																		0.16	0.1
7- 10																		0.07	0.1
10- 15																		0.07	0.1
15- 22																		0.06	0.2
22- 34																		0.06	0.1
34- 49																		0.08	0.1
49- 65																		0.12	tr

REMARKS: This Anela pedon is the typical pedon for the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology."

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                                                 Atravesada Laboratory Tables
PEDON SAMPLE NUMBER: S84CA-019-017               (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL:       767
SOIL NAME:        Atravesada sandy loam, in an area of Atravesada-Pits, asbestos complex, 30 to 65 percent slopes
CLASSIFICATION:   Loamy, magnesic, mesic, shallow Typic Argixerolls
                                                                                           UNITED STATES DEPARTMENT OF AGRICULTURE
SSL - PROJECT 86P  64, (CP86CA117) FRESNO COUNTY                                           NATURAL RESOURCES CONSERVATION SERVICE
    - PEDON   86P 311, SAMPLES 86P 1845- 1847                                              NATIONAL SOIL SURVEY CENTER
    - GENERAL METHODS  1B1A, 2A1, 2B                                                       SOIL SURVEY LABORATORY
                                                                                           LINCOLN, NEBRASKA 68508-3866


            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
-----------------------------------------------------------------------------------------------------------------------------------
                              (- - -TOTAL - - -)(- -CLAY- -)(- -SILT- -)(- - - -  - -SAND- -  - - - -)(-COARSE FRACTIONS(MM)-)(>2MM)
                               CLAY  SILT  SAND  FINE   CO3  FINE COARSE  VF     F     M     C    VC   - - - - WEIGHT - - - -   WT
SAMPLE     DEPTH   HORIZON      LT   .002  .05    LT    LT   .002  .02   .05   .10   .25    .5     1    2     5    20     .1- PCT OF
  NO.      (IN)                .002  -.05   -2  .0002  .002  -.02  -.05  -.10  -.25  -.50   -1    -2   -5   -20   -75     75  WHOLE
                               <- - - - - - - - - - - - PCT OF <2MM  (3A1) - - - - - - - - - - - - ->  <- PCT OF <75MM(3B1)->  SOIL

86P1845S 0.5-  6   A           17.9  27.1  55.0              17.2   9.9  10.0   9.8  11.6  14.4   9.2   2     1    --      47  10
86P1846S   6- 12   Bt          26.1  17.4  56.5              12.1   5.3   9.2  12.1  12.1  13.0  10.1   1    --    --      48   8
86P1847G  12- 16   Cr1         18.5  14.2  67.3               9.8   4.4   9.4  15.0  15.5  15.9  11.5                            P

-----------------------------------------------------------------------------------------------------------------------------------
            ORGN TOTAL  EXTR TOTAL (- - DITH-CIT - -)(RATIO/CLAY)(ATTERBERG )(- BULK DENSITY -) COLE (- - -WATER CONTENT - -)  WRD
             C     N      P     S       EXTRACTABLE          15    - LIMITS -  FIELD  1/3  OVEN WHOLE FIELD  1/10   1/3   15  WHOLE
 DEPTH                                 FE    AL    MN   CEC   BAR   LL    PI   MOIST  BAR  DRY   SOIL MOIST  BAR   BAR   BAR  SOIL
  (IN)      6A1c  6B3a  6S3   6R3a  6C2b  6G7a  6D2a  8D1   8D1  4F1    4F   4A3a  4A1d  4A1h  4D1   4B4   4B1c  4B1c  4B2a  4C1
             PCT  <2MM   PPM <- PERCENT  OF  <2MM -->             PCT <0.4MM  <- - G/CC - - -> CM/CM  <- - -PCT OF <2MM - -> CM/CM

0.5-  6     4.04 0.177                               1.38  1.33                                                       23.8
  6- 12     1.62 0.099                               0.70  1.12                                                       29.1
 12- 16     0.77 0.040                               0.46  1.52                                                       28.1

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Averages, Depth 0-12 inches: Clay = 22 Pct; 0.1-75mm = 47 Pct.
S = All analyses on < 2mm soil material; G = < 2mm on ground < 75mm basis;
P = Fabric on < 75mm fraction

           -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-

-----------------------------------------------------------------------------------------------------------------------------------
           (- NH4OAC EXTRACTABLE BASES -) ACID- EXTR (- - - -CEC - - -)  AL   -BASE SAT- CO3 AS RES.            (- - - -PH - - -)
             CA    MG    NA     K   SUM    ITY    AL   SUM   NH4-  BASES  SAT   SUM   NH4  CACO3 OHMS                CACL2  H2O
 DEPTH      5B5a  5B5a  5B5a  5B5a BASES               CATS   OAC  + AL               OAC  <2MM   /CM                 .01M
  (IN)      6N2e  6O2d  6P2b  6Q2b        6H5a  6G9a  5A3a  5A8b  5A3b   5G1   5C3   5C1  6E1g  8E1                 8C1f  8C1f
            <- - - - - - - - - - - -MEQ / 100 G - - - - - - - - - - - ->  <- - - - -PCT - - - ->                     1:2  1:1

0.5-  6     12.0  15.6   0.1   0.2  27.9   4.6        32.5  24.7               86   100                               6.7   7.2
  6- 12      4.4  15.0    TR    TR  19.4   3.0        22.4  18.2               87   100                               6.5   7.0
 12- 16      2.2   9.2    TR    TR  11.4   1.2        12.6   8.6               90   100    --                         7.5   7.8

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Atravesada Laboratory Tables--Continued

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            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
-------------------------------------------------------------------------------------------------------------------------------------
           < - - - - - - - - - - - - - - - - - - - - - SAND - SILT MINERALOGY (2.0-0.002mm) - - - - - - - - - - - - - - - - - - - - - >
                       FRACT < - - - - - - X-RAY - - -><- - - THERMAL - - - -><- - - - - - - -  OPTICAL - - - - - - - - >
SAMPLE       DEPTH       ION <                      >< - DTA - -><- - TGA - ->TOT RE< - - - - - - GRAIN COUNT - - - - - - ->
                             < - - - - - 7A2i - - - - >< - 7A3b - >< - 7A4b - >< - - - - - - - - -  7B1a - - - - - - - - - ->
NUMBER       (IN)      < - -><- - - - Peak Size - - -><- - - - Percent - - - -><- - - - - - - - - Percent - - - - - - - - ->

86P1845    0.5-  6      FS                                                        9  CY88  MG 6  RA 2  AM 1  FD 1  QZ 1
86P1845    0.5-  6      FS                                                           MItr  GStr
86P1846      6- 12      FS                                                        4  CY94  MG 4  FD 1  RAtr
86P1847     12- 16      FS                                                        4  CY96  MG 3  RA 1  FDtr

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FRACTION INTERPRETATION:

FS   Fine Sand, 0.1-0.25mm

MINERAL INTERPRETATION:

CY	chrysotile	MG	magnetite	RA	resist-aggre	AM	amphibole	FD	feldspar	QZ	quartz
MI	mica	GS	glass								

RELATIVE PEAK SIZE: 5 Very Large   4 Large   3 Medium   2 Small   1 Very Small   6 No Peaks

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REMARKS: This Atravesada pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." Calcium/magnesium ratios, using ammonium acetate extraction, are 0.77 from 0 to 6 inches, 0.29 from 6 to 12 inches and 0.24 from 12 to 16 inches. Magnesium dominates the exchange sites, particularly in the Bt horizon and below. This is to be expected in a soil dominated by serpentinite parent material. The fibrous, tubular nature of chrysotile allows for a water-holding capacity that is higher than that of most soils with similar textures and depths.

Belgarra Laboratory Tables
PEDON SAMPLE NUMBER: S84CA-019-007 (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL: 715
SOIL NAME: Belgarra clay in an area of Belgarra-Wisflat association, 8 to 50 percent slopes
CLASSIFICATION: Fine, smectitic, thermic Gypsic Haploxerepts

SSL - PROJECT 86P 64, (CP86CA117) FRESNO COUNTY
- PEDON 86P 312, SAMPLES 86P 1848- 1852
- GENERAL METHODS 1B1A, 2A1, 2B

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

			-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
			(- - -TOTAL	- - -)		(- -CLAY-	-)	(- -SILT-	-)	(- - - -	- -SAND-	-	- - - -)		(-COARSE	FRACTIONS	(MM)-)		(>2MM)
			CLAY	SILT	SAND	FINE	CO3	FINE	COARSE	VF	F	M	C	VC	- - - -	WEIGHT	- - - -		WT
SAMPLE	DEPTH	HORIZON	LT	.002	.05	LT	LT	.002	.02	.05	.10	.25	.5	1	2	5	20	.1-	PCT OF
NO.	(IN)		.002	-.05	-2	.0002	.002	-.02	-.05	-.10	-.25	-.50	-1	-2	-5	-20	-75	75	WHOLE
			<- - - - -	- - - - -	- - -	PCT OF <2MM	(3A1)	- - - -	- - - -	- - -	- - -	- - -	- - -	->	<- PCT OF	<75MM	(3B1)->		SOIL
86P1848S	4- 10	A2	48.2	29.1	22.7			22.6	6.5	6.4	11.0	4.0	0.9	0.4	1	TR	--	17	1
86P1849S	10- 21	By1	47.3	30.3	22.4			23.2	7.1	7.6	9.8	3.9	1.0	0.1	TR	--	--	15	TR
86P1850S	21- 32	By2	41.5	27.0	31.5			23.4	3.6	6.9	15.1	6.6	1.9	1.0	1	1	--	26	2
86P1851S	32- 45	By3	46.1	30.0	23.9			24.1	5.9	6.6	10.9	4.4	1.2	0.8	1	TR	--	18	1
86P1852S	45- 72	By4	46.4	28.5	25.1			25.0	3.5	5.6	11.1	5.5	1.9	1.0	4	4	--	26	8

	ORGN	TOTAL	EXTR	TOTAL	(- - DITH-CIT	- -)		(RATIO/CLAY)		(ATTERBERG)		(- BULK DENSITY -)			COLE	(- - -WATER	CONTENT	- -)		WRD
	C	N	P	S	EXTRACTABLE				15	- LIMITS -		FIELD	1/3	OVEN	WHOLE	FIELD	1/10	1/3	15	WHOLE
DEPTH					FE	AL	MN	CEC	BAR	LL	PI	MOIST	BAR	DRY	SOIL	MOIST	BAR	BAR	BAR	SOIL
(IN)	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a	8D1	8D1	4F1	4F	4A3a	4A1d	4A1h	4D1	4B4	4B1c	4B1c	4B2a	4C1
	PCT	<2MM	PPM	<- PERCENT	OF	<2MM -->				PCT	<0.4MM	<- -	G/CC -	- ->	CM/CM	<- -	-PCT OF	<2MM	- ->	CM/CM
4- 10	0.65							0.88	0.45										21.5	
10- 21	0.74							0.80	0.40										18.7	
21- 32	0.23							0.69	0.48										20.1	
32- 45	0.30							0.74	0.46										21.3	
45- 72	0.24							0.72	0.53										24.4	

Averages, Depth 10-39 inches: Clay = 45 Pct; 0.1-75mm = 20 Pct.
S = All analyses on < 2mm soil material

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                                        Belgarra Laboratory Tables--Continued
PEDON SAMPLE NUMBER: S84CA-019-007


            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
-----------------------------------------------------------------------------------------------------------------------------------
           (- NH4OAC EXTRACTABLE BASES -) ACID- EXTR (- -CEC-  -) EXCH   SAR     BASE     CO3 AS RES.   CASO4 AS  (- - - -PH - - -)
             CA    MG    NA     K   SUM    ITY   AL    SUM   NH4-   NA         SATURATION  CACO3 OHMS    GYPSUM    SAT  CACL2  H2O
 DEPTH      5B5a  5B5a  5B5a  5B5a BASES                   CATS   OAC               SUM NH4OAC <2MM   /CM  <2MM <20MM PASTE  .01M
 (IN)       6N2e  6O2d  6P2b  6Q2b        6H5a  6G9a  5A3a  5A8b   5D2    5E   5C3   5C1  6E1g  8E1   6F1a  6F4   8C1b  8C1f  8C1f
            <- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->  PCT        <- -PCT- >  PCT        <- -PCT ->         1:2   1:1

  4- 10     42.6   3.3   0.7   1.0  47.6   2.4        50.0  42.3     1     1    95   100                  --          6.7   6.8   7.0
 10- 21    138.2   9.4   3.5   0.6 151.7   1.7       153.4  37.8     7     3    99   100    TR            16          7.1   7.3   7.4
 21- 32    252.4  13.2   8.5   0.8 274.9   4.6   0.1 279.5  28.5    16    10    98   100                  19          5.4   5.5   5.5
 32- 45    256.1  17.7   9.6   0.7 284.1   1.5       285.6  34.3    17    10    99   100    TR   350      11          7.4   7.6   7.7
 45- 72    140.0  14.2   9.0   1.0 164.2   6.8   0.1 171.0  33.2    14    10    96   100                   8          5.1   5.3   5.3

-----------------------------------------------------------------------------------------------------------------------------------
           ( - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - )PRED.
                                                                                                       TOTAL ELEC. ELEC.
             CA    MG    NA     K   CO3  HCO3     F    CL   PO4    Br   OAC   SO4   NO2   NO3  H2O   SALTS COND. COND.
 DEPTH                                                                                                  EST.  8A3a   8I
 (IN)       6N1b  6O1b  6P1b  6Q1b  6I1b  6J1b  6U1a  6K1c  6S9a  6X1a  6Y1a  6L1c  6W1a  6M1c   8A    8D5   dS     dS
           <- - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - -> <- -PCT- ->   /M     /M

  4- 10     12.2   1.2   1.7   0.2    --   1.5   0.1   1.4                    11.4    --   0.1  69.3   0.1  1.36  0.51
 10- 21     28.4   8.6  14.2   0.1    --   1.8   0.3   3.0                    43.0    --   0.3  70.5   0.2  3.83  3.14
 21- 32     28.7  31.3  55.4   0.8    --    --   1.3  15.0                    70.5   7.6  14.3  69.6   0.5  9.07  5.46
 32- 45     26.6  24.2  50.5   0.3    --   1.8   0.9  20.2                    73.0   2.8   2.0  75.5   0.5  7.91  5.35
 45- 72     29.8  31.8  55.9   1.0    --   0.2   1.4  15.1                    70.9   4.5  22.4  75.5   0.5  9.19  5.83

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Belgarra Laboratory Tables--Continued

SAMPLE NUMBER	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
			CLAY MINERALOGY (<.002mm)																	
	DEPTH (IN)		FRACTION	X-RAY 7A2i peak size					THERMAL DSC 7A6 Percent		THERMAL TGA 7A4b Percent		ELEMENTAL 7C3 Percent SiO2	AL2O3	Fe2O3	MgO	CaO	K2O	Na2O	
86P1849	10-	21	TCLY	MT 4	KK 2	MI 1	FD 1		KK 3						5.6			0.8		
86P1851	32-	45	TCLY	MT 4	KK 2	MI 2	FD 1		KK 4						5.6			0.9		

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm

MINERAL INTERPRETATION:

MT montmorillon	KK kaolinite	MI mica	FD feldspar

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

REMARKS: This Belgarra pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology."

Bolfar Laboratory Tables
PEDON SAMPLE NUMBER: S87CA-019-016 (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL: 115
SOIL NAME: Bolfar loam, drained, 0 to 1 percent slopes
CLASSIFICATION: Fine-loamy, mixed, superactive, thermic Cumulic Endoaquolls

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

SSL - PROJECT 88P 53, (CP88CA079) FRESNO COUNTY
- PEDON 88P 278, SAMPLES 88P 1498- 1506
- GENERAL METHODS 1B1A, 2A1, 2B

-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
			(- - -TOTAL	- - -)		(- -CLAY- -)		(- -SILT- -)		(- - - -	- -SAND- -		- - - -)		(-COARSE FRACTIONS(MM)-)				(>2MM)
			CLAY	SILT	SAND	FINE	CO3	FINE	COARSE	VF	F	M	C	VC	- - - -	- WEIGHT	- - - -		WT
SAMPLE NO.	DEPTH (IN)	HORIZON	LT .002	.002 -.05	.05 -2	LT .0002	LT .002	.002 -.02	.02 -.05	.05 -.10	.10 -.25	.25 -.50	.5 -1	1 -2	2 -5	5 -20	20 -75	.1- 75	PCT OF WHOLE SOIL
			<- - - - - -	- - - - - -	- PCT OF <2MM	(3A1) - - -	- - - - - -	- - - - ->							<- PCT OF	<75MM(3B1)->		
88P1498S	0- 11	Ap1	21.4	35.2	43.4			22.1	13.1	15.6	16.8	5.6	4.1	1.3	--	--	--	28	--
88P1499S	11- 20	Ap2	24.8	32.7	42.5			18.0	14.7	15.1	17.1	5.3	3.5	1.5	TR	TR	--	27	TR
88P1500S	20- 29	Ap3	22.7	31.6	45.7			19.4	12.2	16.1	19.5	5.3	3.2	1.6	TR	--	--	30	--
88P1501S	29- 34	Bg	7.4	18.7	73.9			9.6	9.1	22.3	44.9	5.3	1.0	0.4	--	--	--	52	--
88P1502S	34- 39	Agb	17.6	36.2	46.2			15.7	20.5	27.5	17.4	0.9	0.2	0.2	--	--	--	19	--
88P1503S	39- 44	B'g	7.7	23.5	68.8			9.7	13.8	27.3	36.1	4.6	0.4	0.4	--	--	--	41	--
88P1504S	44- 55	A'gb1	15.7	36.8	47.5			13.6	23.2	26.2	14.0	4.9	1.9	0.5	--	--	--	21	--
88P1505S	55- 87	A'gb2	26.8	24.2	49.0			15.0	9.2	11.0	18.7	9.7	6.5	3.1	TR	--	--	38	TR

DEPTH (IN)	ORGN C 6A1c PCT	TOTAL N 6B3a <2MM	EXTR P 6S3 PPM	TOTAL S 6R3a	(- - DITH-CIT - -) EXTRACTABLE FE 6C2b	AL 6G7a	MN 6D2a	(RATIO/CLAY) CEC 8D1	15 BAR 8D1	(ATTERBERG) - LIMITS - LL 4F1	PI 4F	(- BULK DENSITY -) FIELD MOIST 4A3a	1/3 BAR 4A1d	OVEN DRY 4A1h	COLE WHOLE SOIL 4D1	(- - -WATER CONTENT - -) FIELD MOIST 4B4	1/10 BAR 4B1c	1/3 BAR 4B1c	15 BAR 4B2a	WRD WHOLE SOIL 4C1
				<- PERCENT	OF	<2MM -->				PCT <0.4MM		<- - G/CC	- - ->		CM/CM	<- - -PCT OF	<2MM - ->			CM/CM
0- 11	0.88				0.6	0.1		0.94	0.57										12.3	
11- 20	0.83				0.6	0.1		0.81	0.49				1.65	1.86	0.041			19.6	12.1	0.12
20- 29	0.80				0.6	0.1		0.82	0.50				1.56	1.72	0.033			19.4	11.3	0.13
29- 34	0.19				0.5	0.1		1.34	0.80				1.43	1.51	0.018			17.6	5.9	0.17
34- 39	0.16				0.4	0.1		0.91	0.52				1.56	1.65	0.019			18.9	9.1	0.15
39- 44	0.10				0.5	TR		1.26	0.74				1.50	1.54	0.009			15.1	5.7	0.14
44- 55	0.16				0.4	TR		0.88	0.52				1.56	1.60	0.008			17.0	8.1	0.14
55- 87	0.27				0.7	0.1		0.70	0.45				1.52	1.63	0.024			21.2	12.0	0.14

Averages, Depth 10-39 inches: Clay = 19 Pct; 0.1-75mm = 32 Pct; S = All analyses on < 2mm soil material
dS/M OF 1:2 Soil:Water Extract (8I) and Exchangeable NA as Extractable NA for Layer 6.

Bolfar Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S87CA-019-016

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CO3 AS	RES.	CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		CACO3	OHMS	GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	/CM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	8E1	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		PCT		<- -PCT ->			1:2	1:1
0- 11	12.7	4.8	0.8	0.4	18.7	3.0		21.7	20.2	3	3	86	93	TR				6.7	6.3	6.8
11- 20	14.3	4.6	1.0	0.3	20.2	2.7		22.9	20.2	3	3	88	100					6.5	6.3	6.8
20- 29	13.2	4.4	1.3	0.2	19.1	3.1		22.2	18.5	4	4	86	100					6.4	6.3	6.7
29- 34	7.5	2.3	0.9	0.1	10.8	0.9		11.7	9.9	6	4	92	100					7.1	6.5	7.2
34- 39	12.7	4.3	0.8	0.2	18.0	1.8		19.8	16.1	4	3	91	100	TR				7.2	6.9	7.5
39- 44	8.2	2.6	0.5	0.1	11.4	1.0		12.4	9.7	5		92	100						6.7	7.3
44- 55	9.8	3.9	0.7	0.2	14.6	1.7		16.3	13.8	4	2	90	100		2400			7.1	6.7	7.4
55- 87	12.3	4.7	1.6	0.2	18.8	2.7		21.5	18.8	8	5	87	100					7.0	6.7	7.4

	(- - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT- ->		/M	/M	(PPM)
0- 11	3.0	1.8	4.3	0.1	--	4.0	0.2	2.9				2.3	--	0.2	47.6	TR	0.97	0.39	0.1
11- 20	4.5	2.2	6.4	0.2	--	1.9	0.3	6.8				3.9	--	--	51.4	TR	1.39	0.46	0.1
20- 29	8.8	4.4	9.5	0.2	--	2.1	1.2	12.4				11.2	--	--	51.6	0.1	2.34	0.73	0.1
29- 34	3.0	1.4	6.2	0.1	--	1.2	0.3	5.2				3.8	--	--	40.2	TR	1.15	0.32	0.1
34- 39	3.4	1.6	4.2	TR	--	1.8	0.3	3.4				3.7	--	--	48.6	TR	0.96	0.29	tr
39- 44																		0.21	tr
44- 55	2.5	1.3	3.4	TR	--	0.9	0.2	3.0				2.7	0.1	0.1	51.0	TR	0.78	0.26	tr
55- 87	1.2	0.6	5.1	TR	--	0.9	0.2	2.9				2.8	--	--	41.2	TR	0.78	0.27	0.1

REMARKS: This Bolfar pedon is the typical pedon for the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology."

Ciervo Laboratory Tables
(FRESNO COUNTY, CALIFORNIA)

PEDON SAMPLE NUMBER: S85CA-019-005

MAP SYMBOL: 462
SOIL NAME: Ciervo clay, saline-sodic in an area of Ciervo, wet-Ciervo complex, saline-sodic, 0 to 1 percent slopes
CLASSIFICATION: Fine, smectitic, thermic Vertic Haplocambids

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

SSL - PROJECT 85P 189, (CP85CA287) FRESNO COUNTY
- PEDON 85P 989, SAMPLES 85P 5375- 5379
- GENERAL METHODS 1B1A, 2A1, 2B

-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
			(- - -TOTAL	- - -)		(- -CLAY-	-)	(- -SILT-	-)	(- - - -	- -SAND-	-	- - -	-)	(-COARSE FRACTIONS(MM)	-)			(>2MM)
			CLAY	SILT	SAND	FINE	CO3	FINE	COARSE	VF	F	M	C	VC	- - - -	- WEIGHT	- - - -		WT
SAMPLE	DEPTH	HORIZON	LT	.002	.05	LT	LT	.002	.02	.05	.10	.25	.5	1	2	5	20	.1-	PCT OF
NO.	(IN)		.002	-.05	-2	.0002	.002	-.02	-.05	-.10	-.25	-.50	-1	-2	-5	-20	-75	75	WHOLE
			<- - - - -	- - - - -	- - -	PCT OF <2MM	(3A1)	- - - -	- - - -	- - - -	- - -	- ->			<- PCT OF	<75MM(3B1)	->		SOIL
85P5375S	0- 7	Ap1	39.3	27.7	33.0			20.5	7.2	14.8	14.7	3.3	0.2	--	TR	--	--	18	--
85P5376S	7- 17	Ap2	39.6	28.5	31.9			21.1	7.4	14.0	14.5	3.2	0.2	--	--	--	--	18	--
85P5377S	17- 27	Bw	46.8	36.2	17.0			28.8	7.4	9.0	6.7	1.3	--	--	--	--	--	8	--
85P5378S	27- 41	Bknyz	47.3	41.6	11.1			35.0	6.6	5.8	4.5	0.8	--	--	--	--	--	5	--
85P5379S	41- 60	Bknz	34.0	30.5	35.5			21.7	8.8	13.5	12.8	6.9	2.1	0.2	--	--	--	22	--

	ORGN	TOTAL	EXTR	TOTAL	(- - DITH-CIT	- -)		(RATIO/CLAY)		(ATTERBERG)		(- BULK DENSITY	-)		COLE	(- - -WATER	CONTENT	- -)		WRD
	C	N	P	S		EXTRACTABLE			15	- LIMITS -		FIELD	1/3	OVEN	WHOLE	FIELD	1/10	1/3	15	WHOLE
DEPTH					FE	AL	MN	CEC	BAR	LL	PI	MOIST	BAR	DRY	SOIL	MOIST	BAR	BAR	BAR	SOIL
(IN)	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a	8D1	8D1	4F1	4F	4A3a	4A1d	4A1h	4D1	4B4	4B1c	4B1c	4B2a	4C1
	PCT	<2MM	PPM	<- PERCENT	OF	<2MM -->				PCT <0.4MM		<- -	G/CC -	- ->	CM/CM	<- - -	PCT OF <2MM	- ->		CM/CM
0- 7	0.60	0.066						0.75	0.44	49	30		1.46	1.85	0.082			27.5	17.1	0.15
7- 17	0.47	0.052						0.75	0.44				1.39	1.75	0.080			27.4	17.6	0.14
17- 27	0.34							0.75	0.46	61	40		1.22	1.55	0.083			35.7	21.6	0.17
27- 41	0.37							0.73	0.44				1.19	1.52	0.085			37.7	21.0	0.20
41- 60	0.28							0.75	0.48	50	33		1.22	1.40	0.047			29.3	16.2	0.16

Averages, Depth 10-39 inches: Clay = 45 Pct; 0.1-75mm = 9 Pct.
S = All analyses on < 2mm soil material

Ciervo Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S85CA-019-005

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CO3 AS	RES.	CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		CACO3	OHMS	GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	/CM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	8E1	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		PCT		<- -PCT ->			1:2	1:1
0- 7		5.4	1.2	1.1					29.3	3	3	100	100	3				7.6	7.7	8.1
7- 17		5.7	2.5	0.9					29.7	7	6	100	100	3				7.8	7.8	8.3
17- 27		6.0	6.4	0.8					35.1	15	12	100	100	4		--		8.0	8.0	8.6
27- 41		8.3	20.6	0.9					34.6	39	21	100	100	3	320	5		7.8	7.9	8.0
41- 60		6.5	19.6	0.7					25.5	45	29	100	100	3		TR		7.9	8.1	8.2

	(- - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT- ->		/M	/M	(PPM)
0- 7	6.0	1.4	5.5	0.5	--	6.8	0.1	1.7				3.4	0.2	1.0	64.5	TR	1.24	0.58	1.0
7- 17	2.8	0.7	7.6	0.2	--	4.1	0.1	1.0				2.7	0.2	3.1	67.7	TR	1.15	0.52	1.1
17- 27	1.8	0.4	12.4	0.1	--	3.3	0.2	2.3				7.5	--	1.2	87.8	0.1	1.53	0.80	0.9
27- 41	25.0	6.6	83.6	0.3	--	1.9	0.9	24.2				83.8	--	4.0	85.2	0.6	9.46	6.33	1.1
41- 60	24.2	8.6	116.7	0.5	--	1.6	1.1	39.1				101.5	--	6.2	70.3	0.7	12.24	6.74	0.9

Ciervo Laboratory Tables--Continued

	-1-- -2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	CLAY MINERALOGY (<.002mm)																		
		FRACTION	X-RAY					THERMAL				ELEMENTAL							
SAMPLE	DEPTH							DSC		TGA		SiO2	AL2O3	Fe2O3	MgO	CaO	K2O	Na2O	
			7A2i					7A6		7A4b		7C3							
NUMBER	(IN)		peak size					Percent				Percent							
85P5375	0- 7	TCLY	MT 4	KK 3	MC 2	MI 2	FD 1	KK 3						6.3			1.1		
85P5377	17- 27	TCLY	MT 3	KK 3	MC 2	MI 1	FD 1	KK13						6.7			1.3		
85P5379	41- 60	TCLY	MT 4	KK 3	MI 2	QZ 1		KK27						6.4			1.1		

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm

MINERAL INTERPRETATION:

MT	montmorillon	KK	kaolinite	MC	mont-chlorit	MI	mica	FD	feldspar	QZ	quartz

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

REMARKS: This Ciervo pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." Clay texture is the dominant surface texture of this soil and the texture that was determined in the field, therefore clay was described in the Ap1 horizon despite the laboratory data that showed 39.3 percent clay. This soil occurs in an area that is subject to dramatic changes in soil salinity due to its fan skirt position in the landscape and the prevalence of high water tables.

Dospalos Laboratory Tables
PEDON SAMPLE NUMBER: S87CA-019-015 (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL: 415
SOIL NAME: Dospalos clay loam, drained, 0 to 1 percent slopes
CLASSIFICATION: Fine, smectitic, thermic Xeric Endoaquerts

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

SSL - PROJECT 88P 53, (CP88CA079) FRESNO COUNTY
- PEDON 88P 277, SAMPLES 88P 1489- 1497
- GENERAL METHODS 1B1A, 2A1, 2B

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
				(- - -TOTAL	- - -	-)	(- -CLAY-	-)	(- -SILT-	-)	(- - - -	- - -SAND- -		- - - -	-)	(-COARSE FRACTIONS(MM)-)				(>2MM)
SAMPLE NO.	DEPTH (IN)	HORIZON		CLAY LT .002	SILT .002 -.05	SAND .05 -2	FINE LT .0002	CO3 LT .002	FINE .002 -.02	COARSE .02 -.05	VF .05 -.10	F .10 -.25	M .25 -.50	C .5 -1	VC 1 -2	- - - - WEIGHT 2 -5	5 -20	20 -75	- - - - .1- 75	WT PCT OF WHOLE SOIL
				<- - - - - - - - - -	- - -			PCT OF <2MM	(3A1)	- - - -	- - - -	- - - -	- - - -	- - -	->	<- PCT OF	<75MM(3B1)->			
88P1489S	0- 6	Ap1		62.0	31.0	7.0			25.6	5.4	3.1	2.3	1.3	0.3	--	--	--	--	4	--
88P1490S	6- 12	Ap2		60.9	32.6	6.5			26.5	6.1	2.6	2.3	1.1	0.5	--	TR	TR	--	4	--
88P1491S	12- 17	Ap3		60.4	32.7	6.9			26.8	5.9	3.1	2.5	0.9	0.3	0.1	--	--	--	4	--
88P1492S	17- 25	A		58.6	33.1	8.3			26.3	6.8	3.7	2.8	1.5	0.3	--	TR	--	--	5	--
88P1493S	25- 31	Bkssg1		54.9	32.1	13.0		1.8	24.9	7.2	5.0	4.8	2.6	0.6	--	--	--	--	8	--
88P1494S	31- 43	Bkssg2		50.7	34.6	14.7		0.6	24.0	10.6	3.9	6.4	3.5	0.6	0.3	--	--	--	11	--
88P1495S	43- 54	Bkg1		33.7	38.4	27.9		--	27.3	11.1	9.6	11.4	5.7	1.0	0.2	1	TR	--	19	1
88P1496S	54- 65	Bkg2		27.1	27.8	45.1		0.6	17.1	10.7	13.1	20.6	9.7	1.3	0.4	2	TR	--	33	2
88P1497S	65- 73	Bkg3		36.9	44.5	18.6		1.7	31.6	12.9	6.0	7.4	3.7	0.8	0.7	1	TR	--	13	1

DEPTH (IN)	ORGN C 6A1c PCT	TOTAL N 6B3a <2MM	EXTR P 6S3 PPM	TOTAL S 6R3a <- PERCENT	(- - DITH-CIT FE 6C2b	- -) EXTRACTABLE AL 6G7a OF	MN 6D2a <2MM -->	(RATIO/CLAY) CEC 8D1	15 BAR 8D1	(ATTERBERG) - LIMITS - LL 4F1 PCT	PI 4F <0.4MM	(- BULK DENSITY -) FIELD MOIST 4A3a <- -	1/3 BAR 4A1d G/CC -	OVEN DRY 4A1h - - ->	COLE WHOLE SOIL 4D1 CM/CM	(- - -WATER CONTENT - -) FIELD MOIST 4B4 <- -	1/10 BAR 4B1c -PCT OF	1/3 BAR 4B1c <2MM	15 BAR 4B2a - ->	WRD WHOLE SOIL 4C1 CM/CM
0- 6	1.34				1.0	0.1		0.80	0.41										25.3	
6- 12	1.50				1.1	0.2		0.80	0.41										24.7	
12- 17	1.25				1.1	0.2		0.82	0.42				1.14	1.78	0.160			41.4	25.1	0.19
17- 25	1.13				1.2	0.2		0.78	0.43				1.16	1.81	0.160			39.4	25.1	0.17
25- 31	0.41				1.0	0.1		0.66	0.46				1.30	1.72	0.098			30.3	25.0	0.07
31- 43	0.23				1.2	0.1		0.66	0.44				1.28	1.72	0.104			32.4	22.3	0.13
43- 54	0.17				0.9	0.1		0.80	0.52				1.30	1.59	0.069			30.1	17.4	0.16
54- 65	0.12				0.6	0.1		0.68	0.47				1.40	1.59	0.043			23.7	12.8	0.15
65- 73	0.11				0.5	0.1		0.67	0.49				1.41	1.63	0.049			26.7	18.1	0.12

Averages, Depth 10-39 inches: Clay = 56 Pct; 0.1-75mm = 7 Pct; S = All analyses on < 2mm soil material

Dospalos Laboratory Tables—-Continued

PEDON SAMPLE NUMBER: S87CA-019-015

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CO3 AS	RES.	CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		CACO3	OHMS	GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	/CM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	8E1	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - - -MEQ / 100 G - - - - - - - - - - - ->									PCT		<- -PCT- >		PCT		<- -PCT ->			1:2	1:1
0- 6	28.1	16.5	1.4	1.4	47.4	4.4		51.8	49.3	2	3	92	96					6.5	6.5	6.9
6- 12	27.9	16.5	1.5	1.3	47.2	4.5		51.7	48.9	2	3	91	97					6.5	6.5	6.9
12- 17	28.4	16.5	1.5	1.2	47.6	4.1		51.7	49.5	2	3	92	96	--				6.7	6.7	7.1
17- 25	27.6	16.0	1.6	1.3	46.5	3.0		49.5	45.6	3	2	94	100	--				7.0	7.0	7.3
25- 31		14.8	2.9	1.1					36.2	5	3	100	100	4		--		7.6	7.8	7.9
31- 43		12.9	2.6	0.9					33.6	5	4	100	100	4	650			7.7	7.8	8.1
43- 54		10.9	1.4	0.8					27.0	4	3	100	100	3				7.8	7.8	8.2
54- 65		8.4	0.7	0.6					18.3	3	2	100	100	4				7.9	7.8	8.3
65- 73		10.7	0.8	1.0					24.8	3	2	100	100	7				7.9	7.8	8.3

	(- - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT-	->	/M	/M	(PPM)
0- 6	2.6	2.1	4.0	0.2	--	5.0	0.2	0.6				2.7	--	--	85.8	TR	0.88	0.51	0.5
6- 12	3.2	2.6	4.3	0.2	--	5.3	0.2	3.1				2.3	--	--	86.7	TR	0.10	0.58	0.5
12- 17	2.3	1.8	3.7	0.1	--	4.7	0.2	1.6				2.2	--	--	88.1	TR	0.80	0.40	0.6
17- 25	3.1	2.4	4.1	0.1	--	5.4	0.2	2.3				2.5	--	--	92.6	TR	0.97	0.51	0.6
25- 31	23.3	11.4	14.4	0.3	--	2.1	1.1	9.0				34.6	--	--	85.8	0.3	4.00	1.82	0.5
31- 43	7.7	4.6	10.1	0.2	--	2.3	0.6	8.0				14.1	--	--	84.0	0.1	2.28	1.16	0.5
43- 54	4.0	2.4	5.6	0.2	--	2.4	0.3	3.9				6.3	--	--	69.2	TR	1.26	0.60	0.3
54- 65	3.4	2.1	3.4	0.1	--	2.2	0.2	2.5				4.6	--	--	54.8	TR	0.95	0.39	0.1
65- 73	2.7	1.5	2.5	0.1	--	2.5	0.2	1.6				3.5	--	--	71.0	TR	0.74	0.39	0.1

REMARKS: This Dospalos pedon is the typical pedon for the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology."

Gewter Laboratory Tables
PEDON SAMPLE NUMBER: S84CA-019-004 (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL: 725
SOIL NAME: Gewter clay, 15 to 30 percent slopes
CLASSIFICATION: Very-fine, smectitic, thermic Ultic Haploxeralfs

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

SSL - PROJECT 86P 64, (CP86CA117) FRESNO COUNTY
- PEDON 86P 313, SAMPLES 86P 1853- 1855
- GENERAL METHODS 1B1A, 2A1, 2B

SAMPLE NO.	-1-- DEPTH (IN)	-2-- HORIZON	-3--	-4-- TOTAL CLAY LT .002	-5-- TOTAL SILT .002 -.05	-6-- TOTAL SAND .05 -2	-7-- CLAY FINE LT .0002	-8-- CLAY CO3 LT .002	-9-- SILT FINE .002 -.02	-10- SILT COARSE .02 -.05	-11- SAND VF .05 -.10	-12- SAND F .10 -.25	-13- SAND M .25 -.50	-14- SAND C .5 -1	-15- SAND VC 1 -2	-16- COARSE FRACTIONS (MM) WEIGHT 2 -5	-17- COARSE FRACTIONS (MM) WEIGHT 5 -20	-18- COARSE FRACTIONS (MM) WEIGHT 20 -75	-19- COARSE FRACTIONS (MM) WEIGHT .1- 75	-20- (>2MM) WT PCT OF WHOLE SOIL
				<- - - - - - - - - - - - - PCT OF <2MM (3A1)											- - - - - - - - - - - - - ->	<- PCT OF <75MM(3B1)->				SOIL
86P1853S	0- 4	ABt		62.8	31.8	5.4			29.1	2.7	1.0	1.9	1.3	0.9	0.3	TR	TR	--	4	2 1
86P1854S	4- 13	Bt		61.0	33.1	5.9			30.7	2.4	1.1	1.9	1.5	1.0	0.4	TR	--	--	5	TR 1
86P1855S	13- 23	BCt		63.9	29.7	6.4			28.6	1.1	0.9	1.8	1.7	1.4	0.6	1	1	--	7	2 1

DEPTH (IN)	ORGN C 6A1c PCT	TOTAL N 6B3a <2MM	EXTR P 6S3 PPM	TOTAL S 6R3a <- PERCENT	DITH-CIT EXTRACTABLE FE 6C2b OF	DITH-CIT EXTRACTABLE AL 6G7a <2MM	DITH-CIT EXTRACTABLE MN 6D2a -->	(RATIO/CLAY) CEC 8D1	(RATIO/CLAY) 15 BAR 8D1	(ATTERBERG) - LIMITS - LL 4F1 PCT	(ATTERBERG) - LIMITS - PI 4F <0.4MM	BULK DENSITY FIELD MOIST 4A3a <- -	BULK DENSITY 1/3 BAR 4A1d G/CC	BULK DENSITY OVEN DRY 4A1h - - ->	COLE WHOLE SOIL 4D1 CM/CM	WATER CONTENT FIELD MOIST 4B4 <- - -	WATER CONTENT 1/10 BAR 4B1c PCT	WATER CONTENT 1/3 BAR 4B1c OF <2MM	WATER CONTENT 15 BAR 4B2a - ->	WRD WHOLE SOIL 4C1 CM/CM
0- 4	0.70							0.65	0.37										23.2	
4- 13	0.59							0.69	0.39										24.0	
13- 23	0.44							0.76	0.43										27.4	

Averages, Depth 4-13 inches: Clay = 61 Pct; 0.1-75mm = 5 Pct.
S = All analyses on < 2mm soil material

PEDON SAMPLE NUMBER: S84CA-019-004

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-	EXTR	(- - - -CEC - - -)			AL	-BASE SAT-		CO3 AS	RES.	TOTAL		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY	AL	SUM	NH4-	BASES	SAT	SUM	NH4	CACO3	OHMS	SELENIUM			CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC	+ AL			OAC	<2MM	/CM	CONTENT			.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a	6G9a	5A3a	5A8b	5A3b	5G1	5C3	5C1	6E1g	8E1	8P			8C1f	8C1f
	<- - - - - - - - - - - - -MEQ / 100 G - - - - - - - - - - - ->										<- - - - -PCT - - - ->					MG/KG			1:2	1:1
																(PPM)				
0- 4	10.8	6.3	0.4	1.6	19.1	23.8	11.5	42.9	41.1	30.6	38	45	46			10.5			3.8	4.5
4- 13	11.7	5.7	1.2	1.4	20.0	24.0	12.1	44.0	41.8	32.1	38	45	48			12.5			3.7	4.6
13- 23	12.3	6.2	1.7	1.4	21.6	27.5	16.6	49.1	48.3	38.2	43	44	45			22.7			3.7	4.6

-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-	
		< - CLAY MINERALOGY (<.002mm) - >																		
				FRACT	< - - - - - - X-RAY - - - - - ->					< - - - THERMAL - - - ->				< - - - - - - - - ELEMENTAL - - - - - - - - ->						< - ->
SAMPLE		DEPTH		ION <						< - DSC - ->		< - TGA - ->		SiO2	AL2O3	Fe2O3	MgO	CaO	K2O	Na2O < >
					< - - - - - - 7A2i - - - - - ->					< - 7A6 - >		< - 7A4b - >		< - - - - - - - - - - 7C3 - - - - - - - - - ->						>
NUMBER		(IN)		<- - >	< - - - - peak size - - - - ->					< - - - Percent - - - ->				< - - - - - - - - - Percent - - - - - - - ->						< - ->
86P1854		4- 13		TCLY	MT 4	KK 2	FD 1			----						3.3			0.5	

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm

MINERAL INTERPRETATION:

MT montmorillon KK kaolinite FD feldspar

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

REMARKS: This Gewter pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." This soil has very soft, highly fractured 2 to 20 mm sized shale parachanners that easily breakdown to clay-sized particles. These soils are considered a major source of selenium to certain alluvial fans in the soil survey.

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                                                Grazer Laboratory Tables
SAMPLE PEDON NUMBER: S84CA-019-011             (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL:        745
SOIL NAME:         Grazer silty clay loam in an area of Grazer-Wisflat-Arburua Association, 8 to 50 percent slopes
CLASSIFICATION:    Fine, smectitic, thermic Typic Haploxeralfs
                                                                                              UNITED STATES DEPARTMENT OF AGRICULTURE
SSL - PROJECT 86P  64, (CP86CA117) FRESNO COUNTY                                              NATURAL RESOURCES CONSERVATION SERVICE
    - PEDON   86P 314, SAMPLES 86P 1856- 1857                                                 NATIONAL SOIL SURVEY CENTER
    - GENERAL METHODS  1B1A, 2A1, 2B                                                          SOIL SURVEY LABORATORY
                                                                                              LINCOLN, NEBRASKA 68508-3866

            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
-----------------------------------------------------------------------------------------------------------------------------------
                             (- - -TOTAL - - -)(- -CLAY- -)(- -SILT- -)(- - - -  - -SAND- -  - - - -)(-COARSE FRACTIONS(MM)-)(>2MM)
                              CLAY  SILT  SAND  FINE   CO3  FINE COARSE  VF     F     M     C    VC   - - - - WEIGHT - - - -   WT
SAMPLE     DEPTH   HORIZON     LT   .002  .05    LT    LT   .002  .02   .05   .10   .25    .5     1    2     5    20     .1- PCT OF
 NO.       (IN)               .002  -.05   -2  .0002  .002  -.02  -.05  -.10  -.25  -.50   -1    -2   -5   -20   -75    75  WHOLE
                              <- - - - - - - - - - - - PCT OF <2MM  (3A1) - - - - - - - - - - - - ->  <- PCT OF <75MM(3B1)->  SOIL

86P1856S  11- 23   Btk1        44.9  44.2  10.9              34.7   9.5   6.6   3.3   0.8   0.2    --  TR    --    --      4  TR
86P1857S  23- 34   Btk2        48.1  41.7  10.2              32.7   9.0   7.4   1.9   0.7   0.2    --  TR    --    --      3  TR

----------------------------------------------------------------------------------------------------------------------------------
            ORGN TOTAL  EXTR TOTAL (- - DITH-CIT - -)(RATIO/CLAY)(ATTERBERG )(- BULK DENSITY -) COLE (- - -WATER CONTENT - -)  WRD
             C     N      P    S       EXTRACTABLE          15   - LIMITS -  FIELD  1/3  OVEN WHOLE FIELD  1/10   1/3   15  WHOLE
 DEPTH                               FE    AL    MN    CEC   BAR   LL    PI   MOIST  BAR  DRY   SOIL MOIST  BAR   BAR   BAR  SOIL
  (IN)      6A1c  6B3a  6S3   6R3a  6C2b  6G7a  6D2a   8D1   8D1  4F1    4F   4A3a  4A1d  4A1h  4D1   4B4  4B1c  4B1c  4B2a  4C1
            PCT   <2MM   PPM <- PERCENT  OF  <2MM -->              PCT <0.4MM  <- - G/CC - - -> CM/CM  <- - -PCT OF <2MM - -> CM/CM

 11- 23     0.63                                       0.82  0.43                                                          19.4
 23- 34     0.43                                       0.77  0.43                                                          20.7

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Averages, Depth 11-31 inches: Clay = 46 Pct; 0.1-75mm = 4
S = All analyses on < 2mm soil material
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Grazer Laboratory Tables--Continued

SAMPLE PEDON NUMBER: S84CA-019-011

DEPTH (IN)	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CARBONATE		CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		AS CACO3		GYPSUM		SAT	CACL2	H2O
	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	<20MM	<2MM	<20MM	PASTE	.01M	
	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	6E4	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		<- -PCT ->		<- -PCT ->			1:2	1:1
11- 23		3.9	0.3	3.1					36.6	1	TR	100	100	4				7.5	7.8	8.2
23- 34		4.2	1.9	2.1					36.9	5	3	100	100	4				7.6	7.8	8.4

DEPTH (IN)	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	TOTAL SALTS EST.	ELEC. COND.	PRED. ELEC. COND.
	(- - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - -)																	
																	8A3a	8I
	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT-	->	/M	/M
11- 23	2.6	0.3	0.6	0.5	--	2.7	0.1	0.5				0.5	--	--	63.8	TR	0.41	0.50
23- 34	1.1	0.2	2.5	0.2	--	2.4	0.3	0.4				0.6	--	--	68.1	TR	0.38	0.41

SAMPLE NUMBER	DEPTH (IN)	FRACTION																	
	-1-- -2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
		< - CLAY MINERALOGY (<.002mm) - >																	
			< - - - - - - X-RAY - - - - - - ->					< - - - THERMAL - - - ->				< - - - - - - - - ELEMENTAL - - - - - - - - ->							< - ->
			<					< - - DSC - ->		< - - TGA - - ->		SiO2	AL2O3	Fe2O3	MgO	CaO	K2O	Na2O	< >
			< - - - - - - 7A2i - - - - - - ->					< - - 7A6 - >		< - - 7A4b - - >		< - - - - - - - - - - 7C3 - - - - - - - - - - ->							< >
		<- - >	< - - - - - peak size - - - - - ->					< - - - Percent - - - ->				< - - - - - - - - - Percent - - - - - - - - ->							< - ->
86P1856	11- 23	TCLY	MT 3	KK 3	MI 3	CA 1		KK17						7.4			1.9		
86P1857	23- 34	TCLY	MT 3	KK 3	MI 2	CA 1		KK 7						7.0			1.7		

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm

MINERAL INTERPRETATION:

MT montmorillon	KK kaolinite	MI mica	CA calcite

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

REMARKS: This Grazer pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology."

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                                                      Lethent Laboratory Tables
SAMPLE PEDON NUMBER: S87CA-019-006                   (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL:       435
SOIL NAME:        Lethent clay loam, 0 to 1 percent slopes
CLASSIFICATION:   Fine, smectitic, thermic Typic Natrargids
                                                                                            UNITED STATES DEPARTMENT OF AGRICULTURE
SSL - PROJECT 87P 164, (CP87CA253) FRESNO COUNTY                                            NATURAL RESOURCES CONSERVATION SERVICE
    - PEDON   87P 765, SAMPLES 87P 4130- 4135                                               NATIONAL SOIL SURVEY CENTER
    - GENERAL METHODS  1B1A, 2A1, 2B                                                        SOIL SURVEY LABORATORY
                                                                                            LINCOLN, NEBRASKA 68508-3866

            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
------------------------------------------------------------------------------------------------------------------------------------
                             (- - -TOTAL - - -)(- -CLAY- -)(- -SILT- -)(- - - -  - -SAND- -  - - - -)(-COARSE FRACTIONS(MM)-)(>2MM)
                              CLAY  SILT  SAND  FINE   CO3  FINE COARSE  VF     F     M     C    VC   - - - - WEIGHT - - - -   WT
SAMPLE     DEPTH   HORIZON     LT   .002  .05    LT    LT   .002  .02   .05   .10   .25    .5     1    2    5     20     .1- PCT OF
  NO.      (IN)               .002  -.05   -2  .0002  .002  -.02  -.05  -.10  -.25  -.50   -1     -2   -5   -20   -75     75  WHOLE
                              <- - - - - - - - - - - - PCT OF <2MM  (3A1) - - - - - - - - - - - - - ->  <- PCT OF <75MM(3B1)->  SOIL

87P4130S   0-  7   Ap1         27.7  37.0  35.3              21.9  15.1  19.9  13.5   1.5   0.4    --  --    --    --      15  --
87P4131S   7- 16   Ap2         28.3  37.6  34.1              23.0  14.6  19.8  12.1   1.7   0.5    --  --    --    --      14  --
87P4132S  16- 25   Ap3         30.7  36.2  33.1          --  22.6  13.6  17.9  13.3   1.7   0.2    --  --    --    --      15  --
87P4133S  25- 33   Btkn1       37.0  38.7  24.3          --  27.5  11.2  13.2   9.5   1.5   0.1    --  --    --    --      11  --
87P4134S  33- 62   Btkn2       32.9  46.5  20.6         0.9  34.9  11.6  11.4   7.8   1.3   0.1    --  --    --    --       9  --
87P4135S  62- 72   C           28.3  49.4  22.3         0.3  31.5  17.9  15.3   5.9   1.1    --    --  --    --    --       7  --

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            ORGN TOTAL  EXTR TOTAL (- - DITH-CIT - -)(RATIO/CLAY)(ATTERBERG )(- BULK DENSITY -) COLE (- - -WATER CONTENT - -)  WRD
             C     N      P    S       EXTRACTABLE           15   - LIMITS -  FIELD  1/3  OVEN WHOLE FIELD  1/10  1/3    15  WHOLE
 DEPTH                               FE    AL    MN    CEC   BAR   LL    PI   MOIST  BAR  DRY   SOIL MOIST   BAR   BAR   BAR  SOIL
  (IN)      6A1c  6B3a  6S3   6R3a  6C2b  6G7a  6D2a   8D1   8D1  4F1    4F   4A3a  4A1d  4A1h  4D1   4B4   4B1c  4B1c  4B2a   4C1
            PCT   <2MM   PPM <- PERCENT  OF  <2MM -->             PCT <0.4MM  <- - G/CC - - -> CM/CM  <- - -PCT OF <2MM - -> CM/CM

  0-  7     0.96                                      0.84  0.45                                                        12.5
  7- 16     0.96                                      0.86  0.44                                                        12.5
 16- 25     0.52                                      0.87  0.44                                                        13.6
 25- 33     0.35                                      0.80  0.48                                                        17.7
 33- 62     0.26                                      0.83  0.45                                                        14.8
 62- 72     0.26                                      0.93  0.46                                                        13.1

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S = All analyses on < 2mm soil material
```

Lethent Laboratory Tables--Continued

SAMPLE PEDON NUMBER: S87CA-019-006

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CARBONATE		CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		AS CACO3		GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	<20MM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	6E4	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		<- -PCT ->		<- -PCT ->			1:2	1:1
0- 7	23.7	7.3	0.7	1.1	32.8			32.8	23.2	2	2	100	100	TR				7.5	7.6	8.0
7- 16	25.1	7.6	1.2	1.2	35.1			35.1	24.3	4	3	100	100	TR				7.6	7.7	8.0
16- 25	27.0	9.5	4.2	0.6	41.3			41.3	26.7	13	9	100	100	TR				7.8	8.0	8.4
25- 33		10.6	7.5	0.6					29.6	23	15	100	100	2				8.3	8.2	8.8
33- 62		10.3	10.5	0.6					27.2	21	16	100	100	2		TR		7.9	8.0	7.9
62- 72	30.7	8.7	9.6	0.7	49.7			49.7	26.3	21	14	100	100	TR		--		7.8	7.9	7.9

	(- - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT- ->		/M	/M	(PPM)
0- 7	6.8	3.4	4.0	0.5	--	5.6	0.1	3.8				2.7	--	3.1	54.2	TR	1.41	0.47	0.02
7- 16	4.2	2.0	5.3	0.4	--	3.7	0.1	1.7				3.1	--	3.4	62.6	TR	1.17	0.46	0.02
16- 25	1.9	1.1	11.0	0.1	--	3.1	0.2	4.4				6.4	--	0.8	57.1	TR	1.45	0.65	0.03
25- 33	0.6	0.3	10.2	TR	--	2.6	0.2	4.1				4.5	--	0.7	68.7	TR	1.20	0.71	0.03
33- 62	27.8	18.4	77.3	0.2	--	1.1	1.2	39.5				86.6	--	--	63.0	0.5	9.51	4.37	--
62- 72	28.8	16.1	68.7	0.3	--	0.9	0.9	74.1				48.4	--	--	59.8	0.5	9.97	3.64	--

Lethent Laboratory Tables--Continued

SAMPLE NUMBER	DEPTH (IN)	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	-1-- -2--	CLAY MINERALOGY (<.002mm)																	
		FRACTION	X-RAY					THERMAL				ELEMENTAL							
								DTA		TGA		SiO2	AL2O3	Fe2O3	MgO	CaO	K2O	Na2O	
			7A2i					7A6		7A4b		7C3							
			peak size					Percent				Percent							
87P4130	0- 7	TCLY	MT 3	VR 3	KK 3	MI 2	QZ 1						15.0	8.9			1.9		
87P4131	7- 16	TCLY	MT 3	KK 3	VR 2	MI 2	MM 2						18.0	9.9			2.0		
87P4131	7- 16	TCLY	CL 2	QZ 1															
87P4132	16- 25	TCLY	MT 3	KK 3	VR 2	MI 2	CL 1						16.0	8.9			1.6		
87P4132	16- 25	TCLY	QZ 1																
87P4133	25- 33	TCLY	MT 3	KK 3	VR 2	MI 2	CL 2						13.0	7.0			1.4		
87P4133	25- 33	TCLY	QZ 1																
87P4134	33- 62	TCLY	MT 3	KK 3	VR 3	MI 2	CL 1						15.0	9.0			1.7		
87P4134	33- 62	TCLY	QZ 1																
87P4135	62- 72	TCLY	MT 3	KK 3	VR 2	MI 2	CL 1						16.0	8.4			1.7		
87P4135	62- 72	TCLY	QZ 1																

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm

MINERAL INTERPRETATION:

MT montmorillon	VR vermiculite	KK kaolinite	MI mica	QZ quartz	MM mont-mica
CL chlorite					

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

REMARKS: This Lethent pedon is the typical pedon for the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." This soil occurs in an area that has been subject to significant changes in soil salinity and sodicity. It has been ripped periodically and has had applications of gypsum and significant amounts of irrigation water applied.

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                                                      Lillis Laboratory Tables
SAMPLE PEDON NUMBER: S85CA-019-001                   (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL:          284
SOIL NAME:           Lillis clay, 0 to 1 percent slopes
CLASSIFICATION:      Very-fine, smectitic, thermic Halic Haploxererts
                                                                                            UNITED STATES DEPARTMENT OF AGRICULTURE
SSL - PROJECT 85P 189, (CP85CA287) FRESNO COUNTY                                            NATURAL RESOURCES CONSERVATION SERVICE
    - PEDON   85P 985, SAMPLES 85P 5348- 5356                                               NATIONAL SOIL SURVEY CENTER
    - GENERAL METHODS  1B1A, 2A1, 2B                                                        SOIL SURVEY LABORATORY
                                                                                            LINCOLN, NEBRASKA 68508-3866

            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
------------------------------------------------------------------------------------------------------------------------------------
                             (- - -TOTAL - - -)(- -CLAY- -)(- -SILT- -)(- - - -  - -SAND- -  - - - -)(-COARSE FRACTIONS(MM)-)(>2MM)
                              CLAY  SILT  SAND  FINE   CO3  FINE COARSE  VF     F     M     C    VC  - - - - WEIGHT - - - -    WT
SAMPLE     DEPTH   HORIZON     LT  .002   .05    LT    LT  .002   .02   .05   .10   .25    .5     1    2     5    20     .1- PCT OF
 NO.       (IN)              .002  -.05    -2 .0002  .002  -.02  -.05  -.10  -.25  -.50    -1    -2   -5   -20   -75     75  WHOLE
                              <- - - - - - - - - - - - - PCT OF <2MM  (3A1) - - - - - - - - - - - - - ->  <- PCT OF <75MM(3B1)->  SOIL

85P5348S   0-  2   Ap1        60.9  33.4   5.7              26.0   7.4   3.2   1.9   0.4   0.2    --  --    --    --       2  -- 4
85P5349S   2-  7   Ap2        61.8  32.4   5.8              24.9   7.5   3.4   1.8   0.5   0.1    --  --    --    --       2  -- 4
85P5350S   7- 13   Bnssz      63.5  29.8   6.7              17.1  12.7   4.0   2.4   0.3    --    --  --    --    --       3  -- 4
85P5351S  13- 21   Bnssyz     64.6  28.6   6.8              23.6   5.0   3.8   2.7   0.3    --    --  --    --    --       3  -- 4
85P5352S  21- 28   Bnzg       64.5  32.5   3.0              26.0   6.5   2.0   0.8   0.2    --    --  --    --    --       1  -- 4
85P5353S  28- 39   Bknzg1     63.8  33.2   3.0              26.8   6.4   2.0   0.7   0.3    --    --  --    --    --       1  -- 4
85P5354S  39- 48   Bknzg2     64.2  33.8   2.0              26.8   7.0   1.6   0.4    --    --    --  29    --    --      29  29 4
85P5355S  48- 60   Bknzg3     66.0  30.4   3.6              25.8   4.6   1.8   1.1   0.5   0.2    --  --    --    --       2  -- 4

------------------------------------------------------------------------------------------------------------------------------------
            ORGN TOTAL  EXTR TOTAL (- - DITH-CIT - -)(RATIO/CLAY)(ATTERBERG )(- BULK DENSITY -) COLE (- - -WATER CONTENT - -)  WRD
             C     N      P     S        EXTRACTABLE          15     - LIMITS -  FIELD  1/3  OVEN WHOLE FIELD  1/10   1/3   15  WHOLE
 DEPTH                                 FE    AL    MN     CEC   BAR   LL    PI   MOIST  BAR  DRY   SOIL MOIST  BAR   BAR   BAR  SOIL
  (IN)      6A1c  6B3a  6S3   6R3a  6C2b  6G7a  6D2a   8D1   8D1  4F1    4F   4A3a  4A1d  4A1h  4D1   4B4   4B1c  4B1c  4B2a  4C1
            PCT   <2MM   PPM <- PERCENT  OF  <2MM -->              PCT <0.4MM  <- - G/CC - - -> CM/CM  <- - -PCT OF <2MM - -> CM/CM

  0-  2     0.56 0.057                                0.69  0.37    65    40        1.00                                22.8
  2-  7     0.54 0.059                                0.62  0.38                    1.20  1.87 0.159              40.6  23.4  0.21
  7- 13     0.36 0.040                                0.60  0.38    73    49        1.21  1.72 0.124              40.4  24.1  0.20
 13- 21     0.22                                      0.61  0.38                    1.22  1.92 0.163              40.9  24.7  0.20
 21- 28     0.36                                      0.60  0.39    80    55        1.21  1.94 0.170              42.1  25.1  0.21
 28- 39     0.29                                      0.62  0.39                    1.07  2.14 0.260              47.6  25.0  0.24
 39- 48     0.23                                      0.62  0.40    82    61        1.10  2.05 0.231              48.1  25.8  0.25
 48- 60     0.27                                      0.58  0.40                    1.13  1.99 0.208              45.8  26.4  0.22

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Averages, Depth 10-39 inches: Clay = 64 Pct; 0.1-75mm = 2; S = All analyses on < 2mm soil material
Estimated Bulk Density for layer 1.
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Lillis Laboratory Tables--Continued

SAMPLE PEDON NUMBER: S85CA-019-001

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CO3 AS	RES.	CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		CACO3	OHMS	GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	/CM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	8E1	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		PCT		<- -PCT ->			1:2	1:1
0- 2		16.9	16.8	2.2					42.2	23	20	100	100	2		4		8.0	8.2	8.2
2- 7		17.8	32.8	2.2					38.4	43	39	100	100	2		5		8.3	8.4	8.4
7- 13		24.1	55.9	2.4					37.9	61	55	100	100	1		5		8.4	8.7	8.7
13- 21		20.6	56.6	2.2					39.5	58	59	100	100	1		3		8.3	8.5	8.7
21- 28		24.6	74.1	2.3					38.7	81	66	100	100	2		6		8.5	8.7	8.8
28- 39		24.2	78.9	2.1					39.3	78	72	100	100	1		6		8.4	8.5	8.4
39- 48		23.9	86.4	1.9					39.5	84	71	100	100	1	110	6		8.2	8.3	8.3
48- 60		33.5	109.8	1.9					38.2	121	66	100	100	1		6		8.0	8.1	8.1

	(- - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - - MEQ / LITER ->														<- -PCT-	->	/M	/M	(PPM)
0- 2	24.3	10.0	84.0	1.0	--	4.3	0.8	10.2				99.7	--	--	82.4	0.6	9.65	6.43	0.5
2- 7	22.1	15.2	166.9	1.1	--	2.2	1.2	31.4				163.4	--	3.3	98.4	1.3	15.75	11.33	0.5
7- 13	24.1	34.2	297.6	1.4	--	2.2	2.5	42.4				300.1	--	5.2	110.2	2.5	26.50	16.24	0.6
13- 21	23.8	38.2	328.2	1.4	--	2.3	3.5	40.9				345.5	--	9.0	103.2	2.5	28.10	16.25	0.6
21- 28	23.5	40.6	372.5	1.6	--	2.3	3.5	34.6				404.1	--	--	114.4	3.1	30.90	19.04	0.3
28- 39	23.9	48.6	433.6	1.7	--	2.4	3.9	42.1				451.5	--	10.9	111.4	3.4	35.00	22.20	0.3
39- 48	23.7	55.0	448.4	1.5	--	1.7	3.9	40.5				461.1	--	10.7	119.0	3.7	35.50	24.00	0.7
48- 60	24.0	87.9	495.7	1.6	--	1.9	4.3	42.4				542.0	--	11.0	127.9	4.4	38.60	28.10	0.7

Lillis Laboratory Tables--Continued

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	CLAY MINERALOGY (<.002mm)																			
			FRACTION	X-RAY					THERMAL				ELEMENTAL							
SAMPLE	DEPTH								DSC		TGA		SiO2	AL2O3	Fe2O3	MgO	CaO	K2O	Na2O	
				7A2i					7A6		7A4b		7C3							
NUMBER	(IN)			peak size					Percent				Percent							
85P5348	0- 2		TCLY	MT 3	KK 2	MI 1	CL 1		KK14						6.1			1.4		
85P5350	7- 13		TCLY	MT 3	KK 3	MI 2	CL 2		KK12						6.3			1.6		
85P5352	21- 28		TCLY	MT 3	KK 3	MI 2	CL 1		KK21						6.9			1.5		
85P5354	39- 48		TCLY	MT 3	KK 3	MI 2	CL 1		KK10						6.4			1.7		
85P5356			TCLY	MT 3	KK 2	MI 2	CL 2		KK16						6.7			1.5		

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm

MINERAL INTERPRETATION:

MT montmorillon	KK kaolinite	MI mica	CL chlorite

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

REMARKS: This Lillis pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." This pedon has selenium content typical of soils on fan skirt landforms in the lower elevations of the Panoche Creek alluvial fan. Selenium content increases in soils on higher elevations within the Panoche Creek alluvial fan.

Lilten Laboratory Tables
(FRESNO COUNTY, CALIFORNIA)

PEDON SAMPLE NUMBER: S84CA-019-014

MAP SYMBOL: 740
SOIL NAME: Lilten silty clay loam, in an area of Domengine-Lilten-Rock outcrop complex, 30 to 65 percent slopes
CLASSIFICATION: Fine, smectitic, calcareous, thermic Typic Xerorthents

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

SSL - PROJECT 86P 64, (CP86CA117) FRESNO COUNTY
- PEDON 86P 315, SAMPLES 86P 1858- 1862
- GENERAL METHODS 1B1A, 2A1, 2B

			-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-
			(- - -TOTAL	- - -	-)	(- -CLAY-	-)	(- -SILT-	-)	(- - - -	- -	-SAND-	- -	- - - -)	(-COARSE FRACTIONS(MM)-)				(>2MM)
			CLAY	SILT	SAND	FINE	CO3	FINE	COARSE	VF	F	M	C	VC	- - - - WEIGHT - - - -				WT
SAMPLE NO.	DEPTH (IN)	HORIZON	LT .002	.002 -.05	.05 -2	LT .0002	LT .002	.002 -.02	.02 -.05	.05 -.10	.10 -.25	.25 -.50	.5 -1	1 -2	2 -5	5 -20	20 -75	.1- 75	PCT OF WHOLE SOIL
			<- - - - - - - - - - - - - PCT OF <2MM (3A1) - - - - - - - - - - - - - ->												<- PCT OF <75MM(3B1)->				
86P1858S	0- 2	A1	33.9	48.3	17.8			32.4	15.9	9.7	5.8	1.7	0.4	0.2	TR	--	--	8	TR
86P1859S	2- 8	A2	35.6	47.2	17.2			32.4	14.8	9.9	5.5	1.3	0.3	0.2	--	--	--	7	--
86P1860S	8- 18	A3	36.7	46.5	16.8			32.3	14.2	10.0	5.3	1.2	0.3	--	--	--	--	7	--
86P1861S	18- 28	C1	37.1	47.8	15.1			32.1	15.7	9.7	4.0	1.1	0.3	--	TR	--	--	5	TR
86P1862S	28- 41	C2	36.9	50.1	13.0			36.1	14.0	7.9	3.8	0.9	0.3	0.1	3	2	--	10	5

(Column headers -18-, -19-, -20- stand over the last three columns.)

DEPTH (IN)	ORGN C 6A1c PCT	TOTAL N 6B3a <2MM	EXTR P 6S3 PPM	TOTAL S 6R3a	(- - DITH-CIT - -) EXTRACTABLE FE 6C2b	AL 6G7a	MN 6D2a	(RATIO/CLAY) CEC 8D1	15 BAR 8D1	(ATTERBERG) - LIMITS - LL 4F1	PI 4F	(- BULK DENSITY -) FIELD MOIST 4A3a	1/3 BAR 4A1d	OVEN DRY 4A1h	COLE WHOLE SOIL 4D1 CM/CM	(- - -WATER CONTENT - -) FIELD MOIST 4B4	1/10 BAR 4B1c	1/3 BAR 4B1c	15 BAR 4B2a	WRD WHOLE SOIL 4C1 CM/CM
				<- PERCENT	OF	<2MM -->				PCT <0.4MM		<- - G/CC	- - ->			<- - -PCT OF <2MM - ->				
0- 2	1.35							0.81	0.40										13.4	
2- 8	0.85							0.76	0.36										12.9	
8- 18	0.56							0.77	0.35										12.7	
18- 28	0.34							0.79	0.36										13.5	
28- 41	0.28							0.80	0.39										14.4	

Averages, Depth 10-39 inches: Clay 37 Pct; 0.1-75mm = 7; S = All analyses on < 2mm soil material
dS/M of 1:2 Soil:Water Extract (8I) and Exchangeable NA as Extractable NA for Layers 2, 3, 4, 5.

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                                                Lilten Laboratory Tables--Continued
PEDON SAMPLE NUMBER: S84CA-019-014


            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
-----------------------------------------------------------------------------------------------------------------------------------
           (- NH4OAC EXTRACTABLE BASES -) ACID-      (- -CEC-  -) EXCH   SAR     BASE     CARBONATE    CASO4 AS  (- - - -PH - - -)
             CA   MG     NA     K   SUM    ITY        SUM   NH4-   NA         SATURATION   AS CACO3     GYPSUM    SAT  CACL2  H2O
 DEPTH      5B5a  5B5a  5B5a  5B5a BASES              CATS   OAC               SUM NH4OAC <2MM <20MM  <2MM <20MM PASTE  .01M
  (IN)      6N2e  6O2d  6P2b  6Q2b        6H5a        5A3a  5A8b   5D2    5E   5C3    5C1 6E1g   8E1  6F1a  6F4   8C1b  8C1f  8C1f
            <- - - - - - - - - -MEQ / 100 G - - - - - - - - - ->  PCT        <- -PCT- >  <- -PCT ->  <- -PCT ->         1:2  1:1

  0-  2     21.7   5.0   0.1   1.0  27.8   2.4        30.2  27.4    TR    TR    92   100                           6.6   6.6   7.1
  2-  8     20.7   4.8   0.1   0.9  26.5   2.8        29.3  27.1    TR          90    98                                 6.5   7.2
  8- 18     21.4   5.0   0.1   0.6  27.1   2.4        29.5  28.1    TR          92    96                                 6.4   7.1
 18- 28     20.7   5.8   0.2   0.5  27.2   3.6        30.8  29.4     1          88    93                                 5.8   6.5
 28- 41     22.8   5.6   0.2   0.5  29.1   2.1        31.2  29.4     1          93    99                                 6.6   7.2

-----------------------------------------------------------------------------------------------------------------------------------
           ( - - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - )PRED.
                                                                                                      TOTAL ELEC. ELEC.
             CA   MG     NA     K    CO3  HCO3    F    CL    PO4   Br    OAC   SO4   NO2   NO3  H2O   SALTS COND. COND.
 DEPTH                                                                                                 EST.  8A3a    8I
  (IN)      6N1b  6O1b  6P1b  6Q1b  6I1b  6J1b  6U1a  6K1c  6S9a  6X1a  6Y1a  6L1c  6W1a  6M1c   8A    8D5   dS     dS
           <- - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - -> <- -PCT- ->   /M     /M

  0-  2      4.8   1.5   0.2   0.4    --   5.3   0.3   0.3                     0.5    --    --  56.9    TR  0.62  0.25
  2-  8                                                                                                           0.08
  8- 18                                                                                                           0.08
 18- 28                                                                                                           0.04
 28- 41                                                                                                           0.10

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```

Lilten Laboratory Tables--Continued

	-1-- -2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	CLAY MINERALOGY (<.002mm)																		
		FRACT	X-RAY					THERMAL				ELEMENTAL							
SAMPLE	DEPTH	ION						DSC		TGA		SiO2	AL2O3	Fe2O3	MgO	CaO	K2O	Na2O	
			7A2i					7A6		7A4b		7C3							
NUMBER	(IN)		peak size					Percent				Percent							
86P1858	0- 2	TCLY	MT 4	KK 3	MI 2			KK 7						7.1			1.7		
86P1860	8- 18	TCLY	MT 4	KK 3	MI 2	VR 1		KK 1						7.0			1.6		
86P1862	28- 41	TCLY	MT 3	KK 3	MI 2	VR 1		KK 9						6.9			1.7		

FRACTION INTERPRETATION:

TCLY Total Clay, <0.002mm

MINERAL INTERPRETATION:

MT montmorillon	KK kaolinite	MI mica	VR vermiculite

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

REMARKS: This Lilten pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology."

```
                                                    Monoridge Laboratory Tables
PEDON SAMPLE NUMBER: S84CA-019-001                  (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL:       710
SOIL NAME:        Monoridge fine sand, in an area of Monoridge-Exclose-Badland association, 30 to 65 percent slopes
CLASSIFICATION:   Mixed, thermic Typic Xeropsamments
                                                                                            UNITED STATES DEPARTMENT OF AGRICULTURE
SSL - PROJECT 87P  55, (CP87CA093) FRESNO COUNTY                                            NATURAL RESOURCES CONSERVATION SERVICE
    - PEDON   87P 248, SAMPLES 87P 1227- 1228                                               NATIONAL SOIL SURVEY CENTER
    - GENERAL METHODS  1B1A, 2A1, 2B                                                        SOIL SURVEY LABORATORY
                                                                                            LINCOLN, NEBRASKA 68508-3866

            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
------------------------------------------------------------------------------------------------------------------------------------
                             (- - -TOTAL - - -)(- -CLAY- -)(- -SILT- -)(- - - -  - -SAND- -  - - - -)(-COARSE FRACTIONS(MM)-)(>2MM)
                              CLAY  SILT  SAND  FINE   CO3  FINE COARSE  VF     F     M     C    VC    - - - - WEIGHT - - - -   WT
SAMPLE     DEPTH   HORIZON     LT   .002  .05    LT    LT   .002  .02   .05   .10   .25    .5     1    2     5     20     .1- PCT OF
  NO.      (IN)               .002  -.05    -2 .0002  .002  -.02  -.05  -.10  -.25  -.50   -1     -2   -5   -20   -75    75  WHOLE
                              <- - - - - - - - - - - - PCT OF <2MM  (3A1) - - - - - - - - - - - - ->  <- PCT OF <75MM(3B1)->  SOIL

87P1227S   0-  7   A           3.0   9.1  87.9               5.3   3.8   9.3  50.6  21.0   5.9   1.1  TR    TR    --      79  TR
87P1228S   7- 25   Cy          3.7   9.0  87.3               5.8   3.2   9.0  47.3  21.9   8.2   0.9   1    --    --      79   1

------------------------------------------------------------------------------------------------------------------------------------
            ORGN TOTAL  EXTR TOTAL (- - DITH-CIT - -)(RATIO/CLAY)(ATTERBERG )(- BULK DENSITY -) COLE (- - -WATER CONTENT - -)  WRD
             C     N      P    S       EXTRACTABLE           15    - LIMITS -  FIELD  1/3  OVEN WHOLE FIELD  1/10   1/3   15  WHOLE
 DEPTH                               FE    AL    MN    CEC   BAR   LL    PI   MOIST  BAR  DRY   SOIL MOIST   BAR  BAR   BAR   SOIL
  (IN)      6A1c  6B3a  6S3   6R3a  6C2b  6G7a  6D2a   8D1   8D1  4F1    4F   4A3a  4A1d  4A1h  4D1   4B4   4B1c  4B1c  4B2a  4C1
            PCT   <2MM   PPM <- PERCENT  OF  <2MM -->             PCT <0.4MM  <- - G/CC - - -> CM/CM  <- - -PCT OF <2MM - -> CM/CM

  0-  7     0.25                                      3.27  1.90                                                         5.7
  7- 25     0.12                                      2.22  1.30                                                         4.8

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S = All analyses on < 2mm soil material
```

Monoridge Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S84CA-019-001

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CARBONATE		CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		AS CACO3		GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	<20MM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	6E4	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		<- -PCT ->		<- -PCT ->			1:2	1:1
0- 7		2.0	0.1	0.4					9.8	1	TR	100	100	1		2		7.6	7.7	7.7
7- 25	97.8	3.7	0.5	0.6	102.6			102.6	8.2	3	1	100	100	TR		10		7.7	7.8	7.8

	(- - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - -)																	PRED.
																TOTAL	ELEC.	ELEC.
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.
DEPTH																EST.	8A3a	8I
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS
	<- - - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT- ->		/M	/M
0- 7	29.4	2.3	0.5	0.7	--	3.1	0.3	1.0				26.8	--	--	38.0	0.1	2.30	2.17
7- 25	28.5	8.9	6.1	1.7	--	1.7	0.4	2.9				36.5	--	--	39.9	0.1	3.21	2.52

REMARKS: This Monoridge pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." Laboratory data between depths of 7 and 25 inches are from a composite of the Cy1, Cy2 and Cy3 horizons.

PEDON SAMPLE NUMBER: S84CA-019-012

Monvero Laboratory Tables
(FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL: 750
SOIL NAME: Monvero sand, in an area of Monvero-Monoridge association, 15 to 50 percent slopes
CLASSIFICATION: Mixed, thermic Typic Xeropsamments

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

SSL - PROJECT 87P 55, (CP87CA093) FRESNO COUNTY
- PEDON 87P 249, SAMPLES 87P 1229- 1230
- GENERAL METHODS 1B1A, 2A1, 2B

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
				(- - -TOTAL	- - -	-)	(- -CLAY-	-)	(- -SILT-	-)	(- - - -	- -SAND-	-	- - -	-)	(-COARSE FRACTIONS(MM)-)				(>2MM)
				CLAY	SILT	SAND	FINE	CO3	FINE	COARSE	VF	F	M	C	VC	- - - - WEIGHT - - - -				WT
SAMPLE		DEPTH	HORIZON	LT	.002	.05	LT	LT	.002	.02	.05	.10	.25	.5	1	2	5	20	.1-	PCT OF
NO.		(IN)		.002	-.05	-2	.0002	.002	-.02	-.05	-.10	-.25	-.50	-1	-2	-5	-20	-75	75	WHOLE
				<- - - - - - - - - - - - - PCT OF <2MM (3A1) - - - - - - - - - - - - - ->												<- PCT OF <75MM(3B1)->				SOIL
87P1229S		0- 15	A	5.6	4.9	89.5			2.7	2.2	5.8	31.0	48.9	3.4	0.4	TR	TR	--	84	TR
87P1230S		15- 23	C1	5.9	6.7	87.4			4.1	2.6	6.5	32.4	45.0	3.1	0.4	1	1	--	81	2

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	ORGN	TOTAL	EXTR	TOTAL	(- - DITH-CIT - -)			(RATIO/CLAY)		(ATTERBERG)		(- BULK DENSITY -)			COLE	(- - -WATER CONTENT - -)				WRD
	C	N	P	S	EXTRACTABLE				15	- LIMITS -		FIELD	1/3	OVEN	WHOLE	FIELD	1/10	1/3	15	WHOLE
DEPTH					FE	AL	MN	CEC	BAR	LL	PI	MOIST	BAR	DRY	SOIL	MOIST	BAR	BAR	BAR	SOIL
(IN)	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a	8D1	8D1	4F1	4F	4A3a	4A1d	4A1h	4D1	4B4	4B1c	4B1c	4B2a	4C1
	PCT	<2MM	PPM	<- PERCENT OF <2MM -->						PCT <0.4MM		<- - G/CC - - ->			CM/CM	<- - -PCT OF <2MM - ->				CM/CM
0- 15	0.29							1.75	0.77										4.3	
15- 23	0.14							1.68	0.73										4.3	

S = All analyses on < 2mm soil material
dS/M of 1:2 Soil:Water Extract (8I) and Exchangeable NA as Extractable NA for Layer 2.

Monvero Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S84CA-019-012

DEPTH (IN)	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID- ITY		(- -CEC- -)		EXCH NA	SAR	BASE SATURATION		CARBONATE AS CACO3		CASO4 AS GYPSUM		(- - - -PH - - -)		
	CA	MG	NA	K	SUM BASES			SUM CATS	NH4- OAC			SUM	NH4OAC	<2MM	<20MM	<2MM	<20MM	SAT PASTE	CACL2 .01M	H2O
	5B5a 6N2e	5B5a 6O2d	5B5a 6P2b	5B5a 6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	6E4	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		<- -PCT ->		<- -PCT ->			1:2	1:1
0- 15	15.6	1.3	0.1	0.1	17.1			17.1	9.8	1	TR	100	100	TR				7.7	7.7	8.2
15- 23	26.9	1.4	0.1	0.1	28.5			28.5	9.9	1		100	100	TR					7.8	8.4

DEPTH (IN)	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	TOTAL SALTS EST.	ELEC. COND.	PRED. ELEC. COND.
	(- - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - -)																	
	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	8A3a	8I
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT- ->		dS /M	dS /M
0- 15	4.7	0.8	0.6	0.1	--	3.8	TR	0.4				0.7	0.1	--	30.9	TR	0.54	0.31
15- 23																		0.17

REMARKS: This Monvero pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." Laboratory data between depths of 0 and 15 inches are from a composite of the A1 and A2 horizons.

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                                            Morenogulch Laboratory Tables
PEDON SAMPLE NUMBER: S87CA-019-017          (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL:        680
SOIL NAME:         Morenogulch parachannery silty clay, in an area of Arburua-Morenogulch association, 15 to 80 percent slopes
CLASSIFICATION:    Clayey, smectitic, acid, thermic, shallow Xerertic Torriorthents
                                                                                             UNITED STATES DEPARTMENT OF AGRICULTURE
SSL - PROJECT 88P  53, (CP88CA079) FRESNO COUNTY                                             NATURAL RESOURCES CONSERVATION SERVICE
    - PEDON   88P 279, SAMPLES 88P 1507- 1512                                                NATIONAL SOIL SURVEY CENTER
    - GENERAL METHODS  1B1A, 2A1, 2B                                                         SOIL SURVEY LABORATORY
                                                                                             LINCOLN, NEBRASKA 68508-3866

            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
------------------------------------------------------------------------------------------------------------------------------------
                              (- - -TOTAL - - -)(- -CLAY- -)(- -SILT- -)(- - - -  - -SAND- -  - - - -)(-COARSE FRACTIONS(MM)-)(>2MM)
                              CLAY  SILT  SAND  FINE   CO3  FINE COARSE  VF     F     M     C    VC   - - - - WEIGHT - - - -   WT
SAMPLE     DEPTH   HORIZON     LT   .002  .05    LT    LT   .002  .02   .05   .10   .25    .5     1    2     5    20      .1- PCT OF
 NO.       (IN)               .002  -.05   -2  .0002  .002  -.02  -.05  -.10  -.25  -.50   -1     -2   -5   -20   -75     75  WHOLE
                               <- - - - - - - - - - - - PCT OF <2MM  (3A1) - - - - - - - - - - - - ->  <- PCT OF <75MM(3B1)->  SOIL

88P1507S   0-  3   A1          46.6  47.3   6.1              38.4   8.9   2.4   2.1   0.8   0.6   0.2    5    TR    --       9   5
88P1508S   3-  6   A2          49.5  45.4   5.1              37.2   8.2   2.1   1.8   0.7   0.3   0.2    4     2     2      11   8
88P1509S   6- 10   Cy          52.1  43.7   4.2              35.0   8.7   0.7   1.1   1.2   0.9   0.3   12    10     2      27  24
88P1510G  10- 15   Cr1         46.0  51.5   2.5              44.6   6.9   0.5   0.5   0.6   0.7   0.2                            P
88P1511G  15- 26   Cr2         40.9  48.4  10.7              41.6   6.8   0.8   1.8   2.9   3.7   1.5                            P
88P1512G  26- 33   Cr3         41.8  56.3   1.9              50.4   5.9   0.7   0.5   0.4   0.2   0.1                            P

------------------------------------------------------------------------------------------------------------------------------------
            ORGN TOTAL  EXTR TOTAL (- - DITH-CIT - -)(RATIO/CLAY)(ATTERBERG )(- BULK DENSITY -) COLE (- - -WATER CONTENT - -)  WRD
             C     N      P    S       EXTRACTABLE          15   - LIMITS -  FIELD  1/3  OVEN WHOLE FIELD  1/10   1/3   15  WHOLE
 DEPTH                               FE    AL    MN   CEC   BAR   LL    PI   MOIST  BAR  DRY   SOIL MOIST  BAR   BAR   BAR  SOIL
 (IN)       6A1c  6B3a  6S3   6R3a  6C2b  6G7a  6D2a  8D1   8D1  4F1    4F   4A3a  4A1d  4A1h  4D1   4B4   4B1c  4B1c  4B2a  4C1
            PCT   <2MM   PPM <- PERCENT  OF  <2MM -->             PCT <0.4MM  <- - G/CC - - -> CM/CM  <- - -PCT OF <2MM - -> CM/CM

  0-  3     1.00                     2.7   0.3        0.96  0.50                                                        23.4
  3-  6     0.67                     2.4   0.2        0.86  0.47                                                        23.2
  6- 10     0.36                     2.8   0.4        0.82  0.47                                                        24.3
 10- 15     0.14                     2.6   0.3        0.90  0.55                                                        25.2
 15- 26     0.16                     2.5   0.4        1.08  0.65                                                        26.4
 26- 33     0.14                     1.5   0.2        1.04  0.69                                                        28.7

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Averages, Depth 0-10 inches: Clay = 50 Pct; 0.1-75mm =16
S = All analyses on < 2mm soil material; G = 2mm on ground < 75mm basis; P = Fabric on < 75mm fraction
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Morenogulch Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S87CA-019-017

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CO3 AS	RES.	CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		CACO3	OHMS	GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	/CM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	8E1	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		PCT		<- -PCT ->			1:2	1:1
0- 3	49.9	2.9	0.2	1.6	54.6	7.6		62.2	44.8	TR	TR	88	100					5.4	5.3	5.4
3- 6	99.8	2.8	0.3	1.1	104.0	8.3		112.3	42.5	1	TR	93	100			4		4.6	5.1	5.2
6- 10	91.7	10.6	0.3	1.3	103.9	11.0		114.9	42.8	1	TR	90	100			3		4.1	4.3	4.4
10- 15	35.4	30.0	3.3	1.5	70.2	10.8		81.0	41.2	5	3	87	100			1		3.9	4.1	4.2
15- 26	75.3	24.2	1.2	1.1	101.8	16.5		118.3	44.1	2	1	86	100			3		3.8	4.1	4.1
26- 33	48.6	38.4	10.3	1.4	98.7	11.1		109.8	43.3	11	7	90	100		510	2		3.8	4.1	4.1

	(- - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT- ->		/M	/M	(PPM)
0- 3	29.0	2.1	0.8	1.0	--	0.6	1.2	1.9				28.3	--	2.0	77.1	0.1	2.43	1.54	4.7
3- 6	28.1	2.3	0.7	0.6	--	0.1	1.3	2.2				30.4	--	--	73.9	0.1	2.36	2.33	7.3
6- 10	27.5	10.5	1.0	0.9	--	--	1.2	1.8				37.4	--	--	68.0	0.1	2.83	2.66	5.9
10- 15	21.8	65.5	18.7	1.2	--	--	2.4	3.7				106.1	--	--	74.0	0.4	6.65	4.01	5.2
15- 26	23.9	41.8	5.4	0.7	--	--	1.3	1.5				71.7	--	--	68.7	0.2	4.55	3.60	5.3
26- 33	21.4	163.6	70.0	1.3	--	--	5.7	12.5				252.0	--	3.0	79.9	0.9	13.68	7.02	4.5

REMARKS: This Morenogulch pedon is the typical pedon for the official series and the taxonomic unit described in this soils survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." This soil has very soft, highly fractured 2 to 20 mm sized shale parachanners that easily breakdown to clay-sized particles. Although 4 percent gypsum crystals are described in the A1 horizon, no calcium sulfate as gypsum was detected in the lab data because it was removed by sieving previous to lab analysis. These soils were previously mapped as Badland. These soils are considered a major source of selenium to certain alluvial fans in the soil survey.

Mugatu Laboratory Tables
PEDON SAMPLE NUMBER: S86CA-019-036 (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL: 587
SOIL NAME: Mugatu fine sandy loam, 0 to 5 percent slopes
CLASSIFICATION: Fine-loamy, mixed, superactive, thermic Xeric Argigypsids

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NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

SSL - PROJECT 87P 55, (CP87CA093) FRESNO COUNTY
- PEDON 87P 231, SAMPLES 87P 1196- 1200
- GENERAL METHODS 1B1A, 2A1, 2B

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
				(- - -TOTAL	- - -)		(- -CLAY-	-)	(- -SILT-	-)	(- - - -	- -SAND-	-	- - -	-)	(-COARSE FRACTIONS(MM)-)				(>2MM)
				CLAY	SILT	SAND	FINE	CO3	FINE	COARSE	VF	F	M	C	VC	- - - - WEIGHT - - - -				WT
SAMPLE NO.	DEPTH (IN)	HORIZON		LT .002	.002 -.05	.05 -2	LT .0002	LT .002	.002 -.02	.02 -.05	.05 -.10	.10 -.25	.25 -.50	.5 -1	1 -2	2 -5	5 -20	20 -75	.1- 75	PCT OF WHOLE SOIL
				<- - - - - - - - - - - - - PCT OF <2MM (3A1) - - - - - - - - - - - - - ->												<- PCT OF <75MM(3B1)->				
87P1196S	0- 2	A1		14.5	25.6	59.9			15.7	9.9	18.2	22.4	12.8	4.5	2.0	2	2	--	44	4
87P1197S	2- 10	A2		14.7	26.0	59.3			15.4	10.6	20.0	22.1	11.2	4.3	1.7	2	2	--	42	4
87P1198S	10- 24	A3		17.1	25.0	57.9			15.7	9.3	20.6	22.6	10.0	3.6	1.1	1	1	--	39	2
87P1199S	24- 41	Bty		34.1	32.1	33.8			23.1	9.0	11.4	12.3	6.3	2.6	1.2	1	1	4	27	6
87P1200S	41- 60	2By		5.7	4.3	90.0			3.4	0.9	3.8	17.9	42.0	20.9	5.4	6	6	TR	88	15K

	ORGN	TOTAL	EXTR	TOTAL	(- - DITH-CIT	- -)		(RATIO/CLAY)		(ATTERBERG)		(- BULK DENSITY -)			COLE	(- - -WATER CONTENT	- -)			WRD
	C	N	P	S		EXTRACTABLE			15	- LIMITS -		FIELD	1/3	OVEN	WHOLE	FIELD	1/10	1/3	15	WHOLE
DEPTH					FE	AL	MN	CEC	BAR	LL	PI	MOIST	BAR	DRY	SOIL	MOIST	BAR	BAR	BAR	SOIL
(IN)	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a	8D1	8D1	4F1	4F	4A3a	4A1d	4A1h	4D1	4B4	4B1c	4B1c	4B2a	4C1
	PCT	<2MM	PPM	<- PERCENT	OF	<2MM -->				PCT <0.4MM		<- - G/CC - - ->			CM/CM	<- - -PCT OF <2MM - ->				CM/CM
0- 2	1.05							1.34	0.63										9.1	
2- 10	0.77							1.29	0.61										8.9	
10- 24	0.33							1.12	0.56										9.6	
24- 41	0.05							0.68	0.39										13.3	
41- 60	0.06							1.14	0.60										3.4	

Averages, Depth 24-41 inches: Clay = 34 Pct; 0.1-75mm = 27; S = All analyses on < 2mm soil material
K = CACO3 analyzed separately on 20-2mm and < 2mm fraction

Mugatu Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S86CA-019-036

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CARBONATE		CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		AS CACO3		GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	<20MM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	6E4	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		<- -PCT ->		<- -PCT ->			1:2	1:1
0- 2		3.4	0.1	0.9					19.5	1	TR	100	100	1				6.8	7.5	7.7
2- 10	30.7	3.4	0.1	0.7	34.9			34.9	19.0	1	TR	100	100	TR				7.4	7.7	8.1
10- 24		3.9	0.7	0.4					19.1	3	2	100	100	3				7.6	7.9	8.2
24- 41	168.9	8.9	5.0	0.3	183.1			183.1	23.1	13	8	100	100	TR		19		7.6	7.8	7.9
41- 60		3.0	1.8	0.1					6.5	16	7	100	100	2	2	1	1	7.7	7.8	7.9

	(- - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT- ->		/M	/M	(PPM)
0- 2	26.6	4.8	0.7	1.0	--	12.0	0.2	1.5				17.2	--	--	41.6	0.1	2.32	0.80	0.9
2- 10	8.3	1.8	0.7	0.5	--	7.1	TR	0.5				3.2	--	--	37.3	TR	0.97	0.28	0.8
10- 24	11.4	2.4	4.7	0.2	--	3.0	0.1	0.8				15.1	--	--	41.3	TR	1.60	0.49	0.7
24- 41	26.2	11.7	33.8	0.1	--	1.1	0.5	8.3				59.3	--	--	61.6	0.2	5.31	3.69	1.2
41- 60	27.8	11.2	29.2	0.1	--	1.1	0.5	13.7				45.2	--	0.6	26.9	0.1	5.22	2.50	0.5

REMARKS: This Mugatu pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology."

Posochanet Laboratory Tables
(FRESNO COUNTY, CALIFORNIA)

PEDON SAMPLE NUMBER: S87CA-019-003

MAP SYMBOL: 475
SOIL NAME: Posochanet clay loam, saline-sodic, wet, 0 to 1 percent slopes
CLASSIFICATION: Fine-silty, mixed, superactive, thermic Sodic Haplocambids

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SSL - PROJECT 87P 164, (CP87CA253) FRESNO COUNTY
- PEDON 87P 762, SAMPLES 87P 4111- 4116
- GENERAL METHODS 1B1A, 2A1, 2B

SAMPLE NO.	DEPTH (IN)	HORIZON	-4-- TOTAL CLAY LT .002	-5-- TOTAL SILT .002 -.05	-6-- TOTAL SAND .05 -2	-7-- CLAY FINE LT .0002	-8-- CLAY CO3 LT .002	-9-- SILT FINE .002 -.02	-10- SILT COARSE .02 -.05	-11- SAND VF .05 -.10	-12- SAND F .10 -.25	-13- SAND M .25 -.50	-14- SAND C .5 -1	-15- SAND VC 1 -2	-16- COARSE FRACTIONS (MM) WEIGHT 2 -5	-17- WEIGHT 5 -20	-18- WEIGHT 20 -75	-19- WEIGHT .1- 75	-20- (>2MM) WT PCT OF WHOLE SOIL
			<- PCT OF <2MM (3A1)											->	<- PCT OF <75MM(3B1)			->	
87P4111S	0- 7	Ap1	34.0	33.6	32.4		0.3	20.6	13.0	17.5	11.6	2.9	0.4	--	--	--	--	15	--
87P4112S	7- 15	Ap2	32.5	33.5	34.0		1.2	19.6	13.9	16.4	13.5	3.7	0.4	--	--	--	--	18	--
87P4113S	15- 24	Bw	27.8	36.5	35.7		0.6	16.9	19.6	18.5	13.3	3.5	0.4	--	--	--	--	17	--
87P4114S	24- 34	Bknz1	27.1	34.6	38.3			17.7	16.9	20.9	14.0	3.1	0.3	--	--	--	--	17	--
87P4115S	34- 41	Bknz2	29.6	42.3	28.1		--	26.4	15.9	18.6	7.8	1.6	0.1	--	--	--	--	9	--
87P4116S	41- 60	Bknz3	25.2	39.4	35.4			20.7	18.7	20.8	12.3	2.1	0.2	--	--	--	--	15	--

DEPTH (IN)	-1-- ORGN C 6A1c PCT	-2-- TOTAL N 6B3a <2MM	-3-- EXTR P 6S3 PPM	-4-- TOTAL S 6R3a	-5-- DITH-CIT EXTRACTABLE FE 6C2b	-6-- DITH-CIT EXTRACTABLE AL 6G7a	-7-- DITH-CIT EXTRACTABLE MN 6D2a	-8-- (RATIO/CLAY) CEC 8D1	-9-- (RATIO/CLAY) 15 BAR 8D1	-10- ATTERBERG LIMITS LL 4F1	-11- ATTERBERG LIMITS PI 4F	-12- BULK DENSITY FIELD MOIST 4A3a	-13- BULK DENSITY 1/3 BAR 4A1d	-14- BULK DENSITY OVEN DRY 4A1h	-15- COLE WHOLE SOIL 4D1	-16- WATER CONTENT FIELD MOIST 4B4	-17- WATER CONTENT 1/10 BAR 4B1c	-18- WATER CONTENT 1/3 BAR 4B1c	-19- WATER CONTENT 15 BAR 4B2a	-20- WRD WHOLE SOIL 4C1
				<- PERCENT OF <2MM -->						PCT <0.4MM		<- - G/CC - - ->			CM/CM	<- - -PCT OF <2MM - ->				CM/CM
0- 7	0.82							0.72	0.40										13.6	
7- 15	0.53							0.74	0.45										14.5	
15- 24	0.34							0.81	0.49										13.7	
24- 34	0.22							0.85	0.49										13.2	
34- 41	0.26							0.82	0.45										13.3	
41- 60	0.16							0.87	0.49										12.3	

Averages, Depth 10-39 inches: Clay = 28 Pct; 0.1-75mm = 16
S = All analyses on < 2mm soil material

Posochanet Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S87CA-019-003

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CO3 AS	RES.	CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		CACO3	OHMS	GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	/CM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	8E1	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		PCT		<- -PCT ->			1:2	1:1
0- 7		7.6	1.0	1.4					24.6	3	2	100	100	1				7.5	7.7	7.9
7- 15		8.2	4.6	0.8					23.9	13	9	100	100	1				7.7	7.9	8.0
15- 24		7.9	16.3	0.5					22.4	47	30	100	100	1		--		7.9	8.1	8.1
24- 34	19.0	6.9	24.4	0.5	50.8			50.8	23.0	63	42	100	100	TR		--		8.0	8.3	8.3
34- 41		8.3	25.6	0.5					24.2	61	39	100	100	1	1400	--		8.0	8.3	8.2
41- 60	21.1	7.9	19.0	0.4	48.4			48.4	21.9	52	31	100	100	TR		TR		8.0	8.2	8.2

	(- - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT- ->		/M	/M	(PPM)
0- 7	7.9	3.2	4.8	0.6	--	5.8	--	5.7				4.6	--	--	60.4	0.1	1.58	0.67	--
7- 15	7.7	4.0	22.7	0.2	--	2.2	--	18.0				11.6	--	1.6	66.1	0.2	3.64	1.40	--
15- 24	11.6	9.1	95.0	0.1	--	1.6	--	46.5				60.1	--	--	62.0	0.5	10.15	4.56	0.01
24- 34	19.8	15.1	174.0	0.2	--	2.3	--	77.2				123.0	--	--	57.6	0.8	16.69	6.65	0.14
34- 41	22.7	20.1	182.1	0.2	--	1.5	--	88.2				124.4	--	--	59.7	0.9	17.61	8.10	0.29
41- 60	22.4	19.3	139.9	0.2	--	1.0	--	68.6				112.7	--	--	55.2	0.7	14.51	5.70	0.27

REMARKS: This Posochanet pedon is the typical pedon for the official series and taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." This soil occurs in an area that is subject to dramatic changes in soil salinity, sodicity and depth to a high water table. It has been ripped periodically and has had applications of gypsum and significant amounts of irrigation water applied. This soil is classified in a fine-silty particle-size class even though the lab data shows 16 percent of the particles have diameter greater than 0.1 millimeters. Field textures were felt to have less than 15 percent particles greater than 0.1 millimeters, therefore this series is described as having a fine-silty particle-size class.

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                                                      Tachi Laboratory Tables
PEDON SAMPLE NUMBER: S80CA-019-001                   (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL:       282
SOIL NAME:        Tachi clay, 0 to 1 percent slopes
CLASSIFICATION:   Very-fine, smectitic, thermic Typic Natraquerts
                                                                                            UNITED STATES DEPARTMENT OF AGRICULTURE
SSL - PROJECT (RT82-CA127) FRESNO COUNTY                                                    NATURAL RESOURCES CONSERVATION SERVICE
    - PEDON            SAMPLES 82T 7419- 7421                                               NATIONAL SOIL SURVEY CENTER
    - GENERAL METHODS  1B1A, 2A1, 2B                                                        SOIL SURVEY LABORATORY
                                                                                            LINCOLN, NEBRASKA 68508-3866

            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
-----------------------------------------------------------------------------------------------------------------------------------
                             (- - -TOTAL - - -)(- -CLAY- -)(- -SILT- -)(- - - -  - -SAND- -  - - - -)(-COARSE FRACTIONS(MM)-)(>2MM)
                              CLAY  SILT  SAND  FINE   CO3  FINE COARSE  VF     F     M     C    VC   - - - - WEIGHT - - - -   WT
SAMPLE     DEPTH   HORIZON     LT   .002  .05    LT    LT   .002  .02   .05   .10   .25    .5     1    2    5     20    .1- PCT OF
  NO.      (IN)               .002  -.05   -2  .0002  .002  -.02  -.05  -.10  -.25  -.50  -1      -2   -5   -20   -75    75  WHOLE
                              <- - - - - - - - - - - - - PCT OF <2MM  (3A1) - - - - - - - - - - - - - - ->  <- PCT OF <75MM(3B1)->  SOIL

827419    14- 22   Bknssg1     68.1  29.9   2.0         1    26.4   3.5   0.8   0.6   0.3   0.2   0.1  --    --    --       1  --
827420    22- 28   Bknssg2     68.5  29.5   2.0         1    25.8   3.7   0.7   0.6   0.4   0.2   0.1  --    --    --       1  --
827421    28- 35   Bknssg3     67.1  28.5   4.4         2    23.6   4.9   2.3   1.2   0.5   0.3   0.1  --    --    --       2  --

-----------------------------------------------------------------------------------------------------------------------------------
            ORGN TOTAL  EXTR TOTAL (- - DITH-CIT - -)(RATIO/CLAY)(ATTERBERG )(- BULK DENSITY -) COLE (- - -WATER CONTENT - -)  WRD
             C     N      P    S       EXTRACTABLE           15    - LIMITS -  FIELD  1/3  OVEN WHOLE FIELD  1/10   1/3   15  WHOLE
 DEPTH                               FE    AL    MN    CEC   BAR   LL     PI   MOIST BAR   DRY   SOIL MOIST   BAR   BAR  BAR   SOIL
 (IN)       6A1c  6B3a  6S3   6R3a  6C2b  6G7a  6D2a   8D1   8D1  4F1    4F   4A3a  4A1d  4A1h  4D1   4B4   4B1c  4B1c  4B2a  4C1
            <- - - - - - -PCT OF <2MM - - - - - - - ->            PCT <0.4MM  <- - G/CC - - -> CM/CM  <- - -PCT OF <2MM - -> CM/CM

 14- 22     0.54                                            0.44                                                        30.2
 22- 28     0.41                                            0.47                                                        32.5
 28- 35     0.38                                            0.53                                                        35.5

-----------------------------------------------------------------------------------------------------------------------------------
Averages, Depth 10-39 inches: Clay = 53 Pct; 0.1-75mm = 4
S = All analyses on < 2mm soil material


            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
-----------------------------------------------------------------------------------------------------------------------------------
            (- NH4OAC EXTRACTABLE BASES -) ACID-     (- -CEC-  -) EXCH   SAR    BASE     CO3 AS RES.   CASO4 AS  (- - - -PH - - -)
             CA    MG    NA      K   SUM    ITY        SUM   NH4-   NA          SATURATION  CACO3 OHMS     GYPSUM    SAT  CACL2  H2O
 DEPTH      5B5a  5B5a  5B5a  5B5a BASES               CATS   OAC                SUM NH4OAC <2MM   /CM  <2MM <20MM PASTE  .01M
 (IN)       6N2e  6O2d  6P2b  6Q2b        6H5a        5A3a  5A8b   5D2    5E   5C3   5C1  6E1g  8E1   6F1a  6F4   8C1b  8C1f  8C1f
            <- - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->  PCT        <- -PCT- >   PCT        <- -PCT ->          1:2  1:1

 14- 22                                                                                      2                          8.1   8.0
 22- 28                                                                                      3                          8.3   8.6
 28- 35                                                                                      2                          8.8   8.9

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REMARKS: This Tachi pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." This data is not available from the National Soil Survey Center, Soil Survey Laboratory.

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                                                   Tranquillity Laboratory Tables
PEDON SAMPLE NUMBER: S86CA-019-001                   (FRESNO COUNTY, CALIFORNIA)

MAP SYMBOL:       286
SOIL NAME:        Tranquillity clay, saline-sodic, wet, 0 to 1 percent slopes
CLASSIFICATION:   Fine, smectitic, thermic Sodic Haploxererts
                                                                                            UNITED STATES DEPARTMENT OF AGRICULTURE
SSL - PROJECT 86P 110, (CP86CA171) FRESNO COUNTY                                            NATURAL RESOURCES CONSERVATION SERVICE
    - PEDON   86P 525, SAMPLES 86P 3123- 3127                                               NATIONAL SOIL SURVEY CENTER
    - GENERAL METHODS  1B1A, 2A1, 2B                                                        SOIL SURVEY LABORATORY
                                                                                            LINCOLN, NEBRASKA 68508-3866

            -1--  -2--  -3--  -4--  -5--  -6--  -7--  -8--  -9--  -10-  -11-  -12-  -13-  -14-  -15-  -16-  -17-  -18-  -19-  -20-
------------------------------------------------------------------------------------------------------------------------------------
                             (- - -TOTAL - - -)(- -CLAY- -)(- -SILT- -)(- - - -  - -SAND- -  - - - -)(-COARSE FRACTIONS(MM)-)(>2MM)
                              CLAY  SILT  SAND  FINE   CO3  FINE COARSE  VF     F     M     C    VC    - - - - WEIGHT - - - -   WT
SAMPLE     DEPTH   HORIZON     LT   .002   .05    LT    LT   .002  .02   .05   .10   .25    .5     1    2    5     20      .1- PCT OF
 NO.       (IN)               .002  -.05   -2  .0002  .002  -.02  -.05  -.10  -.25  -.50   -1     -2   -5   -20   -75     75  WHOLE
                              <- - - - - - - - - - - - PCT OF <2MM  (3A1) - - - - - - - - - - - - - -> <- PCT OF <75MM(3B1)->  SOIL

86P3123S   0-  6   Ap1        50.0  30.2  19.8              22.4   7.8   8.7   7.3   3.1   0.7    --  --    --    --      11  --
86P3124S   6- 16   Ap2        51.3  31.6  17.1              24.1   7.5   7.9   6.3   2.5   0.4    --  --    --    --       9  --
86P3125S  16- 31   Bknssyz1   53.2  34.6  12.2              28.1   6.5   6.1   4.8   1.1   0.2    --  --    --    --       6  --
86P3126S  31- 48   Bknssyz2   50.9  33.6  15.5              26.7   6.9   7.8   6.6   1.1    --    --  --    --    --       8  --
86P3127S  48- 65   Bknyz      47.7  40.4  11.9              31.8   8.6   7.7   3.7   0.5    --    --  --    --    --       4  --

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            ORGN TOTAL  EXTR TOTAL (- - DITH-CIT - -)(RATIO/CLAY)(ATTERBERG )(- BULK DENSITY -) COLE (- - -WATER CONTENT - -)  WRD
              C     N      P     S       EXTRACTABLE          15    - LIMITS -  FIELD  1/3   OVEN WHOLE FIELD  1/10   1/3   15  WHOLE
 DEPTH                               FE    AL    MN     CEC   BAR   LL    PI   MOIST  BAR   DRY   SOIL MOIST  BAR   BAR   BAR  SOIL
 (IN)       6A1c  6B3a  6S3   6R3a  6C2b  6G7a  6D2a   8D1   8D1  4F1    4F   4A3a  4A1d  4A1h  4D1   4B4   4B1c  4B1c  4B2a  4C1
            PCT   <2MM   PPM <- PERCENT  OF  <2MM -->          PCT <0.4MM  <- - G/CC - - -> CM/CM  <- - -PCT OF <2MM - -> CM/CM

  0-  6     0.75                                      0.68  0.43                                                        21.3
  6- 16     0.51                                      0.69  0.41                    1.34  1.93 0.129              35.0  21.1  0.19
 16- 31     0.34                                      0.69  0.42                    1.25  1.86 0.142              38.3  22.3  0.20
 31- 48     0.28                                      0.69  0.41                    1.26  1.80 0.126              39.3  20.9  0.23
 48- 65     0.29                                      0.70  0.42                    1.26  1.83 0.132              41.5  20.2  0.27

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Averages, Depth 10-39 inches: Clay = 52 Pct; 0.1-75mm = 7
S = All analyses on < 2mm material
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Tranquillity Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S86CA-019-001

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CO3 AS	RES.	CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		CACO3	OHMS	GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	/CM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	8E1	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		PCT		<- -PCT ->			1:2	1:1
0- 6		6.9	8.0	1.3					34.2	18	14	100	100	3				7.3	8.0	8.2
6- 16		7.0	23.5	1.1					35.3	36	24	100	100	4		TR		7.9	8.3	8.3
16- 31		6.6	29.5	0.9					36.6	46	28	100	100	4		1		8.0	8.2	8.2
31- 48		5.8	27.9	0.7					35.3	40	29	100	100	3	230	2		8.0	8.2	8.2
48- 65		6.9	30.3	0.7					33.3	55	33	100	100	3		6		8.0	8.2	8.3

	(- - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - -)																	PRED.
																TOTAL	ELEC.	ELEC.
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.
DEPTH																EST.	8A3a	8I
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS
	<- - - - - - - - - - - - - - - - - - MEQ / LITER - - - - - - - - - - - - - - - - - - ->														<- -PCT-	->	/M	/M
0- 6	3.6	1.1	20.8	0.2	--	6.8	0.2	3.7				16.4	--	--	94.5	0.2	2.55	
6- 16	17.7	4.6	79.2	0.4	--	2.2	0.9	8.5				93.6	--	--	135.2	0.9	8.66	
16- 31	22.7	4.6	103.3	0.3	--	1.6	1.2	16.4				115.2	--	--	123.9	1.1	10.73	
31- 48	22.5	4.2	105.1	0.2	--	1.4	1.2	16.8				115.7	--	--	130.4	1.1	10.86	
48- 65	23.8	5.4	124.4	0.2	--	1.3	1.3	27.5				126.1	--	--	95.8	1.0	12.55	

REMARKS: This Tranquillity pedon is the typical pedon for the official series and the taxonomic unit described in this soil survey. The location and description of this pedon are described in the section "Soil Series and Their Morphology." This soil occurs in an area that is subject to dramatic changes in soil salinity due to its fan skirt position in the landscape and the prevalence of high water tables.

Tranquillity Laboratory Tables
(FRESNO COUNTY, CALIFORNIA)

PEDON SAMPLE NUMBER: S87CA-019-013

MAP SYMBOL: 285

SOIL NAME: Tranquillity clay, saline-sodic in an area of Tranquillity-Tranquillity, wet, complex, saline-sodic, 0 to 1 percent slopes

CLASSIFICATION: Fine, smectitic, thermic Sodic Haploxererts

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL SOIL SURVEY CENTER
SOIL SURVEY LABORATORY
LINCOLN, NEBRASKA 68508-3866

SSL - PROJECT 88P 53, (CP88CA079) FRESNO COUNTY
- PEDON 88P 275, SAMPLES 88P 1470- 1477
- GENERAL METHODS 1B1A, 2A1, 2B

-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
			(- - -TOTAL	- - -	-)	(- -CLAY-	-)	(- -SILT-	-)	(- - - -	- -SAND-	-	- - - -	-)	(-COARSE FRACTIONS(MM)-)				(>2MM)
SAMPLE NO.	DEPTH (IN)	HORIZON	CLAY LT .002	SILT .002 -.05	SAND .05 -2	FINE LT .0002	CO3 LT .002	FINE .002 -.02	COARSE .02 -.05	VF .05 -.10	F .10 -.25	M .25 -.50	C .5 -1	VC 1 -2	- - - - WEIGHT 2 -5	5 -20	20 -75	- - - - .1- 75	WT PCT OF WHOLE
			<- - - - - - - - - - - - - PCT OF <2MM (3A1) - - - - - - - - - - - - - ->												<- PCT OF <75MM(3B1)->				SOIL
88P1470S	0- 4	Ap1	54.7	39.7	5.6			31.7	8.0	3.6	1.8	0.2	--	--	TR	--	--	2	TR
88P1471S	4- 12	Ap2	55.4	39.2	5.4			32.0	7.2	3.5	1.7	0.2	--	--	--	--	--	2	--
88P1472S	12- 22	Ap3	54.6	40.2	5.2			32.4	7.8	3.5	1.5	0.2	--	--	TR	TR	--	2	--
88P1473S	22- 32	Bkss	53.1	37.0	9.9			29.6	7.4	5.4	3.8	0.7	--	--	--	--	--	4	--
88P1474S	32- 41	Bkss2	51.0	35.6	13.4			27.3	8.3	7.0	5.5	0.9	--	--	--	--	--	6	--
88P1475S	41- 54	Bkss3	49.3	37.4	13.3			29.9	7.5	6.5	5.8	1.0	--	--	TR	--	--	7	--
88P1476S	54- 63	Bk1	46.9	38.7	14.4			29.3	9.4	7.7	6.0	0.7	--	--	--	--	--	7	--
88P1477S	63- 71	Bk2	48.7	38.3	13.0			29.7	8.6	6.8	5.6	0.6	--	--	--	--	--	6	--

	ORGN	TOTAL	EXTR	TOTAL	(- - DITH-CIT	- -)		(RATIO/CLAY)		(ATTERBERG)		(- BULK DENSITY -)			COLE	(- - -WATER CONTENT		- -)		WRD
DEPTH (IN)	C 6A1c	N 6B3a	P 6S3	S 6R3a	EXTRACTABLE FE 6C2b	AL 6G7a	MN 6D2a	CEC 8D1	15 BAR 8D1	- LIMITS - LL 4F1	PI 4F	FIELD MOIST 4A3a	1/3 BAR 4A1d	OVEN DRY 4A1h	WHOLE SOIL 4D1	FIELD MOIST 4B4	1/10 BAR 4B1c	1/3 BAR 4B1c	15 BAR 4B2a	WHOLE SOIL 4C1
	PCT	<2MM	PPM	<- PERCENT	OF	<2MM -->				PCT <0.4MM		<- - G/CC - - ->			CM/CM	<- - -PCT OF <2MM - ->				CM/CM
0- 4	0.83				1.6	0.1		0.70	0.40										21.7	
4- 12	0.68				1.7	0.1		0.69	0.41				1.32	1.82	0.113			31.9	22.6	0.12
12- 22	0.68				1.7	0.1		0.69	0.43				1.30	1.84	0.123			31.8	23.4	0.11
22- 32	0.45				1.6	0.1		0.73	0.44				1.26	1.65	0.094			34.6	23.4	0.14
32- 41	0.42				1.5	0.1		0.74	0.44				1.35	1.75	0.090			31.0	22.6	0.11
41- 54	0.35				1.5	0.1		0.71	0.44				1.36	1.69	0.075			29.5	21.6	0.11
54- 63	0.25				1.5	0.1		0.75	0.51				1.31	1.54	0.055			31.4	24.0	0.10
63- 71	0.19				1.5	0.1		0.74	0.47				1.21	1.38	0.045			33.7	23.1	0.13

Averages, Depth 10-39 inches: Clay = 53 Pct; 0.1-75mm = 4

S = All analyses on < 2mm soil material

Tranquillity Laboratory Tables--Continued

PEDON SAMPLE NUMBER: S87CA-019-013

	-1--	-2--	-3--	-4--	-5--	-6--	-7--	-8--	-9--	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
	(- NH4OAC EXTRACTABLE BASES -)					ACID-		(- -CEC- -)		EXCH	SAR	BASE		CO3 AS	RES.	CASO4 AS		(- - - -PH - - -)		
	CA	MG	NA	K	SUM	ITY		SUM	NH4-	NA		SATURATION		CACO3	OHMS	GYPSUM		SAT	CACL2	H2O
DEPTH	5B5a	5B5a	5B5a	5B5a	BASES			CATS	OAC			SUM	NH4OAC	<2MM	/CM	<2MM	<20MM	PASTE	.01M	
(IN)	6N2e	6O2d	6P2b	6Q2b		6H5a		5A3a	5A8b	5D2	5E	5C3	5C1	6E1g	8E1	6F1a	6F4	8C1b	8C1f	8C1f
	<- - - - - - - - - - -MEQ / 100 G - - - - - - - - - - ->									PCT		<- -PCT- >		PCT		<- -PCT ->			1:2	1:1
0- 4		7.8	2.6	1.5					38.1	5	4	100	100	2				7.5	7.8	8.2
4- 12		7.8	3.1	1.4					38.0	6	4	100	100	2				7.6	7.8	8.1
12- 22		7.5	3.7	1.4					37.8	8	6	100	100	2				7.6	7.8	8.1
22- 32		7.8	6.0	0.9					38.5	12	9	100	100	2				7.8	7.9	8.4
32- 41		7.6	6.8	0.7					37.5	12	8	100	100	3	480	--		7.6	7.9	8.0
41- 54		8.2	7.4	0.6					35.1	13	9	100	100	3	360	TR		7.7	7.9	7.9
54- 63		7.6	7.0	0.6					35.3	12	9	100	100	3		TR		7.7	7.9	8.0
63- 71		8.1	7.9	0.6					35.8	13	10	100	100	3		1		7.7	7.9	8.0

	(- - - - - - - - - - - - - - - - - WATER EXTRACTED FROM SATURATED PASTE- - - - - - - - - - - - - - - - -)																	PRED.	TOTAL
																TOTAL	ELEC.	ELEC.	SELENIUM
	CA	MG	NA	K	CO3	HCO3	F	CL	PO4	Br	OAC	SO4	NO2	NO3	H2O	SALTS	COND.	COND.	CONTENT
DEPTH																EST.	8A3a	8I	8P
(IN)	6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c	6S9a	6X1a	6Y1a	6L1c	6W1a	6M1c	8A	8D5	dS	dS	MG/KG
	<- - - - - - - - - - - - - - - - - - MEQ / LITER ->														<- -PCT- ->		/M	/M	(PPM)
0- 4	5.6	1.5	7.0	0.4	--	3.9	0.3	2.4				6.0	--	1.9	79.1	0.1	1.44	0.76	1.4
4- 12	4.1	1.1	7.2	0.3	--	3.8	0.4	1.4				4.5	--	0.4	95.2	0.1	1.27	0.78	1.4
12- 22	4.1	1.2	9.5	0.3	--	3.4	0.6	2.7				9.8	--	--	86.0	0.1	1.50	0.79	1.4
22- 32	3.4	1.0	13.3	0.1	--	2.4	0.5	2.9				13.2	--	--	92.2	0.1	1.79	1.02	1.0
32- 41	22.2	5.3	29.7	0.2	--	1.6	0.6	3.8				53.5	--	--	79.5	0.3	4.47	2.42	1.0
41- 54	24.3	6.9	36.4	0.2	--	2.3	2.0	6.3				62.9	--	--	81.2	0.3	5.44	3.61	0.9
54- 63	24.7	6.7	35.5	0.2	--	2.0	2.0	6.5				63.0	--	--	79.9	0.3	5.39	3.37	1.0
63- 71	24.9	7.2	39.4	0.2	--	2.0	2.0	6.9				66.8	0.5	--	82.8	0.4	5.73	3.88	0.9

REMARKS: This Tranquillity pedon is the typical pedon for the component of map unit 285 that does not have a high water table. The description of this pedon is described in general terms in the map unit description of map unit 285 and in specific terms in the description of the soil profile that follows this laboratory data table. The sodium adsorption ratio is assumed to be 13 or more within 40 inches of the soil surface for 6 or more months per year in normal years. This soil occurs in an area that is subject to dramatic changes in soil salinity and sodicity due to its fan skirt position in the landscape and the prevalence of high water tables.

Pedon Sample Number: S87CA-019-013

Tranquillity clay, saline-sodic in an area of Tranquillity-Tranquillity, wet, complex, saline-sodic, 0 to 1 percent slopes

Remarks: This pedon is the typical pedon for the Tranquillity clay, saline-sodic, component in map unit 285 that does not have a high water table. Characterization laboratory data for this pedon, identified as pedon sample number S87CA-019-013 (1470-1477), are available in the laboratory tables.

Ap1—0 to 4 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate fine and medium subangular blocky structure parting to strong fine granular; extremely hard, very firm, moderately sticky and moderately plastic; common very fine interstitial pores; strongly effervescent, carbonates disseminated; moderately alkaline (pH 8.2); abrupt wavy boundary.

Ap2—4 to 12 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; strong very coarse and coarse prismatic structure parting to strong coarse angular blocky; extremely hard, very firm, moderately sticky and very plastic; few fine roots; common very fine interstitial pores; polygonal cracks 2 millimeters to 2 centimeters wide; strongly effervescent, carbonates disseminated; moderately alkaline (pH 8.1); gradual wavy boundary.

Ap3—12 to 22 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; strong very coarse and coarse prismatic structure parting to strong coarse angular blocky; extremely hard, very firm, moderately sticky and very plastic; few very fine and fine roots; common very fine tubular and interstitial pores; polygonal cracks 2 millimeters to 2 centimeters wide; strongly effervescent, carbonates disseminated; moderately alkaline (pH 8.1); gradual wavy boundary.

Bkss1—22 to 32 inches; light yellowish brown (2.5Y 6/3) clay, light olive brown (2.5Y 5/3) and olive brown (2.5Y 4/3) moist; moderate very coarse and coarse prismatic structure parting to weak medium angular blocky; extremely hard, very firm, moderately sticky and very plastic; few very fine roots; few very fine tubular and interstitial pores; intersecting slickensides; strongly effervescent, carbonates disseminated and segregated as few very fine threads; very few very fine rounded soft masses of gypsum; moderately alkaline (pH 8.4); gradual wavy boundary.

Bkss2—32 to 41 inches; light yellowish brown (2.5Y 6/3) clay, olive brown (2.5Y 4/3) moist; weak medium angular blocky structure; extremely hard, firm, moderately sticky and very plastic; few very fine roots; few very fine tubular and interstitial pores; intersecting slickensides; strongly effervescent, carbonates disseminated and segregated as common very fine and fine threads and soft masses; very few very fine rounded soft masses of gypsum; moderately alkaline (pH 8.0); gradual wavy boundary.

Bkss3—41 to 54 inches; light yellowish brown (2.5Y 6/3) clay, olive brown (2.5Y 4/3) moist; weak medium angular blocky structure; very hard, firm, moderately sticky and very plastic; few very fine tubular and interstitial pores; intersecting slickensides; strongly effervescent, carbonates disseminated and segregated as many very fine and fine threads and soft masses; very few very fine rounded soft masses of gypsum; moderately alkaline (pH 7.9); gradual wavy boundary.

Bk1—54 to 63 inches; light yellowish brown (2.5Y 6/4) clay, olive brown (2.5Y 4/3) moist; massive; very hard, friable, moderately sticky and very plastic; few very fine tubular and interstitial pores; strongly effervescent, carbonates disseminated and segregated as few very fine threads and soft masses; very few very fine rounded soft masses of gypsum; moderately alkaline (pH 8.0); clear smooth boundary.

Bk2—63 to 71 inches; light yellowish brown (2.5Y 6/4) clay, olive brown (2.5Y 4/3) moist; massive; very hard, friable, moderately sticky and moderately plastic; common very fine tubular and few very fine interstitial pores; strongly effervescent, carbonates disseminated and segregated as few very fine threads and soft masses; very few very fine rounded soft masses of gypsum; moderately alkaline (pH 8.0).

Pedon location: Fresno County, California; approximately 0.5 miles south of Nees Avenue, south of the Anderson-Clayton Nees Avenue, No. 2 Gin and 100 feet west of a concrete ditch; approximately 2,640 feet south and 100 feet west of the northeast corner of section 36, T. 12 S., R. 12 E., MDB&M; Latitude 36 degrees, 50 minutes, 37 seconds north and Longitude 120 degrees, 35 minutes, 55 seconds west; USGS Broadview Farms Topographic Quadrangle, NAD 27.

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