United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with the Wyoming Agricultural Experiment Station

Soil Survey of Platte County, Wyoming

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.

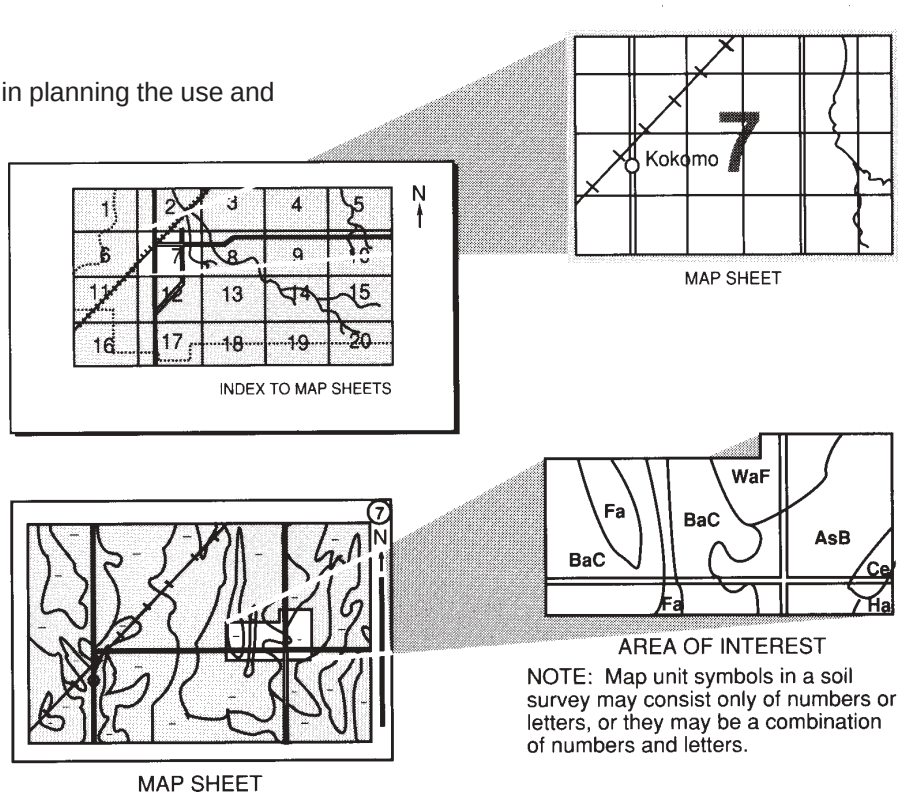
Detailed Soil Maps

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 1994. Soil names and descriptions were approved in 1998. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1994. This survey was made cooperatively by the Natural Resources Conservation Service and the Wyoming Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Platte County Resource District.

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

Cover: Irrigated farming in the Wheatland Flats area. Featherlegs-Curabith fine sandy loam, 0 to 3 percent slopes, is a typical map unit in this area.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is http://www.nrcs.usda.gov.

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Issued 2003

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 that affect 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
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Soil Survey of
Platte County, Wyoming

By Randall V. Staples, Natural Resources Conservatoin Service

Fieldwork by Randall V. Staples, Ernest L. Evans, and Michael D. Collins, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the Wyoming Agricultural Experiment Station

This soil survey updates the survey of the Wheatland Area, Wyoming, published in 1926 (Carpenter and others, 1926). It provides additional information and has larger maps, which show the soils in greater detail.

General Nature of the County

PLATTE COUNTY is in the southeastern part of Wyoming (fig. 1). The total surface area of the county is 1,317,273 acres. The distance from east to west is 32 miles and from north to south it is 65 miles, encompassing 2,080 square miles. The total land area is 1,294,873 acres and the total water area is 22,400 acres.

The population of Platte County was about 8,145 in 1990. The towns of Chugwater, Glendo, Guernsey, Hartville, and Wheatland are the only incorporated towns in the county. Wheatland, the county seat, has a population of 3,271. It is near the center of the county on Interstate Highway 25. Chugwater has a population of 192 and is in the southern part of the county about 25 miles from Wheatland. Glendo has a population of 195 and is in the northern part of the county about 30 miles from Wheatland. Both towns are on Interstate Highway 25. Guernsey has a population of 1,155 and is in the east-central part of the county about 30 miles from Wheatland. Guernsey is on U.S. Highway 26. Hartville has a population of 78 and is about 5 miles northeast of Guernsey.

This section provides information about Platte County. It discusses history, agriculture; geology, physiography, and drainage; water supply; and climate.

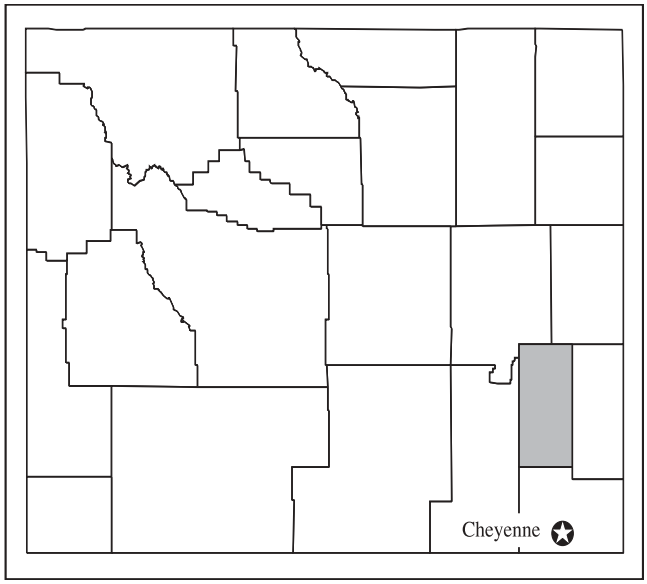

Figure 1.—Location of Platte County in Wyoming.

History

What is now Platte County was originally inhabited by native people of the Shoshone and Comanche tribes. Later, Kiowa, Arapahoe, Cheyenne, Crow, and Sioux peoples occupied the region. Between 1812 to 1867 less than a dozen fur trappers were the first white people to inhabit the area. Although many emigrants passed through Platte County on the Oregon Trail, homesteaders were attracted to the Platte River basin only in 1867 after the construction

of the Cheyenne-Deadwood stage road when cattle ranching became a significant enterprise (Platte County Extension Homemakers Council, 1981).

From 1805 to 1869 what is now Platte County was at different times part of the Louisiana, Missouri, Nebraska, Idaho, and Dakota Territories. The region became part of Laramie County in 1867 while still part of the Dakota Territory. After the Wyoming Territory was formed in 1869, the area remained part of Laramie County until 1911, when Platte County was formed.

In 1883, the Wyoming Development Company brought irrigation to the Wheatland Flats and organized a group of irrigated farms called the Wheatland Colony. Construction of the town of Wheatland, now the county seat, was begun in 1893.

Four major mining endeavors took place in Platte County's history, of which two are still in operation. Copper and iron were formerly mined in the Hartville and Sunrise areas, and at the present time, a dolomite quarry and a marble quarry remain active.

At the present time, Platte County's major enterprises are cattle and sheep ranching, farming, the generation of electricity at the Laramie River Power Station, and the retail and service trades. Several large reservoirs in the county as well as two others in neighboring Albany County provide irrigation water to farms and ranches in the county.

Agriculture

The first agricultural endeavor in the county was the production of work cattle for sale to outfits traveling the Oregon Trail. Depletion of the grazing resources along the trail led to the production of hay to feed livestock using the trail. Beef cattle became an important enterprise with the introduction of herds of Texas Longhorns, which were later replaced by Herefords and other shorthorn breeds.

With the development of the Wheatland Irrigation System, thousands of acres of Platte County became productive farmland. Sugar beets, first grown as an experimental crop in 1897, became a major commodity by 1910. Potatoes were also grown and remained a major crop through the 1950s, but eventually declined in importance. Today, potatoes are not grown commercially in Platte County.

Other crops that were formerly grown commercially in Platte County include lettuce, Jerusalem artichokes, malt barley, and vegetables. Such crops met with limited success partly because of the short growing season and the severe climate. For example, the tendency of Jerusalem artichokes to volunteer when divided in pieces by plowing caused them to be a nuisance. Poultry, eggs, and hogs also figured prominently in Platte County's agricultural history, though they are not widely produced today.

Major commodities that have endured from early times are beef cattle, sheep, wool, dairy products, honey, alfalfa, winter wheat, sugar beets, feed barley, oats, pinto beans, Great Northern beans, and corn for grain and silage. Newer crops include triticale and other high-protein hybrid grains, the latter of which are used as ingredients in horse feed.

Geology, Physiography, and Drainage

The survey area lies within parts of two major physiographic provinces—the Southern Rocky Mountains and the Great Plains. The principal drainageways are the North Platte and Laramie Rivers and their tributaries. Elevations range from about 4,300 feet along these rivers to 7,500 feet in the mountains (Lageson, 1988).

The western edge of the survey area consists of the Laramie Range, an extension of the uplifted Rocky Mountains. The oldest rocks exposed in the county are igneous and metamorphic rocks of Precambrian age. Bedrock includes Sherman granite, anorthosite, and granite-gneiss with some metasedimentary rocks. The relief is steep and is cut by many canyons. In many local areas between the streams, the land is smooth or gently rolling and the ridges have rounded summits. Other places have a few rugged peaks.

Just to the east of the Laramie Range are a series of highly dissected foothills, the Richeau Hills, and the Cooney Hills. The dissected foothills formed by alluvial material deposited from the Laramie Range and subsequent geological uplift. The tops of these ridges are flat to rounded. The Richeau Hills are made up primarily of limestone and sandstone of the Casper Formation. The Cooney Hills consist of Precambrian rock similar to that in the Laramie Range. The Richeau and Cooney Hills are related to the Hartville uplift to the northeast.

The area in the center of the survey area is locally known as Wheatland Flats and is made up of Quarternary terrace deposits. There are three major terraces and several minor terraces. These terraces form a series of steps that are parallel to the present streams. Few streams cross these terraces, and little water erosion of their surface has taken place.

The southern and eastern parts of Platte County from the Laramie County line north along the Goshen County line to the North Platte River are part of the Denver Basin or Cheyenne Tableland. The Cheyenne Tableland is made up of alluvial fans, steep escarpments, stream terraces, and a large area of gently rolling hills that extends to the Goshen County

line. Along the eastern margin of the survey area is the Goshen Hole lowland. This area is characterized by an eastward-facing escarpment that surrounds this large valley of the North Platte River. Goshen Hole extends into Goshen County and is one of the lowest areas in the survey. The bedrock in this area is primarily Arikaree and White River Formations of Tertiary age. The two formations are made up of light colored, tuffaceous claystone, sandstone, and lenses of conglomerate on gently rolling to steep hills.

In the northwestern part of Platte County along the Albany and Converse County lines, the Tertiary Ogallala Formation crops out. This formation consists of light colored claystone, sandstone, and conglomerate on moderately steep and steep hills.

In the northeastern part of the survey area the plains area is broken by the Hartville Hills, consisting primarily of the Permian and Pennsylvanian Hartville Formation. The Hartville Formation consists of red and white sandstone underlain by gray dolomite, limestone, red shale, and red and gray sandstone on steep and very steep hills. Precambrian granite is also present. The area consists of an uplifted structural arch that has been dissected by the North Platte River and many small streams. The differential weathering of the rocks has resulted in a relatively rugged topography.

The North Platte River is entrenched through the Hartville Hills and has cut steep canyons. Upstream and downstream of the Hartville Hills, the valley is broader. In areas where the valley is broader, the river is bordered by a flood plain and one to three terraces. The terraces grade into a series of pediments that extend to the upland.

The Glendo Reservoir is along the North Platte River and is the largest reservoir in the survey area. The principal drainageways are the North Platte and Laramie Rivers and their tributaries. Chugwater Creek, Sybille Creek, and the North Laramie and the Laramie Rivers drain the southern part of the survey area. Cottonwood Creek, Horseshoe Creek, and Elkhorn Creek drain into the North Platte River, which drains the northern part of the survey area. Most of the summer and fall flow of these streams is derived from groundwater.

Water Supply

Irrigation water from the Laramie River is stored in Wheatland Reservoir #2. Overflow from this reservoir is either diverted back into the river or into Wheatland Reservoir #3. These reservoirs are in Albany County. During the irrigation season, this water is brought down the Laramie River through Bluegrass Tunnel and diverted into Bluegrass Creek. This water then flows down Bluegrass Creek into Sybille Creek, which is then diverted into Wheatland Reservoir #1 for use on the Wheatland Flats and Bordeaux Area.

Some irrigation water from the North Platte River, the Laramie River, and their tributaries supply irrigation water to some areas in Platte County. Glendo, Grayrocks, and Guernsey Reservoirs are in the survey area but supply little irrigation water to Platte County.

Some wells supply irrigation water to the farmers in the survey area. Most of these wells are on the north and east ends of the Wheatland Flats area.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Wheatland in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 29.8 degrees F and the average daily minimum temperature is 17.5 degrees. The lowest temperature on record, which occurred at Wheatland on December 22, 1989, was -39 degrees. In summer, the average temperature is 69.2 degrees and the average daily maximum temperature is 85.9 degrees. The highest recorded temperature, which occurred at Wheatland on July 22, 1982, was 107 degrees.

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

The total annual precipitation is about 12.25 inches. Of this, about 8.1 inches, or 66 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 3.57 inches at Wheatland on May 5, 1971. Thunderstorms occur on about 50 days each year, and most occur between May and August.

The average seasonal snowfall is about 43.6 inches. The greatest snow depth at any one time during the period of record was 24 inches, recorded on November 20, 1979. On the average, 29 days of the year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 26.0 inches recorded on November 20, 1979.

The average relative humidity in midafternoon is about 42 percent. Humidity is higher at night, and the

average at dawn is about 65 percent. The sun shines 68 percent of the time possible in summer and 63 percent in winter. The prevailing wind is from the west. Average windspeed is highest, between 13 and 15 miles per hour, from December to April.

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

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

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

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

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 in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, 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.

Nearly Level to Steep Soils on Foothills and Mountains

131—Boyle-Lininger-Rock Outcrop

Very shallow, shallow, and moderately deep, well drained, nearly level to moderately steep, gravelly and moderately coarse textured soils and medium textured soils

This map unit is about 30 percent Boyle and similar soils, 25 percent Lininger and similar soils, and 20 percent areas of Rock outcrop. Slope is 1 to 25 percent.

The Boyle soils are on foothills. These soils are very shallow or shallow and well drained. They formed in colluvium and residuum derived from granite. They have a gravelly and moderately coarse textured surface layer. The soils are very gravelly and moderately fine textured in the upper part of the subsoil and are very gravelly and medium textured in the lower part. The depth to bedrock ranges from 4 to 20 inches.

The Lininger soils are on foothills. These soils are moderately deep and well drained. They formed in colluvium and residuum derived from granite. They have a medium textured surface layer. These soils are moderately fine textured in the upper part of the subsoil and are gravelly and moderately fine textured in the lower part. The depth to bedrock ranges from 20 to 40 inches.

This map unit is used mainly as rangeland or for wildlife habitat. The forage is limited by the low annual precipitation and the shallow rooting depth in the Boyle soils.

157—Ipson-Evanston-Trimad

Very deep, well drained, nearly level to steep, very cobbly and medium textured soils and medium textured soils

This map unit is about 35 percent Ipson and similar soils, 25 percent Evanston and similar soils, and 20 percent Trimad and similar soils. Slope is 0 to 45 percent.

The Ipson soils are on hills. These soils are very deep and well drained. They formed in alluvium and colluvium derived from various sources. They have a very cobbly and medium textured surface layer. These soils are very cobbly and moderately fine textured in the upper part of the subsoil and are very gravelly and moderately coarse textured in the lower part.

The Evanston soils are on hills. These soils are very deep and well drained. They formed in alluvium derived from various sources. They have a medium textured surface layer and are medium textured in the upper part of the subsoil. The next part is gravelly and medium textured. The lower part of the subsoil is medium textured.

The Trimad soils are on hills. These soils are very deep and well drained. They formed in gravelly calcareous alluvium derived from various sources.

They have a medium textured surface layer and are gravelly and medium textured in the upper part of the subsoil. The lower part of the subsoil is very gravelly and moderately coarse textured.

This map unit is used mainly as rangeland or for wildlife habitat. It has few limitations for use as rangeland. The production of vegetation suitable for livestock grazing is moderately limited by the low annual precipitation.

255—Forelle-Poposhia-Diamondville

Moderately deep and very deep, well drained, nearly level to moderately steep, moderately coarse textured and medium textured soils

This map unit is about 30 percent Forelle and similar soils, 20 percent Poposhia and similar soils, and 15 percent Diamondville and similar soils. Slope is 0 to 15 percent.

The Forelle soils are on hills and alluvial fans. These soils are very deep and well drained. They formed in alluvium derived from various sources. They are medium textured throughout.

The Poposhia soils are on hillslopes. These soils are very deep and well drained. They formed in alluvium derived from shale interbedded with sandstone. They are medium textured throughout.

The Diamondville soils are on hills. These soils are moderately deep and well drained. They formed in alluvium and residuum derived from calcareous shale and interbedded sandstone. These soils are moderately coarse textured in the upper part of the surface layer and are medium textured in the lower part. The upper part of the subsoil is medium textured, and the lower part is moderately coarse textured. The depth to bedrock is 20 to 40 inches.

This map unit is used mainly as rangeland or for wildlife habitat. It has few limitations for use as rangeland. The production of vegetation suitable for livestock grazing is moderately limited by the low annual precipitation.

292—Ipson-Evanston-Tyzak

Very shallow, shallow, and very deep, well drained, nearly level to steep, extremely channery and medium textured soils, very cobbly and medium textured soils and medium textured soils

This map unit is about 40 percent Ipson and similar soils, 30 percent Evanston and similar soils, and 15 percent Tyzak and similar soils. Slope is 0 to 50 percent.

The Ipson soils are on hills. These soils are very deep and well drained. They formed in alluvium and colluvium derived from various sources. They have a very cobbly and medium textured surface layer. These soils are very cobbly and moderately fine textured in the upper part of the subsoil and are very gravelly and moderately coarse textured in the lower part.

The Evanston soils are on hills. These soils are very deep and well drained. They formed in alluvium derived from various sources. They are medium textured in the surface layer and are medium textured in the upper part of the subsoil. The next part is gravelly and medium textured. The lower part of the subsoil is medium textured.

The Tyzak soils are on hills. These soils are very shallow or shallow and well drained. They formed in residuum, colluvium, and alluvium derived from limestone. They are extremely channery and medium textured throughout. The depth to bedrock ranges from 4 to 20 inches.

This map unit is used mainly as rangeland or for wildlife habitat. The main limitations include the droughtiness of the Tyzak soils, the depth to bedrock in areas of the Tyzak soil, and the low annual precipitation.

381—Rock Outcrop-Cathedral-Alderon

Shallow and moderately deep, well drained, strongly sloping to steep, gravelly and moderately coarse textured soils and moderately coarse textured soils

This map unit is about 30 percent areas of Rock outcrop, 25 percent Cathedral and similar soils, and 15 percent Alderon and similar soils. Slope is 10 to 50 percent.

The areas of Rock outcrop consist of exposures of granite.

The Cathedral soils are on foothills. These soils are shallow and well drained. They formed in colluvium and residuum derived from granite. They have a gravelly and moderately coarse textured surface layer and are very gravelly and moderately coarse textured in the subsoil. The underlying material is very gravelly and moderately coarse textured. The depth to bedrock ranges from 10 to 20 inches.

The Alderon soils are on foothills. These soils are moderately deep and well drained. They formed in colluvium and residuum derived from granite. They

have a moderately coarse textured surface layer and are moderately fine textured in the subsurface layer. The subsoil is gravelly and moderately fine textured, and the underlying material is very gravelly and moderately coarse textured. The depth to bedrock ranges from 20 to 40 inches.

This map unit is used mainly as rangeland or for wildlife habitat. A few areas are used for timber production or undeveloped recreation.

Production of vegetation suitable for livestock grazing is limited by the content of Rock outcrop in the unit, the droughtiness of the Cathedral soils, and the tree canopy cover on the Alderon soils. In many areas, slope limits access by livestock.

If the Alderon soils are used for timber production, the main limitations are slope and the slow regrowth of the trees.

Nearly Level to Steep Soils on Uplands

150—Cedak-Treon

Very shallow, shallow, and moderately deep, well drained, nearly level to steep, gravelly and moderately coarse textured soils and medium textured soils

This map unit is about 49 percent Cedak and similar soils and 25 percent Treon and similar soils. Slope is 0 to 60 percent.

Cedak soils are on hills. These soils are moderately deep and well drained. They formed in residuum and alluvium derived from calcareous sandstone. They have a medium textured surface layer. These soils are medium textured in the upper part of the subsoil and are moderately coarse textured in the lower part. The depth to bedrock ranges from 20 to 40 inches.

Treon soils are on hills and benches. These soils are very shallow or shallow and well drained. They formed in residuum derived from sandstone. They have a gravelly and moderately coarse textured surface layer and are moderately coarse textured in the underlying material. The depth to bedrock ranges from 4 to 20 inches.

This map unit is moderately suited to nonirrigated cropland. The main limitations include the low annual precipitation, the depth to bedrock in the Treon soils, the hazards of wind erosion and water erosion, and the droughtiness of the soils. This unit is also used as rangeland or for wildlife habitat.

288—Taluce-Embry-Mainter

Very shallow, shallow, and very deep, moderately well drained and well drained, nearly level to steep, coarse textured and moderately coarse textured soils

This map unit is about 35 percent Taluce and similar soils, 20 percent Embry and similar soils, and 15 percent Mainter and similar soils. Slope is 0 to 60 percent.

The Taluce soils are on hills. These soils are very shallow or shallow and well drained. They formed in residuum and alluvium derived from sandstone. They have a moderately coarse textured surface layer and are gravelly and moderately coarse textured in the underlying material. The depth to bedrock ranges from 4 to 20 inches.

The Embry soils are on hills. These soils are very deep and well drained. They formed in noncalcareous loamy alluvium derived from sandstone. They have a coarse textured surface layer and are moderately coarse textured in the underlying material.

The Mainter soils are on hills and benches. These soils are very deep and moderately well drained and well drained. They formed in alluvium and eolian materials derived from various sources. They are moderately coarse textured throughout.

This map unit is used mainly as rangeland or for wildlife habitat. The main limitations are the droughtiness of the soils, the depth to bedrock in the Taluce soils, and the low annual precipitation.

388—Jayem-Turnercrest-Taluce

Very shallow, shallow, moderately deep, and very deep, well drained, nearly level to steep, moderately coarse textured soils

This map unit is about 30 percent Jayem and similar soils, 25 percent Turnercrest and similar soils, and 20 percent Taluce and similar soils (fig. 2). Slope is 0 to 60 percent.

The Jayem soils are on hills. These soils are very deep and well drained. They formed in alluvium derived from sandstone. They have a moderately coarse textured surface layer and are moderately coarse textured in the subsoil. The upper part of the

Figure 2.—A sheepherder's marker overlooking an area of the Jayem-Turnercrest-Taluce general soil map unit.

substratum is moderately coarse textured, and the lower part is medium textured.

The Turnercrest soils are on hills and benches. These soils are moderately deep and well drained. They formed in alluvium and residuum derived from sandstone. They are moderately coarse textured throughout. The depth to bedrock ranges from 20 to 40 inches.

The Taluce soils are on hills. These soils are very shallow or shallow and well drained. They formed in alluvium and residuum derived from sandstone. They have a moderately coarse textured surface layer and are gravelly and moderately coarse textured in the underlying material. The depth to bedrock ranges from 4 to 20 inches.

This map unit is moderately suited to nonirrigated cropland. The main limitations include the low annual precipitation, the depth to bedrock in areas of the Taluce soils, the hazards of wind erosion and water erosion, and the droughtiness of the soils. This map unit is also used as rangeland or for wildlife habitat.

390—Treon-Rock Outcrop-Taluce

Very shallow or shallow, well drained, nearly level to steep, gravelly and moderately coarse textured soils and moderately coarse textured soils

This map unit is about 35 percent Treon and similar soils, 35 percent areas of Rock outcrop, and 20 percent Taluce and similar soils. Slope is 0 to 60 percent.

The Treon soils are on hills and benches. These soils are very shallow or shallow and well drained. They formed in residuum derived from sandstone. They have a gravelly and moderately coarse textured surface layer and are moderately coarse textured in the underlying material. Depth to bedrock ranges from 4 to 20 inches.

The areas of Rock outcrop consist of exposures of sandstone.

The Taluce soils are on hills. These soils are very shallow or shallow and well drained. They formed in residuum and alluvium derived from sandstone. They have a moderately coarse textured surface layer and are gravelly and moderately coarse textured in the underlying material. The depth to bedrock ranges from 4 to 20 inches.

This map unit is used mainly as rangeland or for wildlife habitat. The production of vegetation suitable for livestock grazing is moderately limited by the low annual precipitation and the droughtiness of the soils.

391—Recluse-Featherlegs-Snilloc

Very deep, well drained, nearly level to steep, gravelly and moderately coarse textured soils and medium textured soils

This map unit is about 35 percent Recluse and similar soils, 25 percent Featherlegs and similar soils, and 20 percent Snilloc and similar soils. Slope is 0 to 40 percent.

The Recluse soils are on terraces and hills, in drainageways, and on fans and benches. These soils are very deep and well drained. They formed in alluvium and eolian material derived from various sources. They are medium textured throughout.

The Featherlegs soils are on terraces, hills, and alluvial fans. These soils are very deep and well drained. They formed in residuum, alluvium, and eolian material derived from various sources. They have a gravelly and moderately coarse textured surface layer and are gravelly and moderately fine textured in the upper part of the subsoil. The next part is gravelly and moderately coarse textured. The lower part of the subsoil is very gravelly and moderately coarse textured.

The Snilloc soils are on terraces and hills. These soils are very deep and well drained. They formed in alluvium and eolian material derived from various sources. They have a medium textured surface layer. These soils are medium textured in the upper part of the subsoil and are moderately coarse textured in the lower part.

This map unit is moderately well suited or moderately suited to nonirrigated and irrigated cropland. The main limitations include the low annual precipitation, the hazards of wind erosion and water erosion, and the droughtiness of the Snilloc soils. This map unit is also used as rangeland or for wildlife habitat.

392—Sunup-Rock Outcrop-Snavee

Shallow and very deep, well drained, nearly level to steep, very cobbly and moderately coarse textured soils and extremely channery and medium textured soils

This map unit is about 40 percent Sunup and similar soils, 30 percent areas of Rock outcrop, and 20 percent Snavee and similar soils. Slope is 0 to 40 percent.

The Sunup soils are on hills. These soils are shallow and well drained. They formed in residuum derived from sandstone. They have a very cobbly and moderately coarse textured surface layer. The underlying material is very cobbly and medium textured.

The areas of Rock outcrop consist of exposures of hard sandstone.

The Snavee soils are on hills. These soils are very deep and well drained. They formed in colluvium derived from hard, fine grained limestone. They have an extremely channery and medium textured surface layer. The subsoil is extremely flaggy and medium textured.

This map unit is used mainly as rangeland or for wildlife habitat. The production of vegetation suitable for livestock grazing is moderately limited by the low annual precipitation, the slope, and the droughtiness of the soils.

393—Sweatbee-Hiland-Featherlegs

Very deep, well drained, nearly level to steep, gravelly and moderately coarse textured soils, moderately coarse textured soils and moderately fine textured soils

This map unit is about 25 percent Sweatbee and similar soils, 20 percent Hiland and similar soils, and 15 percent Featherlegs and similar soils. Slope is 0 to 40 percent.

The Sweatbee soils are on terraces. These soils are very deep and well drained. They formed in alluvium

and eolian material derived from various sources. The surface layer is moderately fine textured. The upper part of the subsoil is moderately coarse textured. The next part is gravelly and moderately coarse textured. Below this is very gravelly and moderately coarse textured material. The lower part of the subsoil is very gravelly and coarse textured.

The Hiland soils are on terraces, fans, and hills. These soils are very deep and well drained. They formed in alluvium and eolian material derived from various sources. They have a moderately coarse textured surface layer. These soils are moderately fine textured in the upper part of the subsoil and are moderately coarse textured in the lower part. The substratum is moderately coarse textured.

The Featherlegs soils are on terraces, hills, and alluvial fans. These soils are very deep and well drained. They formed in residuum, alluvium, and eolian material derived from various sources. They have a gravelly and moderately coarse textured surface layer. The upper part of the subsoil is gravelly and moderately fine textured material. The next part is gravelly and moderately coarse textured. The lower part of the subsoil is very gravelly and moderately coarse textured.

This map unit is moderately well suited or moderately suited to nonirrigated and irrigated cropland. The main limitations include the low annual precipitation, the hazards of wind erosion and water erosion, and the droughtiness of the Sweatbee soils. This map unit is also used as rangeland or for wildlife habitat.

394—Aberone-Claprych-Luman

Very deep, well drained and somewhat excessively drained, nearly level to steep, very gravelly and moderately coarse textured soils, gravelly and moderately coarse textured soils and moderately fine textured soils

This map unit is about 30 percent Aberone and similar soils, 25 percent Claprych and similar soils, and 25 percent Luman and similar soils. Slope is 0 to 30 percent.

The Aberone soils are on hills and benches. These soils are very deep and somewhat excessively drained. They formed in alluvium derived from various sources. They have a gravelly and moderately coarse textured surface layer. These soils are gravelly and medium textured in the upper part of the subsoil and are very gravelly and medium textured in the lower part.

The Claprych soils are on benches, hills, and terraces. These soils are very deep and well drained. They formed in alluvium and colluvium derived from various sources. The surface layer is moderately fine textured. The upper part of the subsoil is moderately fine textured. The next part is very gravelly and moderately coarse textured. The lower part of the subsoil is extremely gravelly and moderately coarse textured.

The Luman soils are on benches, terraces, and hills. These soils are very deep and well drained. They formed in alluvium derived from various sources. The surface layer is very gravelly and moderately coarse textured. The upper part of the subsoil is gravelly and medium textured. The next part is gravelly and moderately fine textured. The lower part of the subsoil is very gravelly and moderately coarse textured.

This map unit is used mainly as rangeland or for wildlife habitat. The production of vegetation suitable for livestock grazing is moderately limited by the low annual precipitation and the droughtiness of the soils.

395—Keeline-Treon-Turnercrest

Very shallow, shallow, moderately deep, and very deep, well drained, nearly level to steep, gravelly and moderately coarse textured soils and moderately coarse textured soils

This map unit is about 32 percent Keeline and similar soils, 19 percent Treon and similar soils, and 18 percent Turnercrest and similar soils (fig. 3). Slope is 0 to 60 percent.

The Keeline soils are on hills and benches. These soils are very deep and well drained. They formed in alluvium and eolian material derived from sandstone. They are moderately coarse textured throughout.

The Treon soils are on hills and benches. These soils are very shallow or shallow and well drained. They formed in residuum derived from sandstone. They have a gravelly and moderately coarse textured surface layer and are moderately coarse textured in the underlying material. The depth to bedrock ranges from 4 to 20 inches.

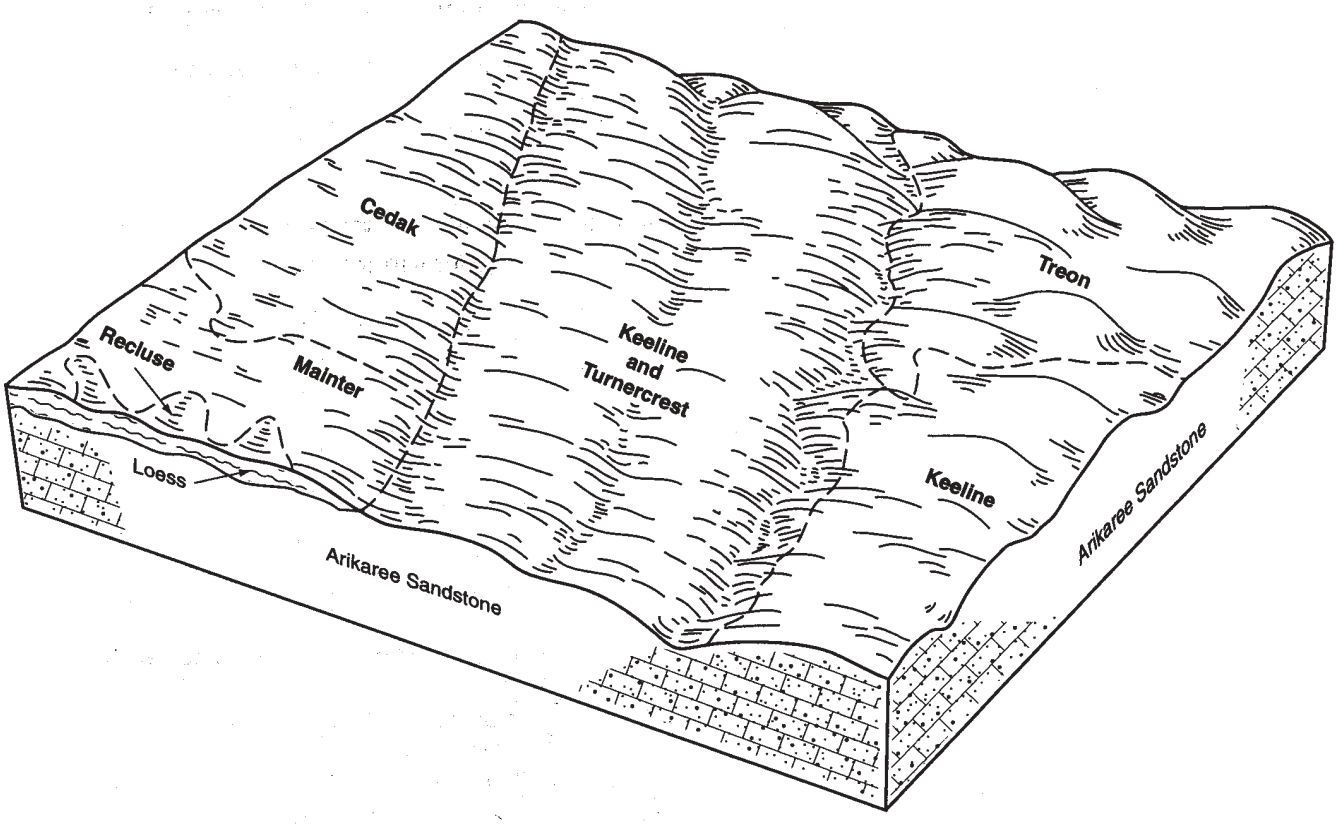

Figure 3.—Typical pattern of soils, topography, and parent material in the Keeline-Treon-Turnercrest general soil map unit.

The Turnercrest soils are on hills and benches. These soils are moderately deep and well drained. They formed in residuum and alluvium derived from sandstone. They are moderately coarse textured throughout. Depth to bedrock ranges from 20 to 40 inches.

This map unit is moderately suited to nonirrigated cropland. The main limitations include the low annual precipitation, the depth to bedrock in areas of the Treon soils, the hazards of wind erosion and water erosion, and the droughtiness of the soils. This map unit is also used as rangeland or for wildlife habitat.

Nearly Level Soils on Flood Plains

389—Coaliams-Quarterback-Haverdad

Very deep, moderately well drained and well drained, nearly level, moderately coarse textured soils on terraces and flood plains

This map unit is about 28 percent Coaliams and similar soils, 24 percent Quarterback and similar soils, and 22 percent Haverdad and similar soils (fig. 4). Slope is 0 to 3 percent.

The Coaliams soils are on terraces and flood plains. These soils are very deep and moderately well drained. They formed in alluvium derived from various sources. They have a moderately coarse textured surface layer. These soils are medium textured in the upper part of the subsoil. The lower part of the subsoil is dominantly medium textured, but in some pedons it is stratified with medium and coarse textures.

The Quarterback soils are on terraces, in drainageways, and on flood plains. These soils are very deep and well drained. They formed in alluvium derived from various sources. The surface layer is medium textured in the upper part and is moderately coarse textured in the lower part. The upper part is moderately coarse textured. The next part is medium textured, and the lower part is moderately coarse textured.

The Haverdad soils are on terraces and flood plains. These soils are very deep and well drained. They formed in alluvium derived from various sources. They are medium textured throughout.

This map unit is moderately well suited to use as nonirrigated and irrigated cropland and irrigated hayland. The limitations include the droughtiness of the Quarterback and Haverdad soils, the hazard of wind erosion, and the low annual precipitation. This map unit is also used as rangeland or for wildlife habitat.

Figure 4.—The Coaliams-Quarterback-Haverdad general soil map unit is on bottom land and terraces, and the Ipson-Evanston-Tyzak general soil map unit is on the hills and footslopes in the background.

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 characterisitic 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 of management. For example, Las Animas loam, channeled, 0 to 3 percent slopes, is a phase of the Las Animas 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. Aberone-Cragola complex, 10 to 30 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. Poposhia-Chaperton association, 6 to 12 percent slopes, is an example.

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

The component descriptions contain abbreviations. The abbreviation for "LEP" in shrink-swell potential means linear extensibility percent. The abbreviations in ecological site are precipitation zones. They are as follows: "sp" (Southern Plains), "se" (Southeast), and "np" (Northern Plains).

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.

100—Aberone gravelly sandy loam, 0 to 15 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,900 to 5,700 feet (1,494 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Aberone and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Aberone

Landform: Benches (fig. 5)
Parent material: Alluvium
Slope: 0 to 15 percent
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.3 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 60 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 7 inches; gravelly sandy loam
Bw—7 to 10 inches; gravelly sandy loam
2Bk—10 to 60 inches; very gravelly loam

Minor components

Featherlegs and similar soils
Extent within map unit: About 10 percent

Treon and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Aberone soil is poorly suited to stockwater ponds because of the potential for seepage losses. It is moderately suited to range seeding. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. In areas where the slope is 6 to 15 percent, applying range seeding or mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion. This unit is moderately well suited to range renovation; however, because of the coarse texture of the surface layer, range renovation may not be economically feasible.

Because of the rock fragments in the Aberone soil, excavating trenches and installing pipelines may be difficult.

101—Aberone-Cragola complex, 10 to 30 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,900 to 5,700 feet (1,494 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Figure 5.—An area of Aberone gravelly sandy loam, 0 to 15 percent slopes, in the foreground. In the background is an area of Rock outcrop-Cathedral complex, 20 to 40 percent slopes, on hills.

Map Unit Composition

Aberone and similar soils: 65 percent
Cragola and similar soils: 25 percent
Minor components: 10 percent

Component Descriptions

Aberone

Landform: Hills
Geomorphic position: Backslopes and footslopes
Parent material: Alluvium
Slope: 10 to 30 percent
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.3 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 60 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Gravelly (15-17sp)
Potential native vegetation: Little bluestem, bluebunch wheatgrass, Indian ricegrass, needleandthread, western wheatgrass, and small soapweed
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 8 inches; gravelly sandy loam
Bk—8 to 60 inches; very gravelly sandy loam

Cragola

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Alluvium derived from sandstone
Slope: 10 to 30 percent

Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.0 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 6 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, Indian ricegrass, juniper, and needleandthread
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 3 inches; very gravelly sandy loam
C—3 to 18 inches; very gravelly sandy loam
Cr—18 to 28 inches; unweathered bedrock

Minor components

Areas of Rock outcrop
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock in the Cragola soil, and the slope. It is poorly suited to range seeding and mechanical range renovation. The main limitations are the slope, the gravelly surface layer, and droughtiness of the soils.

The Cragola soil in this map unit is poorly suited to the installation of pipelines because of the depth to bedrock.

102—Albinas loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,100 to 6,500 feet (1,250 to 1,981 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 45 to 48 degrees F (7 to 10 degrees C)
Frost-free period: 120 to 130 days

Map Unit Composition

Albinas and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Albinas

Landform: Draws, alluvial fans, and terraces
Parent material: Loamy alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.3 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 3 inches; loam
Bt—3 to 25 inches; sandy clay loam
Bk—25 to 60 inches; loam

Minor components

Ascalon and similar soils
Extent within map unit: About 10 percent
Slope: 0 to 6 percent
Drainage class: Well drained
Ecological site: Loamy (15-17sp)

Major Uses

This unit is used as irrigated hayland, nonirrigated cropland, and rangeland or for wildlife habitat.

This unit is well suited to irrigated hay. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop.

This unit is well suited to nonirrigated crops. The main limitations are the low annual precipitation and the hazard of wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating

tillage operations increases the effective use of soil moisture. The hazard of wind erosion can be controlled by stripcropping at right angles to the prevailing winds, by leaving the soil surface rough, and by maintaining crop residue on the soil after tillage.

This soil is well suited to mechanical range renovation and range seeding. Mechanical range renovation is used in areas where desirable vegetation has been replaced by sod-forming plants. In tilled and seeded areas, maintaining an adequate cover of residue on the surface of the soil after planting reduces the hazard of wind erosion. Also, the areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This soil is moderately well suited to stockwater ponds. The moderate potential for seepage losses is the main limitation.

103—Alice-Bayard fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Alice and similar soils: 40 percent
Bayard and similar soils: 40 percent
Minor components: 20 percent

Component Descriptions

Alice

Landform: Terraces on hills
Geomorphic position: Backslopes, footslopes, and summits
Parent material: Sandy alluvium derived from sandstone and sandy eolian deposits derived from sandstone
Slope: 0 to 4 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
A—7 to 13 inches; fine sandy loam
Bw—13 to 18 inches; fine sandy loam
Bk—18 to 38 inches; fine sandy loam
C—38 to 60 inches; fine sandy loam

Bayard

Landform: Terraces and hills
Geomorphic position: Backslopes, summits, and footslopes
Parent material: Sandy alluvium derived from sandstone and sandy colluvium derived from sandstone
Slope: 2 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, sand bluestem, silver sagebrush, and blue grama
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; fine sandy loam
A—8 to 16 inches; fine sandy loam
AC—16 to 23 inches; fine sandy loam
C—23 to 60 inches; fine sandy loam

Minor components

Sweatbee and similar soils
Extent within map unit: About 10 percent

Graystone and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as irrigated cropland, nonirrigated cropland, and rangeland or for wildlife habitat.

This unit is moderately well suited to irrigated cropland. The main limitations are the hazards of wind erosion and droughtiness of the soils. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soils. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces runoff and the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding because of droughtiness of the soils. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

104—Alice-Phiferson fine sandy loams, 3 to 10 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Alice and similar soils: 55 percent
Phiferson and similar soils: 30 percent
Minor components: 15 percent

Component Descriptions

Alice

Landform: Terraces on hills
Geomorphic position: Summits, backslopes, and footslopes
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 3 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.0 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 13 inches; fine sandy loam
Bw—13 to 28 inches; fine sandy loam
Bk—28 to 60 inches; fine sandy loam

Phiferson

Landform: Terraces and hills
Geomorphic position: Summits, footslopes, and backslopes
Parent material: Residuum derived from sandstone
Slope: 3 to 10 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)

Available water capacity: About 4.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 8 inches; fine sandy loam
Bk1—8 to 23 inches; fine sandy loam
Bk2—23 to 30 inches; fine sandy loam
Cr—30 to 40 inches; unweathered bedrock

Minor components

Mainter and similar soils
Extent within map unit: About 5 percent
Landform: Hills
Geomorphic position: Footslopes

Jayem and similar soils
Extent within map unit: About 5 percent
Landform: Hills
Geomorphic position: Shoulders and backslopes

Vetal and similar soils
Extent within map unit: About 5 percent
Landform: Swales

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazards of wind erosion and water erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soils, range renovation may not be economically feasible. Applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion.

105—Alice-Recluse-Cedak fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Alice and similar soils: 30 percent
Recluse and similar soils: 25 percent
Cedak and similar soils: 20 percent
Minor components: 25 percent

Component Descriptions

Alice

Landform: Hills
Geomorphic position: Backslopes
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 0 to 4 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap1—0 to 6 inches; fine sandy loam
Ap2—6 to 13 inches; fine sandy loam
Bw—13 to 24 inches; fine sandy loam
Bk—24 to 32 inches; fine sandy loam
C—32 to 60 inches; fine sandy loam

Recluse

Landform: Hills
Geomorphic position: Toeslopes and backslopes

Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.3 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
Bt—6 to 25 inches; loam
Bk—25 to 39 inches; very fine sandy loam
C—39 to 60 inches; very fine sandy loam

Cedak

Landform: Hills
Geomorphic position: Backslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.7 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
Bt—6 to 20 inches; loam
Bk—20 to 30 inches; loam
Cr—30 to 40 inches; unweathered bedrock

Minor components

Albinas and similar soils
Extent within map unit: About 8 percent

Jayem and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Phiferson and similar soils
Extent within map unit: About 4 percent

Treon and similar soils
Extent within map unit: About 3 percent

Major Uses

This unit is used as nonirrigated cropland and rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, the hazard of wind erosion, and droughtiness of the Cedak and Alice soils. Maintaining crop residue on or near the surface reduces runoff and wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding because of droughtiness of the soils. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

106—Bayard fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)

Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Bayard and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Bayard

Landform: Terraces and alluvial fans
Parent material: Alluvium and colluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 13 inches; fine sandy loam
C—13 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 5 percent

Creighton and similar soils
Extent within map unit: About 5 percent

Keeline and similar soils
Extent within map unit: About 5 percent

Graystone and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as irrigated cropland, nonirrigated cropland, and rangeland or for wildlife habitat.

The Bayard soil is moderately well suited to irrigated cropland. The main limitations are the hazard of wind erosion and droughtiness of the soil. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soil. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices are recommended. Fertilizer should be applied according to soil tests.

This soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding because of the hazard of wind erosion. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

107—Bayard fine sandy loam, 0 to 15 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 5,000 to 6,500 feet (1,524 to 1,981 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 10 degrees C)
Frost-free period: 120 to 130 days

Map Unit Composition

Bayard and similar soils: 85 percent
Minor components: 15 percent

Component Descriptions

Bayard

Landform: Terraces and alluvial fans
Parent material: Loamy alluvium derived from sandstone

Slope: 0 to 15 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleand thread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 10 inches; fine sandy loam
C1—10 to 29 inches; fine sandy loam
C2—29 to 60 inches; fine sandy loam

Minor components

Paoli and similar soils
Extent within map unit: About 15 percent
Slope: 0 to 3 percent
Drainage class: Well drained
Ecological site: Sandy (15-17sp)

Major Uses

This unit is used as rangeland or for wildlife habitat. It is also used for irrigated hayland.

The Bayard soil is moderately well suited to irrigated hay. The main limitations are the slope and droughtiness of the soil. A sprinkler system is the best method of irrigation on this unit because of the slope, the limited available water capacity, and the permeability of the soil. If a flood irrigation system is used, the run of the irrigation systems should be short and on the contour. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soil.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately suited to mechanical range renovation and moderately well suited to range seeding. Mechanical range renovation may not be economically feasible because of the coarse texture of the surface layer. The main limitation for range seeding is the hazard of wind erosion. Maintaining an adequate cover of residue on the surface of the soil after planting reduces the hazard of wind erosion. Also, the areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

108—Bayard-Phiferson-Treon, thin solum complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Bayard and similar soils: 35 percent
Phiferson and similar soils: 25 percent
Treon, thin solum, and similar soils: 20 percent
Minor components: 20 percent

Component Descriptions

Bayard

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium and colluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf

sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 13 inches; fine sandy loam
Bk—13 to 60 inches; fine sandy loam

Phiferson

Landform: Hills
Geomorphic position: Backslopes
Parent material: Residuum derived from sandstone
Slope: 1 to 4 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 12 inches; fine sandy loam
Bw—12 to 20 inches; fine sandy loam
Bk—20 to 26 inches; fine sandy loam
Cr—26 to 36 inches; unweathered bedrock

Treon, thin solum

Landform: Hills
Geomorphic position: Backslopes
Parent material: Residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.9 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (12-14sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, blue grama, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
Ap—0 to 5 inches; gravelly fine sandy loam
C—5 to 8 inches; fine sandy loam
Cr—8 to 18 inches; unweathered bedrock

Minor components

Cedak and similar soils
Extent within map unit: About 5 percent

Jayem and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Moskee and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland and rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations affecting the Bayard and Phiferson soils are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. The Treon soil is not suited to use as cropland because of the depth to bedrock. Maintaining crop residue on or near the surface reduces runoff and the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

The soils in this map unit are poorly suited to stockwater ponds because of the high potential for seepage losses. The Bayard and Phiferson soils are moderately well suited to range seeding because of the hazard of wind erosion. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. The Bayard and Phiferson soils are moderately suited to mechanical range renovation; however, because of the

coarse texture of the soils, range renovation may not be economically feasible. The Treon soil is poorly suited to range seeding and range renovation because of droughtiness and the low potential for forage production.

The Treon soil is poorly suited to buried stockwater pipelines because of the depth to bedrock.

109—Bayard-Phiferson-Treon, thin solum complex, 3 to 45 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Bayard and similar soils: 30 percent
Phiferson and similar soils: 25 percent
Treon, thin solum, and similar soils: 25 percent
Minor components: 20 percent

Component Descriptions

Bayard

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium and colluvium
Slope: 3 to 20 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 13 inches; fine sandy loam
Bk—13 to 60 inches; fine sandy loam

Phiferson

Landform: Hills
Geomorphic position: Backslopes and summits
Parent material: Eolian deposits derived from sandstone and residuum derived from sandstone
Slope: 3 to 20 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A1—0 to 3 inches; sandy loam
A2—3 to 12 inches; fine sandy loam
Bk—12 to 23 inches; fine sandy loam
Cr—23 to 33 inches; unweathered bedrock

Treon, thin solum

Landform: Hills
Geomorphic position: Backslopes and summits
Parent material: Residuum derived from sandstone
Slope: 3 to 45 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.8 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (12-14sp)
Potential native vegetation: Bluebunch wheatgrass,

little bluestem, needleandthread, blue grama, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 6 inches; fine sandy loam
Cr—6 to 16 inches; unweathered bedrock

Minor components

Areas of Rock outcrop
Extent within map unit: About 5 percent

Keeline and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Sweatbee and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock, and the slope. It is poorly suited to range seeding and mechanical range renovation because of the slope and the hazard of erosion.

110—Blackhall-Satanka-Rock outcrop complex, 5 to 20 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 7,200 feet (1,829 to 2,195 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 8 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Blackhall and similar soils: 35 percent
Satanka and similar soils: 30 percent
Areas of Rock outcrop: 20 percent
Minor components: 15 percent

Component Descriptions

Blackhall

Landform: Hills
Geomorphic position: Summits
Parent material: Colluvium derived from sandstone and residuum derived from sandstone
Slope: 5 to 20 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.8 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (10-14se)
Potential native vegetation: Bluebunch wheatgrass, Indian ricegrass, needleandthread, black sagebrush, blue grama, prairie junegrass, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 2 inches; sandy loam
C—2 to 16 inches; sandy loam
Cr—16 to 26 inches; unweathered bedrock

Satanka

Landform: Hills
Geomorphic position: Shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 5 to 20 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (10-14se)
Potential native vegetation: Needleandthread, thickspike wheatgrass, Indian ricegrass, silver sagebrush, threadleaf sedge, and bottlebrush squirreltail
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; fine sandy loam
Bt—4 to 9 inches; sandy clay loam

Bk—9 to 35 inches; sandy clay loam
Cr—35 to 45 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Parent material: Sandstone and shale
Slope: 5 to 20 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Blazon and similar soils
Extent within map unit: About 8 percent

Diamondville and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the slope, and the depth to bedrock. The Blackhall soil is moderately suited to range seeding because of the depth to bedrock and the hazard of erosion. The Satanka soil is moderately suited to range seeding because of the hazard of erosion. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. The Blackhall soil is poorly suited to range renovation because of low potential for forage production. The Satanka soil is moderately well suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible. Applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion. This map unit is not suited to tillage in areas where the slope is more than 15 percent.

The Blackhall soil is poorly suited to the installation of pipelines because of the depth to bedrock.

111—Blazon-Trimad complex, 15 to 45 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Blazon and similar soils: 50 percent
Trimad and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Blazon

Landform: Hills
Geomorphic position: Backslopes and summits
Parent material: Silty alluvium derived from siltstone and silty residuum derived from siltstone
Slope: 15 to 45 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 2.3 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 8 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Loamy (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, western wheatgrass, blue grama, and needleandthread
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; silt loam
C—4 to 12 inches; silt loam
Cr—12 to 22 inches; unweathered bedrock

Trimad

Landform: Hills and alluvial fans
Geomorphic position: Backslopes and summits
Parent material: Gravelly alluvium
Slope: 15 to 45 percent
Drainage class: Well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 6.1 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium

Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 10 inches; loam
Bk—10 to 60 inches; very gravelly loam

Minor components

Poposhia and similar soils
Extent within map unit: About 10 percent
Landform: Alluvial fans and hills
Geomorphic position: Summits

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds, mechanical range renovation, and range seeding because of the slope.

112—Bonjea-Chugcreek-Rock outcrop complex, 3 to 15 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 7,000 feet (1,829 to 2,134 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Bonjea and similar soils: 35 percent
Chugcreek and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent

Component Descriptions

Bonjea

Landform: Foothills
Geomorphic position: Summits, shoulders, and backslopes
Parent material: Colluvium derived from gneiss, colluvium derived from granite, residuum weathered from gneiss, and residuum derived from granite
Slope: 3 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.8 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, threetip sagebrush, antelope bitterbrush, fringed sagewort, Idaho fescue, Indian ricegrass, mountainmahogany, needleandthread, Sandberg bluegrass, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 3 inches; sandy loam
Bt1—3 to 11 inches; sandy clay loam
Bt2—11 to 16 inches; very gravelly sandy clay loam
R—16 to 26 inches; unweathered bedrock

Chugcreek

Landform: Foothills
Geomorphic position: Backslopes and footslopes
Parent material: Alluvium derived from gneiss, alluvium derived from granite, colluvium derived from granite, and colluvium derived from gneiss
Slope: 5 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-19se)
Potential native vegetation: Bluebunch wheatgrass, big sagebrush, Griffith wheatgrass, Idaho fescue, prairie junegrass, Columbia needlegrass,

mountain brome, Parry danthonia, Sandberg bluegrass, and threetip sagebrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 4 inches; sandy loam
Bt1—4 to 19 inches; sandy loam
Bt2—19 to 29 inches; sandy clay loam
BC—29 to 38 inches; gravelly sandy clay loam
R—38 to 48 inches; unweathered bedrock

Rock outcrop

Landform: Foothills
Geomorphic position: Backslopes and footslopes
Slope: 15 to 40 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Boyle and similar soils
Extent within map unit: About 8 percent

Lininger and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the potential for seepage losses and the depth to bedrock. The Bonjea soil is moderately suited to range seeding because of the hazard of erosion and droughtiness of the soil. The Chugcreek soil is moderately well suited to range seeding because of the hazard of wind erosion. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. The Bonjea soil is poorly suited to range renovation because of the low potential for forage production. The Chugcreek soil is moderately well suited to range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible. Applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion.

The Bonjea soil is poorly suited to the installation of pipelines because of the depth to bedrock.

113—Bonjea-Rock outcrop-Chugcreek complex, 15 to 40 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 7,000 feet (1,829 to 2,134 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Bonjea and similar soils: 45 percent
Areas of Rock outcrop: 25 percent
Chugcreek and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Bonjea

Landform: Foothills
Geomorphic position: Summits, shoulders, and backslopes
Parent material: Colluvium derived from granite, colluvium derived from gneiss, residuum weathered from gneiss, and residuum derived from granite
Slope: 15 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.8 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, threetip sagebrush, antelope bitterbrush, fringed sagewort, Idaho fescue, Indian ricegrass, mountainmahogany, needleandthread, Sandberg bluegrass, and western wheatgrass
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; sandy loam
Bt1—4 to 10 inches; sandy clay loam

Bt2—10 to 15 inches; gravelly sandy clay loam
R—15 to 25 inches; unweathered bedrock

Rock outcrop

Landform: Foothills
Geomorphic position: Backslopes and footslopes
Slope: 15 to 40 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Chugcreek

Landform: Foothills
Parent material: Alluvium derived from granite, alluvium derived from gneiss, colluvium derived from granite, and colluvium derived from gneiss
Slope: 15 to 40 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.6 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-19se)
Potential native vegetation: Bluebunch wheatgrass, big sagebrush, Griffith wheatgrass, Idaho fescue, prairie junegrass, Columbia needlegrass, mountain brome, Parry danthonia, Sandberg bluegrass, and threetip sagebrush
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 5 inches; sandy loam
Bt—5 to 34 inches; sandy clay loam
BC—34 to 36 inches; gravelly clay loam
R—36 to 46 inches; unweathered bedrock

Minor components

Boyle and similar soils
Extent within map unit: About 5 percent

Lininger and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock, and the slope. This unit is poorly suited to range seeding and range renovation because of the slope.

The Bonjea soil is poorly suited to the installation of pipelines because of the depth to bedrock.

The areas of Rock outcrop in this unit also limit range seeding and range renovation.

114—Boyle-Boyle, thin solum, gravelly loams, 3 to 6 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 5,900 to 7,200 feet (1,798 to 2,195 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Boyle and similar soils: 45 percent
Boyle, thin solum, and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Boyle

Landform: Foothills
Geomorphic position: Backslopes
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 3 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.3 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, threetip sagebrush, Griffith wheatgrass, Idaho fescue, western wheatgrass, and winterfat

Land capability (nonirrigated): 7e

Typical profile:
A—0 to 7 inches; sandy to gravelly loam
Bt—7 to 15 inches; very gravelly sandy clay loam
BC—15 to 18 inches; very gravelly loam
Cr—18 to 28 inches; weathered bedrock

Boyle, thin solum

Landform: Foothills
Geomorphic position: Summits and shoulders
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 3 to 6 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 0.6 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, black sagebrush, threetip sagebrush, Griffith wheatgrass, and Idaho fescue
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; gravelly loam
Bt—4 to 7 inches; very gravelly sandy clay loam
Cr—7 to 17 inches; weathered bedrock

Minor components

Cathedral and similar soils
Extent within map unit: About 5 percent

Lininger and similar soils
Extent within map unit: About 5 percent
Landform: Foothills
Geomorphic position: Toeslopes

Areas of Rock outcrop
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock. It is moderately suited to range seeding because of droughtiness of the soil and the content of gravel in the surface layer. This unit is poorly suited to range renovation because of the low potential for forage production. It is not suited to tillage for range seeding or mechanical range renovation.

This map unit is poorly suited to the installation of pipelines because of the depth to bedrock.

115—Boyle, thin solum-Breece-Cathedral complex, 0 to 30 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 19 inches (381 to 483 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Boyle, thin solum, and similar soils: 40 percent
Breece and similar soils: 30 percent
Cathedral and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Boyle, thin solum

Landform: Foothills and mountains
Geomorphic position: Summits and backslopes
Parent material: Gravelly residuum derived from granite
Slope: 3 to 15 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 0.9 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, black sagebrush, threetip sagebrush, Griffith wheatgrass, and Idaho fescue
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; gravelly loam
Bt—4 to 8 inches; very gravelly sandy clay loam
Cr—8 to 18 inches; unweathered bedrock

Breece

Landform: Alluvial fans and draws
Parent material: Loamy alluvium derived from granite
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 5.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-19se)
Potential native vegetation: Bluebunch wheatgrass, Idaho fescue, Griffith wheatgrass, prairie junegrass, big sagebrush, and threetip sagebrush
Land capability (nonirrigated): 4e

Typical profile:
A1—0 to 5 inches; sandy loam
A2—5 to 25 inches; gravelly sandy loam
C—25 to 60 inches; gravelly coarse sandy loam

Cathedral

Landform: Foothills and mountains
Geomorphic position: Backslopes and summits
Parent material: Gravelly colluvium derived from granite and gravelly residuum derived from granite
Slope: 6 to 30 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.3 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, threetip sagebrush, Griffith wheatgrass, Idaho fescue, western wheatgrass, and winterfat
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 7 inches; gravelly loam
C—7 to 13 inches; very gravelly sandy loam
R—13 to 23 inches; unweathered bedrock

Minor components

Areas of Rock outcrop
Extent within map unit: About 10 percent
Landform: Foothills

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Boyle and Cathedral soils are poorly suited to stockwater ponds because of the depth to bedrock and the slope. They are poorly suited to range seeding and mechanical range renovation because of droughtiness of the soils and the hazard of water erosion.

The Breece soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and mechanical range renovation; however, because of the coarse texture of the surface layer, mechanical range renovation may not be economically feasible. The main limitation affecting range seeding is the hazard of wind erosion. To reduce the hazard of erosion, adequate residue must be maintained on the surface of the soil after planting. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

116—Boyle-Lininger association, 1 to 15 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 7,200 feet (1,829 to 2,195 meters)
Mean annual precipitation: 15 to 19 inches (381 to 483 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Boyle and similar soils: 45 percent
Lininger and similar soils: 30 percent
Minor components: 25 percent

Component Descriptions

Boyle

Landform: Foothills
Geomorphic position: Summits and shoulders
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 1 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.3 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, threetip sagebrush, Griffith wheatgrass, Idaho fescue, western wheatgrass, and winterfat
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 8 inches; gravelly sandy loam
Bt—8 to 12 inches; very gravelly sandy clay loam
BC—12 to 18 inches; very gravelly sandy clay loam
Cr—18 to 28 inches; weathered bedrock

Lininger

Landform: Foothills
Geomorphic position: Toeslopes and backslopes
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 1 to 8 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.4 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-19se)
Potential native vegetation: Bluebunch wheatgrass, Idaho fescue, Griffith wheatgrass, prairie junegrass, big sagebrush, and threetip sagebrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 8 inches; loam
Bt1—8 to 12 inches; sandy clay loam
Bt2—12 to 24 inches; gravelly sandy clay loam
Cr—24 to 34 inches; unweathered bedrock

Minor components

Cathedral and similar soils
Extent within map unit: About 9 percent

Breece and similar soils
Extent within map unit: About 8 percent
Landform: Swales

Areas of Rock outcrop
Extent within map unit: About 8 percent
Landform: Foothills
Geomorphic position: Backslopes

Major Uses

This unit is used as rangeland or for wildlife habitat.

The soils in this map unit are poorly suited to stockwater ponds because of the potential for seepage losses and the depth to bedrock. The Boyle soil is poorly suited to range seeding because of droughtiness of the soil. The Lininger soil is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. The Boyle soil is poorly suited to range renovation because of the low potential for forage production. The Lininger soil is well suited to range renovation. Applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion.

The Boyle soil is poorly suited to the installation of pipelines because of the depth to bedrock.

117—Boyle-Rock outcrop complex, 5 to 25 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 7,200 feet (1,829 to 2,195 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Boyle and similar soils: 50 percent
Areas of Rock outcrop: 30 percent
Minor components: 20 percent

Component Descriptions

Boyle

Landform: Foothills
Geomorphic position: Footslopes, summits, and backslopes
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 5 to 25 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.0 inch (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, threetip sagebrush, Griffith wheatgrass, Idaho fescue, western wheatgrass, and winterfat
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 6 inches; gravelly sandy loam
Bt—6 to 12 inches; very gravelly loam
Cr—12 to 22 inches; weathered bedrock

Rock outcrop

Landform: Foothills
Geomorphic position: Shoulders and summits
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 5 to 25 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Cathedral and similar soils
Extent within map unit: About 10 percent
Landform: Foothills
Geomorphic position: Backslopes

Lininger and similar soils
Extent within map unit: About 10 percent
Landform: Foothills
Geomorphic position: Toeslopes

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Boyle soil is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock. It is poorly suited to range seeding and mechanical range renovation because of the slope and the areas of Rock outcrop. This unit is poorly suited to mechanical range renovation because of low potential for forage production and the slope.

This unit is poorly suited to the installation of pipelines because of the depth to bedrock.

118—Boyle-Rock outcrop-Cathedral complex, 5 to 45 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 19 inches (203 to 483 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 11 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Boyle and similar soils: 40 percent
Areas of Rock outcrop: 20 percent
Cathedral and similar soils: 30 percent
Minor components: 10 percent

Component Descriptions

Boyle

Landform: Mountains and foothills
Geomorphic position: Summits and shoulders
Parent material: Gravelly residuum derived from granite
Slope: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.9 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): None

Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, threetip sagebrush, black sagebrush, Griffith wheatgrass, Idaho fescue, western wheatgrass, and winterfat
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 7 inches; gravelly loam
Bt—7 to 15 inches; very gravelly sandy clay loam
Cr—15 to 25 inches; unweathered bedrock

Rock outcrop

Landform: Foothills and mountains
Geomorphic position: Summits
Slope: 5 to 45 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Cathedral

Landform: Mountains and foothills
Geomorphic position: Summits and shoulders
Parent material: Gravelly colluvium derived from granite and gravelly residuum derived from granite
Slope: 10 to 20 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.3 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very high
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, threetip sagebrush, Griffith wheatgrass, Idaho fescue, western wheatgrass, and winterfat
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 7 inches; gravelly loam
C—7 to 13 inches; very gravelly sandy loam
R—13 to 23 inches; unweathered bedrock

Minor components

Lininger and similar soils
Extent within map unit: About 10 percent
Landform: Foothills
Geomorphic position: Backslopes

Major Uses

This unit is used mainly as rangeland or for wildlife habitat.

This unit is poorly suited to range seeding, mechanical range renovation, and stockwater ponds. The main limitations are the slope, the areas of Rock outcrop, and the depth to bedrock.

119—Brown-Featherlegs-Recluse complex, 5 to 40 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 5,000 to 5,800 feet (1,524 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Brown and similar soils: 35 percent
Featherlegs and similar soils: 30 percent
Recluse and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Brown

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Alluvium and residuum derived from sandstone
Slope: 5 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.2 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)

Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (15-17sp)
Potential native vegetation: Little bluestem, needleandthread, Indian ricegrass, western wheatgrass, small soapweed, and threadleaf sedge
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; very cobbly sandy loam
Bt—4 to 19 inches; very gravelly sandy clay loam
Cr—19 to 29 inches; unweathered bedrock

Featherlegs

Landform: Hills
Geomorphic position: Shoulders and backslopes
Parent material: Alluvium and residuum
Slope: 5 to 40 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.7 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 5 inches; fine sandy loam
Bt—5 to 16 inches; gravelly sandy clay loam
Bk1—16 to 26 inches; gravelly sandy loam
2Bk2—26 to 60 inches; very gravelly sandy loam

Recluse soils

Landform: Drainageways and hills
Geomorphic position: Toeslopes
Parent material: Alluvium
Slope: 5 to 20 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.8 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 3 inches; fine sandy loam
Bt—3 to 10 inches; sandy clay loam
Bk—10 to 60 inches; sandy clay loam

Minor components

Coaliams and similar soils
Extent within map unit: About 5 percent
Landform: Hills and drainageways
Geomorphic position: Toeslopes

Albinas and similar soils
Extent within map unit: About 5 percent
Landform: Hills and drainageways
Geomorphic position: Toeslopes

Curabith and similar soils
Extent within map unit: About 5 percent
Landform: Hills
Geomorphic position: Summits and shoulders

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the potential for seepage losses and the slope. It is poorly suited to range seeding and mechanical range renovation because of the slope and the hazard of erosion.

In some areas the Brown soil on north-facing slopes of hills is in the Rocky Hills, 15- to 17-inch precipitation zone ecological site.

120—Byrnie-Byrnie, thin solum-Rock outcrop complex, 5 to 45 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 6,700 feet (1,829 to 2,042 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Byrnie and similar soils: 40 percent
Byrnie, thin solum, and similar soils: 20 percent
Areas of Rock outcrop: 20 percent
Minor components: 20 percent

Component Descriptions

Byrnie

Landform: Hills
Geomorphic position: Backslopes, summits, and shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 5 to 45 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.2 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (15-17sp)
Potential native vegetation: Little bluestem, needleandthread, Indian ricegrass, western wheatgrass, small soapweed, and threadleaf sedge
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 3 inches; sandy loam
C—3 to 11 inches; sandy loam
Cr—11 to 21 inches; unweathered bedrock

Byrnie, thin solum

Landform: Hills
Geomorphic position: Shoulders and summits
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 5 to 45 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.8 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, Indian ricegrass, needleandthread, and Rocky Mountain juniper
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 3 inches; sandy loam
C—3 to 7 inches; sandy loam
Cr—7 to 17 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Slope: 5 to 45 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Evanston and similar soils
Extent within map unit: About 10 percent

Ipson and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock, and the slope. It is poorly suited to range seeding and mechanical range renovation because of the slope. The Byrnie soils are poorly suited to the installation of pipelines because of the depth to bedrock.

121—Byrnie-Coocreek-Byrnie, thin solum complex, 0 to 15 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 6,700 feet (1,829 to 2,042 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Byrnie and similar soils: 40 percent
Coocreek and similar soils: 30 percent
Byrnie, thin solum, and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Byrnie

Landform: Hills
Geomorphic position: Shoulders and backslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.2 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (15-17sp)
Potential native vegetation: Little bluestem, needleandthread, Indian ricegrass, western wheatgrass, small soapweed, and threadleaf sedge
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 2 inches; sandy loam
C—2 to 11 inches; sandy loam
Cr—11 to 21 inches; unweathered bedrock

Coocreek

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium derived from sandstone
Slope: 0 to 5 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.4 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 5 inches; loam
Bw—5 to 12 inches; loam
Bk—12 to 60 inches; loam

Byrnie, thin solum

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 2 to 15 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.4 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, Indian ricegrass, needleandthread, and Rocky Mountain juniper
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 2 inches; sandy loam
C—2 to 4 inches; sandy loam
Cr—4 to 14 inches; unweathered bedrock

Minor components

Evanston and similar soils
Extent within map unit: About 5 percent

Ipson and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Byrnie soils are poorly suited to stockwater ponds because of the depth to bedrock. The Coocreek soil is moderately well suited to stockwater ponds

because of the moderate potential for seepage losses. The Byrnie soils are moderately suited to range seeding because of droughtiness of the soil. The Coocreek soil is moderately well suited to range seeding. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. In areas where the slope is 6 to 15 percent, range seeding should be conducted along the contour of the slope. The Byrnie soils are poorly suited to range renovation because of the low potential for forage production. The Coocreek soil is well suited to range renovation.

The Byrnie soils are poorly suited to the installation of pipelines because of the depth to bedrock.

122—Cascajo-Taluce-Rock outcrop complex, 6 to 40 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Cascajo and similar soils: 30 percent
Taluce and similar soils: 30 percent
Areas of Rock outcrop: 20 percent
Minor components: 20 percent

Component Descriptions

Cascajo

Landform: Hills
Geomorphic position: Shoulders, summits, and backslopes
Parent material: Alluvium
Slope: 6 to 40 percent
Drainage class: Excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.0 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Coarse Upland (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, Indian ricegrass, sideoats grama, and western wheatgrass
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 9 inches; gravelly sandy loam
Bk1—9 to 19 inches; very gravelly loamy sand
Bk2—19 to 30 inches; very gravelly loamy sand
Bk2—30 to 60 inches; very gravelly loamy sand

Taluce

Landform: Hills
Geomorphic position: Backslopes and shoulders
Parent material: Residuum derived from sandstone
Slope: 10 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.8 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (15-17sp)
Potential native vegetation: Little bluestem, needleandthread, Indian ricegrass, western wheatgrass, small soapweed, and threadleaf sedge
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 10 inches; gravelly fine sandy loam
C—10 to 16 inches; gravelly fine sandy loam
Cr—16 to 26 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Summits
Slope: 6 to 40 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Cragola and similar soils
Extent within map unit: About 7 percent

Landform: Hills
Geomorphic position: Summits

Keeline and similar soils
Extent within map unit: About 7 percent
Landform: Hills
Geomorphic position: Toeslopes

Turnercrest and similar soils
Extent within map unit: About 6 percent
Landform: Hills
Geomorphic position: Toeslopes and summits

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock in the Taluce soil, and the slope. It is poorly suited to range seeding and mechanical range renovation because of the slope. The areas of Rock outcrop in this unit also limit range seeding and range renovation.

The Taluce soil is poorly suited to the installation of pipelines because of the depth to bedrock.

123—Cathedral-Spinekop-Rock outcrop complex, 0 to 40 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 5,400 to 7,500 feet (1,646 to 2,287 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 11 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Cathedral and similar soils: 45 percent
Spinekop and similar soils: 25 percent
Areas of Rock outcrop: 20 percent
Minor components: 10 percent

Component Descriptions

Cathedral

Landform: Foothills
Geomorphic position: Backslopes
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 20 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 0.9 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Rocky Hills (15-19se)
Potential native vegetation: Mountainmahogany, bluebunch wheatgrass, needleandthread, spike fescue, and antelope bitterbrush
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 3 inches; gravelly sandy loam
Bw—3 to 9 inches; very gravelly coarse sandy loam
C—9 to 14 inches; very gravelly coarse sandy loam
R—14 to 24 inches; unweathered bedrock

Spinekop

Landform: Foothills
Geomorphic position: Toeslopes
Parent material: Alluvium
Slope: 0 to 25 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderately slow)
Available water capacity: About 9.7 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 3 inches; sandy loam
Bw—3 to 15 inches; clay loam
2Bk—15 to 60 inches; loam

Rock outcrop

Landform: Foothills
Geomorphic position: Shoulders and backslopes

Slope: 0 to 40 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Boyle and similar soils
Extent within map unit: About 4 percent
Landform: Foothills
Geomorphic position: Summits

Forelle and similar soils
Extent within map unit: About 3 percent
Landform: Swales

Dalecreek and similar soils
Extent within map unit: About 3 percent
Landform: Alluvial fans

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Cathedral soil is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock, and the slope. The Spinekop soil is moderately suited to stockwater ponds because of the moderate potential for seepage losses and the slope.

The Cathedral soil is poorly suited to range seeding and mechanical range renovation because of the slope. The Spinekop soil is moderately suited to range seeding because of the hazard of erosion. To reduce the hazard of erosion during seeding, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. The Spinekop soil is moderately suited to range renovation because of the hazard of erosion. Applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion. This map unit is not suited to tillage in areas where the slope is more than 15 percent.

The areas of Rock outcrop in this unit also limit range seeding and range renovation.

124—Cedak-Bayard-Treon, thin solum, complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Cedak and similar soils: 40 percent
Bayard and similar soils: 20 percent
Treon, thin solum, and similar soils: 20 percent
Minor components: 20 percent

Component Descriptions

Cedak soils

Landform: Hills and swales
Geomorphic position: Toeslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 5.1 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; fine sandy loam
Bt—8 to 30 inches; loam
Bk—30 to 37 inches; very fine sandy loam
Cr—37 to 47 inches; unweathered bedrock

Bayard

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium and colluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None

Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 12 inches; fine sandy loam
C—12 to 60 inches; fine sandy loam

Treon, thin solum

Landform: Hills
Geomorphic position: Shoulders, summits, and backslopes
Parent material: Residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.9 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (12-14sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, blue grama, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
Ap—0 to 5 inches; gravelly fine sandy loam
C—5 to 8 inches; fine sandy loam
Cr—8 to 18 inches; unweathered bedrock

Minor components

Albinas and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Moskee and similar soils
Extent within map unit: About 5 percent

Recluse and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland and rangeland or for wildlife habitat.

The Cedak and Bayard soils are moderately suited to nonirrigated cropland. The main limitations affecting these soils are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces runoff and the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. The Treon soil is not suited to use as cropland because of the depth to bedrock.

The soils in this map unit are poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock. The Cedak and Bayard soils are moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. The Treon soil is poorly suited to range seeding because of droughtiness. The Cedak and Bayard soils are moderately suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible. The Treon soil is poorly suited to range renovation because of low potential for forage production.

The Treon soil is poorly suited to the installation of pipelines because of the depth to bedrock.

125—Cedak-Recluse very fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)

Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Cedak and similar soils: 40 percent
Recluse and similar soils: 40 percent
Minor components: 20 percent

Component Descriptions

Cedak soils

Landform: Hills
Geomorphic position: Backslopes and summits
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; very fine sandy loam
Bt1—9 to 15 inches; loam
Bt2—15 to 19 inches; loam
Bk1—19 to 30 inches; loam
Bk2—30 to 37 inches; fine sandy loam
Cr—37 to 47 inches; unweathered bedrock

Recluse

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.7 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; very fine sandy loam
Bt—9 to 20 inches; loam
Bk1—20 to 35 inches; loam
Bk2—35 to 60 inches; very fine sandy loam

Minor components

Albinas and similar soils
Extent within map unit: About 5 percent

Bayard and similar soils
Extent within map unit: About 5 percent

Graystone and similar soils
Extent within map unit: About 5 percent

Jayem and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland and rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the Cedak soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This map unit is moderately suited to mechanical range renovation; however, because of the

coarse texture of the surface layer, range renovation may not be economically feasible.

126—Cedak-Recluse-Treon very fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Cedak and similar soils: 40 percent
Recluse and similar soils: 30 percent
Treon and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Cedak

Landform: Hills
Geomorphic position: Toeslopes and backslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 4 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 8 inches; very fine sandy loam
Bt—8 to 13 inches; loam
Bk—13 to 24 inches; fine sandy loam
Cr—24 to 34 inches; unweathered bedrock

Recluse

Landform: Hills
Geomorphic position: Backslopes and toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 4 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.6 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; very fine sandy loam
Bt1—8 to 12 inches; loam
Bt2—12 to 20 inches; loam
Bk—20 to 60 inches; very fine sandy loam

Treon soils

Landform: Hills
Geomorphic position: Shoulders and summits
Parent material: Residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.3 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, little bluestem, and prairie junegrass
Land capability (nonirrigated): 7e

Typical profile:
Ap—0 to 7 inches; very fine sandy loam
C—7 to 16 inches; very fine sandy loam
Cr—16 to 26 inches; unweathered bedrock

Minor components

Mainter and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as nonirrigated cropland and rangeland or for wildlife habitat.

The Cedak and Recluse soils are moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the Cedak soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. The Treon soil is not suited to use as cropland because of the depth to bedrock and droughtiness of the soil.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock in the Cedak and Treon soils. The Cedak and Recluse soils are moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. The Treon soil is moderately suited to range seeding because of droughtiness. The Cedak and Recluse soils are moderately suited to mechanical range renovation; however, because of the coarse texture of the surface layer, range renovation may not be economically feasible. The Treon soil is poorly suited to range renovation because of the low potential for forage production.

The Treon soil is poorly suited to the installation of pipelines because of the depth to bedrock.

127—Cedak-Treon fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Cedak and similar soils: 60 percent
Treon and similar soils: 25 percent
Minor components: 15 percent

Component Descriptions

Cedak

Landform: Swales and hills
Geomorphic position: Backslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
Bt—7 to 12 inches; sandy clay loam
Bk—12 to 32 inches; fine sandy loam
Cr—32 to 42 inches; unweathered bedrock

Treon

Landform: Hills
Geomorphic position: Summits
Parent material: Residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained

Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.2 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
Ap—0 to 9 inches; fine sandy loam
C—9 to 19 inches; fine sandy loam
Cr—19 to 29 inches; unweathered bedrock

Minor components

Albinas and similar soils
Extent within map unit: About 5 percent

Bayard and similar soils
Extent within map unit: About 5 percent

Recluse and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland and rangeland or for wildlife habitat.

The Cedak soil is moderately suited to nonirrigated cropland. The main limitation affecting this soil is the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. The Treon soil is not suited to use as cropland because of the depth to bedrock and droughtiness of the soil.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock. The Cedak soil is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. The Treon soil is moderately suited to range seeding because of droughtiness. The Cedak soil is moderately well suited to mechanical range renovation; however, because of the coarse texture of the surface layer, range renovation may not be economically feasible. The Treon soil is poorly suited to range renovation because of the low potential for forage production.

The Treon soil is poorly suited to the installation of pipelines because of the depth to bedrock.

128—Chaperton, moderately saline-Blazon complex, 8 to 20 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 7,500 feet (1,829 to 2,287 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Chaperton, moderately saline, and similar soils: 45 percent
Blazon and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Chaperton, moderately saline

Landform: Hills
Geomorphic position: Backslopes and toeslopes
Parent material: Alluvium derived from shale and residuum derived from shale
Slope: 8 to 20 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 5.2 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 14 percent
Gypsum (maximum): About 3 percent
Salinity (maximum): About 8 mmhos/cm (slightly saline)
Sodicity (maximum): About 10 SAR (slightly sodic)
Ecological site: Saline Loamy (10-14se)

Potential native vegetation: Western wheatgrass, birdfoot sagebrush, Gardner saltbush, needleandthread, big sagebrush, and bluebunch wheatgrass
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; loam
Bw—4 to 16 inches; loam
Bk—16 to 20 inches; loam
C—20 to 35 inches; loam
Cr—35 to 45 inches; unweathered bedrock

Blazon

Landform: Hills
Geomorphic position: Backslopes, shoulders, and summits
Parent material: Alluvium derived from shale and residuum derived from shale
Slope: 8 to 20 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 2.7 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): About 5 percent
Salinity (maximum): About 4 mmhos/cm (very slightly saline)
Sodicity (maximum): About 5 SAR (slightly sodic)
Ecological site: Shallow Clayey (10-14se)
Potential native vegetation: Western wheatgrass, bluebunch wheatgrass, bottlebrush squirreltail, muttongrass, and winterfat
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 2 inches; clay loam
C—2 to 16 inches; clay loam
Cr—16 to 26 inches; unweathered bedrock

Minor components

Diamondville and similar soils
Extent within map unit: About 4 percent

Forelle and similar soils
Extent within map unit: About 4 percent

Poposhia and similar soils
Extent within map unit: About 4 percent

Areas of Rock outcrop
Extent within map unit: About 3 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Chaperton soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. The Blazon soil is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock, and the slope. The Chaperton soil is poorly suited to range seeding because of the salinity of the soil. The Blazon soil is moderately suited to range seeding because of the depth to bedrock. This unit is poorly suited to range renovation because of depth to bedrock in the Blazon soil and the salinity of the Chaperton soil. In areas where the slope is 8 to 15 percent, applying range seeding or mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion. This map unit is not suited to tillage in areas where the slope is more than 15 percent. If range seedings are conducted on the Chaperton soil, seeding rates should be increased and plant species carefully selected because of the salinity of the soil.

The Blazon soil is poorly suited to the installation of pipelines because of the depth to bedrock.

129—Claprych gravelly fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,600 to 5,500 feet (1,402 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Claprych and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Claprych

Landform: Benches
Parent material: Alluvium and colluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None

Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Land capability (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile:
Ap—0 to 9 inches; gravelly fine sandy loam
Bk1—9 to 18 inches; gravelly fine sandy loam
Bk2—18 to 60 inches; very gravelly sandy loam

Minor components

Curabith and similar soils
Extent within map unit: About 10 percent

Sweatbee, wet, and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as irrigated and nonirrigated cropland.

The Claprych soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, low natural fertility, and the rock fragments in the surface layer. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is moderately suited to irrigated cropland. The main limitations are droughtiness of the soil, the rock fragments in the surface layer, and low natural fertility. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soil. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

Chemical and physical amendments, such as additions of organic matter, applications of fertilizer, and removal of rock fragments, are needed in areas of the Claprych soil.

130—Claprych-Luman very gravelly sandy loams, 0 to 10 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Claprych and similar soils: 45 percent
Luman and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Claprych soils

Landform: Hills, benches, and terraces
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium and colluvium
Slope: 0 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6s

Typical profile:
A—0 to 3 inches; very gravelly sandy loam
Bk—3 to 60 inches; very cobbly sandy loam

Luman soils

Landform: Terraces, hills, and benches
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium
Slope: 0 to 10 percent

Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.3 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 2 inches; very gravelly sandy loam
Bt—2 to 8 inches; gravelly clay loam
Bk1—8 to 12 inches; gravelly sandy clay loam
Bk2—12 to 60 inches; very gravelly sandy loam

Minor components

Featherlegs and similar soils
Extent within map unit: About 5 percent

Greenhope and similar soils
Extent within map unit: About 5 percent

Hiland and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Claprych and Luman soils are poorly suited to stockwater ponds because of the high potential for seepage losses. They are only moderately suited to range seeding and range renovation because of the content of rock fragments in the surface layer. Because of the rock fragments, these soils are not suited to tillage. Chemical seedbed preparation is an alternative to conventional tillage if the rangeland is seeded. Excavating trenches and installing pipelines may be difficult because of the rock fragments.

131—Claprych-Selpats sandy clay loams, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Claprych and similar soils: 45 percent
Selpats and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Claprych

Landform: Benches
Parent material: Alluvium and colluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; sandy clay loam
Bk1—8 to 17 inches; sandy clay loam
Bk2—17 to 30 inches; very gravelly fine sandy loam
Bk3—30 to 60 inches; extremely gravelly sandy loam

Selpats

Landform: Benches
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 5.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low

Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; sandy clay loam
Bt1—10 to 14 inches; sandy clay loam
Bt2—14 to 19 inches; clay loam
Btk—19 to 24 inches; loam
2Bk—24 to 60 inches; very gravelly sandy loam

Minor components

Cambria and similar soils
Extent within map unit: About 7 percent

Curabith and similar soils
Extent within map unit: About 7 percent

Featherlegs and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland, irrigated cropland, or rangeland or for wildlife habitat.

The Claprych soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, low natural fertility, droughtiness of the soil, and the rock fragments in the surface layer. Chemical and physical amendments, such as additions of organic matter, applications of fertilizer, and removal of rock fragments from the surface layer are needed in areas of the Claprych soil. The Selpats soil is moderately well suited to nonirrigated cropland. The main limitation is the low annual precipitation. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

The Claprych soil is moderately suited to irrigated cropland. The main limitations are droughtiness of the soil and low natural fertility. The Selpats soil is well suited to irrigated cropland. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the Claprych soil. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

The Claprych and Selpats soils are poorly suited to stockwater ponds because of the high potential of seepage losses. The Claprych soil is moderately suited to range seeding and mechanical range renovation because of the rock fragments in the surface layer. The Selpats soil is well suited to range seeding and range renovation.

Because of the rock fragments in the Claprych soil, excavating trenches and installing pipelines may be difficult.

132—Claprych-Sweatbee complex, 3 to 20 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,600 to 5,500 feet (1,402 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Claprych and similar soils: 50 percent
Sweatbee and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Claprych

Landform: Terraces
Parent material: Alluvium and colluvium
Slope: 3 to 20 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.0 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6s

Typical profile:
Ap—0 to 4 inches; very gravelly fine sandy loam
Bk1—4 to 30 inches; very cobbly sandy loam
Bk2—30 to 60 inches; very cobbly loamy sand

Sweatbee

Landform: Terraces
Parent material: Alluvium and eolian deposits
Slope: 3 to 20 percent
Drainage class: Well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 6.1 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
Bk1—7 to 36 inches; fine sandy loam
Bk2—36 to 60 inches; very gravelly sandy loam

Minor components

Chugcity and similar soils
Extent within map unit: About 7 percent

Curabith and similar soils
Extent within map unit: About 7 percent

Brown and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland and rangeland or for wildlife habitat.

This unit is poorly suited to nonirrigated cropland and is not recommended for this use. The main limitations are the low annual precipitation, the slope, droughtiness of the soils, the hazards of wind erosion and water erosion, low natural fertility, and the high content of rock fragments in the Claprych soil.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses.

The Sweatbee soil is moderately suited to range seeding and mechanical range renovation. To reduce the hazards of wind erosion and water erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. In areas where the slope is 6 to 15 percent, applying seeding or mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion. This map unit is not suited to tillage in areas where the slope is more than 15 percent.

The Claprych soil is poorly suited to range seeding and range renovation because of the high content of rock fragments in the soil. Because of the rock fragments, this soil is not suited to tillage. Chemical seedbed preparation is an alternative to conventional tillage if the rangeland is seeded.

Because of the rock fragments in the Claprych soil, excavating trenches and installing pipelines may be difficult.

133—Clarkelen-Quarterback very fine sandy loams, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,600 to 5,600 feet (1,402 to 1,707 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Clarkelen and similar soils: 40 percent
Quarterback and similar soils: 40 percent
Minor components: 20 percent

Component Descriptions

Clarkelen

Landform: Flood plains and terraces
Parent material: Alluvium (fig. 6)
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.1 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)

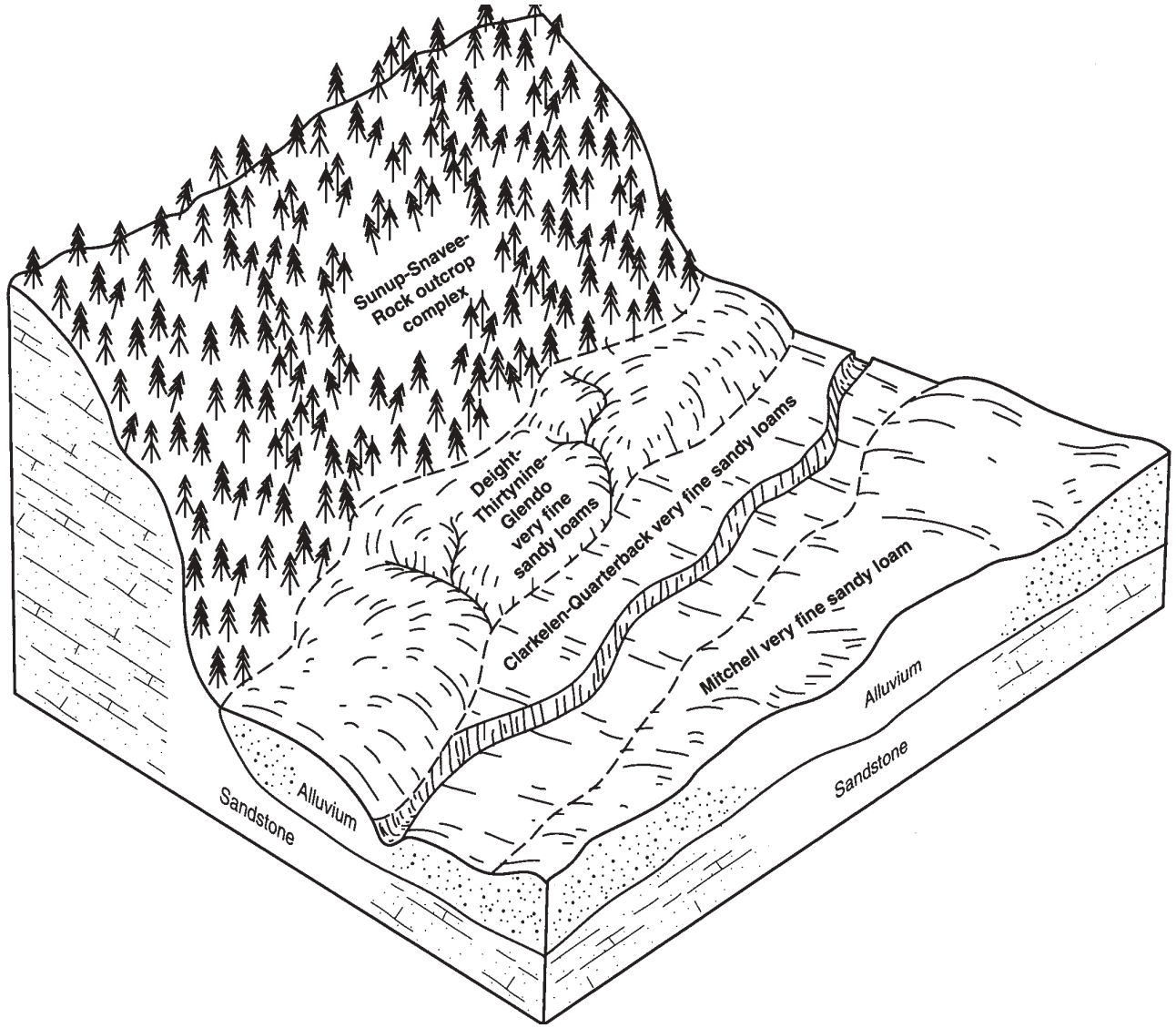

Figure 6.—Typical pattern of soils, topography, and parent material in map units 133, 141, 191, and 229.

Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 2 inches; very fine sandy loam
CA—2 to 8 inches; loam
C1—8 to 23 inches; loam
C2—23 to 42 inches; gravelly sandy loam
C3—42 to 60 inches; very fine sandy loam

Quarterback

Landform: Terraces and flood plains
Parent material: Alluvium (fig. 6)
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.6 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None

Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 2 inches; very fine sandy loam
C1—2 to 11 inches; loam
C2—11 to 60 inches; stratified loamy sand to sandy clay

Minor components

Glendo and similar soils
Extent within map unit: About 7 percent

Mitchell and similar soils
Extent within map unit: About 7 percent

Keeline and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as irrigated cropland, nonirrigated cropland, or rangeland or for wildlife habitat.

This unit is moderately well suited to irrigated cropland. The main limitation is droughtiness of the soils. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soils. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This unit is moderately well suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

The Clarkelen and Quarterback soils are poorly suited to stockwater ponds because of the high potential for seepage losses. These soils are moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

134—Clarkelen, wet-Anvil loams, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,600 to 5,600 feet (1,402 to 1,707 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Clarkelen, wet, and similar soils: 45 percent
Anvil and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Clarkelen, wet

Landform: Terraces and flood plains
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 8.8 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: About 48 inches
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Subirrigated (12-14sp)
Potential native vegetation: Basin wildrye, big bluestem, little bluestem, prairie cordgrass, slender wheatgrass, and switchgrass
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
A—0 to 10 inches; loam
C1—10 to 51 inches; stratified fine sandy loam to loam
C2—51 to 60 inches; coarse sand

Anvil

Landform: Flood plains and terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 5.0 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: About 48 inches
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Subirrigated (12-14sp)
Potential native vegetation: Basin wildrye, big bluestem, little bluestem, prairie cordgrass, slender wheatgrass, and switchgrass
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile:
A1—0 to 2 inches; loam
A2—2 to 5 inches; gravelly sandy loam
C—5 to 60 inches; stratified extremely cobbly coarse sand to fine sandy loam

Minor components

Quarterback and similar soils
Extent within map unit: About 7 percent

Haverdad and similar soils
Extent within map unit: About 7 percent

Riverwash and similar soils
Extent within map unit: About 6 percent
Landform: Flood plains

Major Uses

This unit is used as irrigated hayland, nonirrigated hayland, or rangeland or for wildlife habitat.

The Clarkelen, wet, soil is moderately well suited to irrigated hay, and the Anvil soil is moderately suited. The main limitation is droughtiness of the soils. Grasses respond to nitrogen fertilizer, which should be applied according to soil tests. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soils.

The Clarkelen, wet, soil is moderately suited to nonirrigated hay. The main limitations are droughtiness of the soil and the low annual precipitation. The Anvil soil is poorly suited to nonirrigated hay. Forage production on the Anvil soil will be low because of droughtiness of the soil and the low annual precipitation.

The Clarkelen, wet, and Anvil soils in this map unit are well suited to stockwater ponds. Pits dug below the level of the water table can provide water for livestock. If the pits are dug to a depth below the level of the water table in the fall, water can be provided throughout the year. Grazing during long periods when the soil is wet results in compaction of the surface layer. Short-duration grazing is preferable to continuous, season-long grazing. Because of the high water table, the installation of buried pipelines is limited if the pipelines are buried below a depth of about 3 feet. Constructing adequate foundations when water storage facilities are installed helps to prevent damage caused by frost heaving.

This unit is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soils, range renovation may not be economically feasible.

Because of the rock fragments in the Anvil soil, excavating trenches and installing pipelines may be difficult.

135—Coaliams-Haverdad complex, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Coaliams and similar soils: 45 percent
Haverdad and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Coaliams

Landform: Terraces and flood plains (fig. 7)
Parent material: Alluvium

Figure 7.—An area of Coaliams-Haverdad complex, 0 to 3 percent slopes, along Sybille Creek. In the background is an area of Aberone-Cragola complex, 10 to 30 percent slopes, on hills.

Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.3 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding frequency: Rare
Seasonal water table minimum depth: About 54 inches
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy Lowland (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, cottonwood, Indian ricegrass, needleleaf sedge, sand dropseed, and silver sagebrush
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
A—0 to 8 inches; fine sandy loam
Bw—8 to 23 inches; loam
Bk—23 to 60 inches; loam stratified with silt loam and loamy fine sand

Haverdad

Landform: Terraces and flood plains (fig. 7)
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.3 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding frequency: Rare
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None

Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy Lowland (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, cottonwood, Indian ricegrass, needleleaf sedge, sand dropseed, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 5 inches; loam
C—5 to 60 inches; loam stratified with silt loam

Minor components

Livan and similar soils
Extent within map unit: About 5 percent

Clarkelen and similar soils
Extent within map unit: About 5 percent

Quarterback and similar soils
Extent within map unit: About 5 percent

Whetsoon and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland, irrigated cropland, or rangeland or for wildlife habitat.

This unit is moderately well suited to nonirrigated cropland. The main limitations are the hazard of wind erosion on the Coaliams soil and the low annual precipitation. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This unit is moderately well suited to irrigated cropland. The main limitation is the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

The Coaliams soil is well suited to stockwater ponds. Pits dug below the level of the water table can provide water for livestock. If the pits are dug to a depth below the level of the water table in the fall, water can be provided throughout the year. The Haverdad soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses.

This unit is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. The Haverdad soil is well suited to mechanical range renovation. The Coaliams soil is moderately well suited to mechanical range renovation; however, because of the coarse texture of this soil, range renovation may not be economically feasible.

136—Cowestglen fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 34—Central Desertic Basins, Mountains, and Plateaus
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Cowestglen and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Cowestglen

Landform: Flood plains
Parent material: Loamy alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.2 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Occasional
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Lowland (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, eastern cottonwood, Indian ricegrass,

little bluestem, Canada wildrye, prairie junegrass, and silver sagebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 7 inches; fine sandy loam
C1—7 to 54 inches; coarse sandy loam stratified with silty clay loam
C2—54 to 60 inches; sandy loam

Minor components

Evanston and similar soils
Extent within map unit: About 5 percent

Chivington and similar soils
Extent within map unit: About 4 percent
Slope: 0 to 6 percent
Drainage class: Well drained
Ecological site: Clayey (15-17sp)

Areas of Riverwash
Extent within map unit: About 1 percent
Landform: Flood plains

Major Uses

This unit is used mainly as rangeland or for wildlife habitat. Some areas are used as irrigated hayland.

The Cowestglen soil is moderately well suited to irrigated hay. The main limitation is the limited available water capacity. Frequent applications of irrigation water will be necessary. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately suited to mechanical range renovation and moderately well suited to range seeding. Mechanical range renovation may not be economically feasible because of the coarse texture of the surface layer. The main limitation affecting range seeding is the hazard of wind erosion. Maintaining an adequate cover of residue on the surface of the soil after planting reduces the hazard of wind erosion. Also, the areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

137—Creighton very fine sandy loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,700 to 5,500 feet (1,433 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Creighton and similar soils: 75 percent
Minor components: 25 percent

Component Descriptions

Creighton

Landform: Hills and alluvial fans
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 9.4 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; very fine sandy loam
Bw—10 to 20 inches; very fine sandy loam
Bk—20 to 60 inches; very fine sandy loam

Minor components

Keeline and similar soils
Extent within map unit: About 5 percent

Forkwood and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Bayard and similar soils
Extent within map unit: About 5 percent

Mitchell and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately well suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

138—Curabith very cobbly sandy loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Curabith and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Curabith

Landform: Hills
Geomorphic position: Toeslopes, summits, and backslopes
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.5 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6s

Typical profile:
Ap—0 to 8 inches; very cobbly sandy loam
Bk1—8 to 12 inches; cobbly sandy loam
Bk2—12 to 35 inches; very gravelly sandy loam
Bk3—35 to 60 inches; very gravelly loamy sand

Minor components

Graystone and similar soils
Extent within map unit: About 7 percent

Recluse and similar soils
Extent within map unit: About 7 percent

Featherlegs and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Curabith soil is poorly suited to nonirrigated cropland and is not recommended for this use. The main limitations are the low annual precipitation and droughtiness of the soil. Because of these limitations, the amount of crop residue is not sufficient content to help control erosion.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is poorly suited to range seeding and mechanical range renovation because of the high content of rock fragments in the surface layer. Tillage is limited because of the rock fragments. Chemical seedbed preparation is more feasible than conventional tillage if the rangeland is seeded. Because of the rock fragments, excavating trenches and installing pipelines may be difficult.

139—Cushool-Cutback complex, 2 to 10 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,200 to 7,200 feet (1,890 to 2,195 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Cushool and similar soils: 40 percent
Cutback and similar soils: 35 percent
Minor components: 25 percent

Component Descriptions

Cushool

Landform: Pediments
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 2 to 10 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (10-14se)
Potential native vegetation: Western wheatgrass, big sagebrush, bluebunch wheatgrass, needleandthread, fringed sagewort, prairie junegrass, Sandberg bluegrass, and spiny phlox
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 3 inches; sandy loam
Bt—3 to 16 inches; sandy clay loam
Bk—16 to 32 inches; gravelly sandy loam
Cr—32 to 42 inches; unweathered bedrock

Cutback

Landform: Pediments
Parent material: Alluvium derived from sandstone
Slope: 2 to 10 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Shallow Loamy (10-14se)
Potential native vegetation: Bluebunch wheatgrass, western wheatgrass, black sagebrush, muttongrass, needleandthread, green needlegrass, prairie junegrass, Sandberg bluegrass, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 1 inch; fine sandy loam
Bt—1 to 7 inches; sandy clay loam
Btk—7 to 17 inches; clay loam
2Bk1—17 to 25 inches; extremely gravelly sandy clay loam
2Bk2—25 to 31 inches; very gravelly sandy loam
3Cr—31 to 41 inches; unweathered bedrock

Minor components

Forelle and similar soils
Extent within map unit: About 25 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock. It is moderately well suited to range seeding. To reduce the hazard of wind erosion during seeding, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

140—Dalecreek-Kovich complex, 0 to 9 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 7,200 feet (1,829 to 2,195 meters)

Mean annual precipitation: 15 to 19 inches (381 to 483 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 8 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Dalecreek and similar soils: 55 percent
Kovich and similar soils: 30 percent
Minor components: 15 percent

Component Descriptions

Dalecreek soils

Landform: Terraces and flood plains
Geomorphic position: Toeslopes
Parent material: Alluvium derived from granite (fig. 8)
Slope: 0 to 9 percent
Drainage class: Moderately well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.0 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding fequency: Rare
Seasonal water table minimum depth: About 39 inches
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Subirrigated (15-19se)
Potential native vegetation: Basin wildrye, slender wheatgrass, tufted hairgrass, western wheatgrass, Nebraska sedge, and willow
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile:
A—0 to 8 inches; sandy loam
Bw—8 to 28 inches; loam
Cg—28 to 60 inches; sandy clay loam stratified with loamy coarse sand

Kovich soils

Landform: Flood plains and terraces

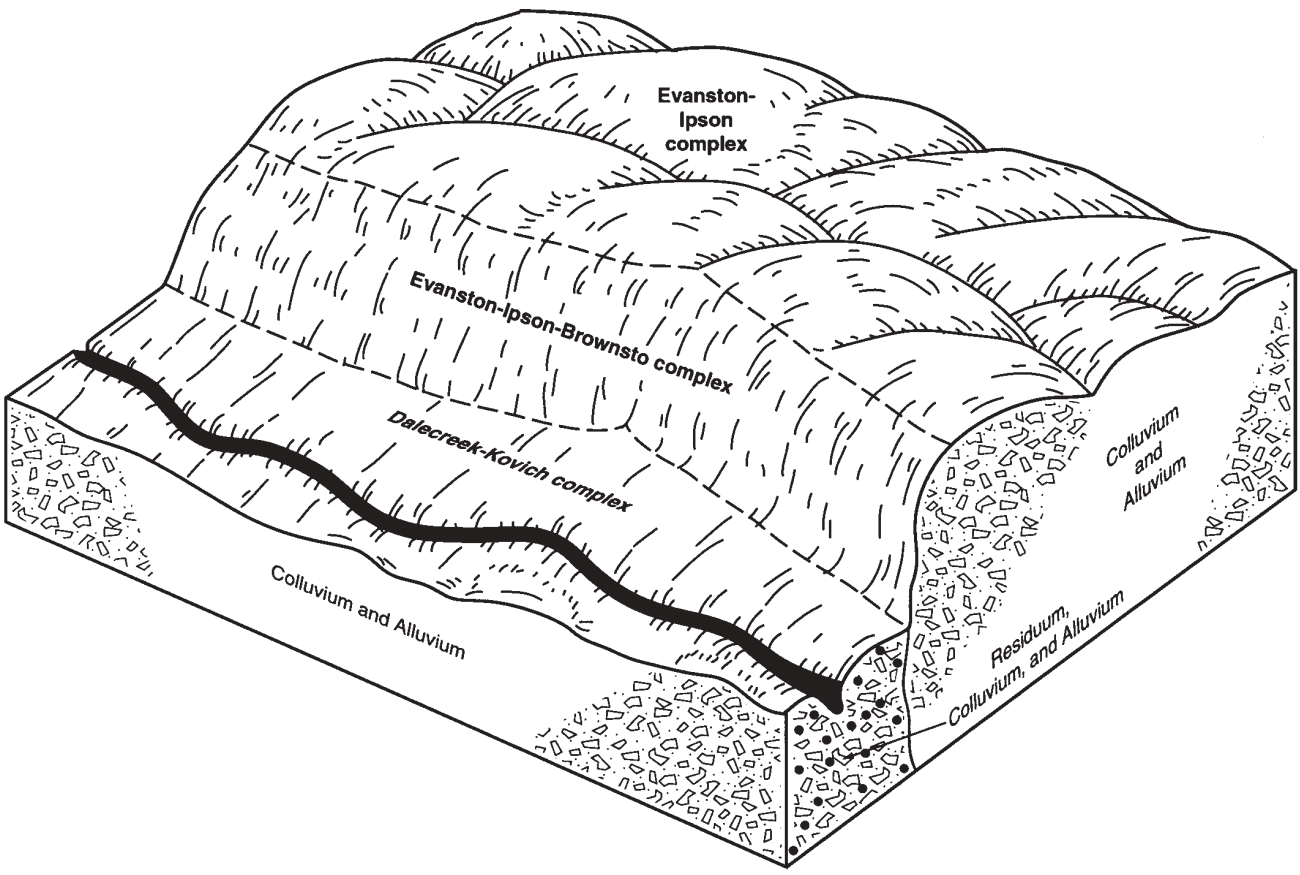

Figure 8.—Typical pattern of soils, topography, and parent material in map units 140, 145, and 146.

Parent material: Alluvium (fig. 8)
Slope: 0 to 3 percent
Drainage class: Poorly drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding frequency: Occasional
Seasonal water table minimum depth: About 15 inches
Runoff class: Low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Wetland (15-19se)
Potential native vegetation: Tufted hairgrass, Nebraska sedge, willow, slough sedge, and water birch
Land capability (irrigated): 5w
Land capability (nonirrigated): 5w

Typical profile:
A—0 to 8 inches; loam
Cg1—8 to 21 inches; clay loam
2Cg2—21 to 60 inches; gravelly clay loam

Minor components

Evanston and similar soils
Extent within map unit: About 15 percent

Major Uses

This unit is used as rangeland or irrigated hayland or for wildlife habitat.

The Dalecreek soil is moderately suited to irrigated hay. The main limitation is the slope. The Kovich soil is moderately suited to irrigated grass hay, but it is poorly suited to irrigated alfalfa hay because of the high water table. Grasses respond to nitrogen fertilizer, and legumes respond to applications of phosphorus. Fertilizer should be applied according to soil tests. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the high water table, and the needs of the crop.

This unit is well suited to stockwater ponds. Pits dug below the level of the water table can provide water for livestock. If the pits are dug to a depth below the level of the water table in the fall, water can be provided throughout the year. The Dalecreek soil is moderately well suited to range seeding. To reduce the hazard of wind erosion during seeding, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. The Kovich soil is poorly suited to range seeding and range renovation because of wetness, which limits tillage. The Dalecreek soil is well suited to range renovation.

Areas of the Kovich soil commonly includes riparian zones. These zones are important because they help to protect streambanks from erosion. Deferring grazing, providing rest periods during the growing season, allowing only short-duration grazing, or excluding livestock from these areas can maintain or improve forage production, water quality, and wildlife habitat. Grazing during long periods when the soil is wet results in compaction of the surface layer.

The wetness is a concern if pipelines are installed in areas of the Kovich soil. Constructing adequate foundations when water storage facilities are installed helps to prevent damage caused by frost heaving.

141—Deight-Thirtynine-Glendo very fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Deight and similar soils: 45 percent
Thirtynine and similar soils: 20 percent
Glendo and similar soils: 15 percent
Minor components: 20 percent

Component Descriptions

Deight

Landform: Hills and terraces
Geomorphic position: Backslopes, summits, and toeslopes
Parent material: Alluvium derived from sandstone (fig. 6)
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 9.5 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)

Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; very fine sandy loam
Bt—8 to 16 inches; loam
Bk—16 to 30 inches; very fine sandy loam
C—30 to 60 inches; very fine sandy loam

Thirtynine

Landform: Hills and terraces
Geomorphic position: Toeslopes
Parent material: Alluvium derived from sandstone and siltstone (fig. 6)
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.2 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 7 inches; very fine sandy loam
Bt—7 to 17 inches; loam
Btk—17 to 22 inches; loam
Bk—22 to 32 inches; loam
C1—32 to 44 inches; loam
C2—44 to 60 inches; very fine sandy loam

Glendo

Landform: Terraces and hills
Geomorphic position: Backslopes and summits
Parent material: Alluvium derived from sandstone and siltstone (fig. 6)
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 9.8 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 2 inches; very fine sandy loam
Bw1—2 to 7 inches; very fine sandy loam
Bw2—7 to 21 inches; loam
C—21 to 60 inches; very fine sandy loam

Minor components

Graystone and similar soils
Extent within map unit: About 5 percent

Hiland and similar soils
Extent within map unit: About 5 percent

Keeline and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used for nonirrigated cropland or rangeland or for wildlife habitat.

The Deight and Glendo soils are moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. The Thirtynine soil is moderately well suited to nonirrigated cropland. The main limitations are the low annual precipitation and hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

The soils in this map unit are moderately well suited to stockwater ponds because of the moderate potential for seepage losses.

This unit is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seedling is established. Areas

tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soils, range renovation may not be economically feasible.

142—Diamonkit-Stylite sandy loams, 3 to 15 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 5,600 to 6,000 feet (1,707 to 1,829 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Diamonkit and similar soils: 40 percent
Stylite and similar soils: 35 percent
Minor components: 25 percent

Component Descriptions

Diamonkit

Landform: Hills
Geomorphic position: Summits, shoulders, and backslopes
Parent material: Alluvium derived from sandstone and shale and residuum derived from sandstone and shale
Slope: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.5 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): About 15 percent
Salinity (maximum): About 8 mmhos/cm (slightly saline)
Sodicity (maximum): About 5 SAR (slightly sodic)
Ecological site: Shallow Loamy (10-14se)
Potential native vegetation: Bluebunch wheatgrass, black sagebrush, muttongrass, needleandthread, western wheatgrass, blue grama, green needlegrass, Indian ricegrass, prairie junegrass, Sandberg bluegrass, threadleaf sedge, and threetip sagebrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 1 inch; sandy loam
Bt—1 to 11 inches; sandy clay loam
Bky1—11 to 19 inches; loam
2Bky2—19 to 33 inches; clay loam
2Cr—33 to 43 inches; unweathered bedrock

Stylite

Landform: Hills
Geomorphic position: Shoulders, backslopes, and toeslopes
Parent material: Alluvium derived from gypsum and residuum derived from gypsum
Slope: 3 to 8 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.9 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): About 40 percent
Salinity (maximum): About 8 mmhos/cm (slightly saline)
Sodicity (maximum): About 10 SAR (slightly sodic)
Ecological site: Loamy (10-14se)
Potential native vegetation: Western wheatgrass, needleandthread, big sagebrush, bluebunch wheatgrass, green needlegrass, muttongrass, and Truckee rabbitbrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 2 inches; sandy loam
BA—2 to 4 inches; loam
Bt—4 to 14 inches; loam
Btk—14 to 21 inches; clay loam
Bk—21 to 31 inches; clay loam
By1—31 to 40 inches; loam
By2—40 to 60 inches; clay loam

Minor components

Forelle and similar soils
Extent within map unit: About 25 percent

Major Uses

This unit is used mainly as rangeland or for wildlife habitat.

The Diamonkit soil is poorly suited to stockwater ponds because of the high potential for seepage losses. The Spinekop soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. This unit is moderately well suited to range seeding. The main limitations are the hazards

of wind erosion and water erosion. To reduce the hazards of wind erosion and water erosion during seeding, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is well suited to range renovation.

143—Embry loamy fine sand, 2 to 10 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 6,000 feet (1,311 to 1,829 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Embry and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Embry

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Loamy alluvium derived from sandstone
Slope: 2 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 6.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 10 inches; loamy fine sand
C—10 to 60 inches; fine sandy loam

Minor components

Turnercrest and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Embry soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately suited to range seeding. This unit is poorly suited to range renovation because of the severe hazard of wind erosion. Rangeland improvement practices that disturb the soil surface or remove the plant cover are not recommended because of the severe hazard of wind erosion. The best methods for seedbed preparation are interseeding and band spraying of herbicides, which can help to control the growth of undesirable plants.

144—Evanston loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Evanston and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Evanston

Landform: Terraces, hills, and alluvial fans
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Loamy alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.7 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)

Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 3 inches; loam
Bt—3 to 15 inches; clay loam
Bk—15 to 60 inches; loam

Minor components

Ipson and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used mainly as rangeland or for wildlife habitat. It is also used as nonirrigated cropland.

The Evanston soil is moderately well suited to nonirrigated crops. The main limitations are the low annual precipitation and the short growing season. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. The hazard of wind erosion can be controlled by leaving the surface rough after tillage, by stripcropping at right angles to prevailing winds, and by maintaining crop residue on the surface.

This soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is well suited to mechanical range renovation and range seeding. In tilled and seeded areas, maintaining an adequate cover of residue on the surface of the soil after planting reduces the hazard of wind erosion. Also, the areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

145—Evanston-Ipson complex, 0 to 20 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 5,500 to 7,000 feet (1,676 to 2,134 meters)
Mean annual precipitation: 12 to 17 inches (305 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Evanston and similar soils: 60 percent
Ipson and similar soils: 30 percent
Minor components: 10 percent

Component Descriptions

Evanston

Landform: Hills
Geomorphic position: Footslopes and toeslopes
Parent material: Alluvium (fig. 8)
Slope: 0 to 20 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.6 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-19se)
Potential native vegetation: Bluebunch wheatgrass, Idaho fescue, Griffith wheatgrass, prairie junegrass, big sagebrush, and threetip sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 7 inches; loam
Bt—7 to 18 inches; loam
Bk1—18 to 33 inches; gravelly loam
Bk2—33 to 60 inches; loam

Ipson

Landform: Hills
Geomorphic position: Backslopes
Parent material: Alluvium and colluvium (fig. 8)
Slope: 0 to 20 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.0 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Coarse Upland (15-19se)
Potential native vegetation: Bluebunch wheatgrass, Idaho fescue, prairie junegrass, and western wheatgrass
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 6 inches; very cobbly loam
Bt—6 to 18 inches; very cobbly sandy clay loam
Bk—18 to 60 inches; very gravelly sandy loam

Minor components

Boyle and similar soils
Extent within map unit: About 4 percent

Trimad and similar soils
Extent within map unit: About 3 percent

Areas of Rock outcrop
Extent within map unit: About 3 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Evanston soil is moderately suited to stockwater ponds because of the slope. The Ipson soil is poorly suited to stockwater ponds because of the high potential for seepage losses. The Evanston soil is moderately suited to range seeding and range renovation. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. In areas where the slope is 6 to 15 percent, applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion. This map unit is not suited to tillage in areas where the slope is more than 15 percent. The Ipson soil is poorly suited to range seeding and range renovation because of the slope and the rock fragments on or in the surface layer.

Because of the rock fragments in the Ipson soil, excavating trenches and installing pipelines may be difficult.

146—Evanston-Ipson-Brownsto complex, 15 to 45 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 5,500 to 7,000 feet (1,676 to 2,134 meters)
Mean annual precipitation: 12 to 17 inches (305 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Evanston and similar soils: 40 percent
Ipson and similar soils: 30 percent
Brownsto and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Evanston soils

Landform: Hills
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium (fig. 8)
Slope: 15 to 25 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 9.7 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very high
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and little bluestem
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; loam
Bt—4 to 12 inches; clay loam
Bk—12 to 60 inches; sandy clay loam

Ipson soils

Landform: Hills
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium and colluvium (fig. 8)
Slope: 15 to 45 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.8 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Coarse Upland (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, Indian ricegrass, sideoats grama, and western wheatgrass
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; very cobbly loam
Bt—4 to 11 inches; very cobbly sandy clay loam
Bk—11 to 60 inches; very gravelly sandy loam

Brownsto soils

Landform: Hills
Geomorphic position: Shoulders
Parent material: Alluvium and colluvium (fig. 8)
Slope: 15 to 45 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.2 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Gravelly (15-17sp)
Potential native vegetation: Little bluestem, bluebunch wheatgrass, Indian ricegrass, needleandthread, western wheatgrass, and small soapweed
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; cobbly sandy loam
Bk—4 to 60 inches; very cobbly sandy loam

Minor components

Trimad and similar soils
Extent within map unit: About 4 percent
Landform: Hills
Geomorphic position: Summits and backslopes

Rentsac and similar soils
Extent within map unit: About 3 percent
Landform: Hills
Geomorphic position: Summits and backslopes

Areas of Rock outcrop
Extent within map unit: About 3 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the slope. It is poorly suited to range seeding and range renovation because of the slope and the rock fragments on or in the surface layer of the Ipson and Brownsto soils.

Because of the rock fragments in the Ipson and Brownsto soils, excavating trenches and installing pipelines may be difficult.

147—Evanston-Weed complex, 3 to 35 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Evanston and similar soils: 70 percent
Weed and similar soils: 25 percent
Minor components: 5 percent

Component Descriptions

Evanston

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Loamy alluvium
Slope: 9 to 35 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 7.1 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 5 inches; gravelly sandy loam
Bt—5 to 15 inches; gravelly clay loam
Bk1—15 to 27 inches; gravelly sandy clay loam
Bk2—27 to 60 inches; gravelly sandy clay loam

Weed

Landform: Hills and fans
Geomorphic position: Toeslopes
Parent material: Loamy alluvium
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.1 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 5 inches; sandy loam
Bt1—5 to 14 inches; sandy clay loam
Bt2—14 to 28 inches; clay loam
Bk—28 to 60 inches; sandy clay loam

Minor components

Trimad and similar soils
Extent within map unit: About 3 percent

Blazon and similar soils
Extent within map unit: About 2 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Evanston soil is poorly suited to stockwater ponds, mechanical range renovation, and range seeding because of the slope. The hazard of water erosion also limits range seeding and mechanical range renovation. Areas of the Evanston soil are not suited to tillage for range improvement.

The Weed soil is moderately well suited to stockwater ponds. The main limitations are the moderate potential for seepage losses and the slope. The Weed soil is moderately suited to range seeding and mechanical range renovation; however, because of the coarse texture of the surface layer, mechanical range renovation may not be economically feasible. The main limitation affecting range seeding are the hazards of wind erosion and water erosion. In tilled and seeded areas, maintaining an adequate cover of residue on the surface of the soil after planting reduces the hazards of wind erosion and water erosion. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. In areas where the slope is more than 6 percent, applying tillage practices along the contour of the slope reduces the hazard of water erosion.

148—Evanston-Weed-Trimad loams, 3 to 15 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Evanston and similar soils: 35 percent
Weed and similar soils: 35 percent
Trimad and similar soils: 25 percent
Minor components: 5 percent

Component Descriptions

Evanston

Landform: Hills and alluvial fans
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Loamy alluvium
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 3 inches; loam
Bt—3 to 12 inches; clay loam

Bk1—12 to 27 inches; loam
Bk2—27 to 60 inches; gravelly sandy loam

Weed

Landform: Fans
Parent material: Loamy alluvium
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 9.9 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 8 inches; loam
Bt1—8 to 18 inches; clay loam
Bt2—18 to 26 inches; sandy clay loam
Bk—26 to 60 inches; sandy clay loam

Trimad

Landform: Hills
Geomorphic position: Backslopes, summits, and toeslopes
Parent material: Gravelly alluvium
Slope: 6 to 15 percent
Drainage class: Well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 5.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 6s

Typical profile:
A—0 to 8 inches; loam
Bk—8 to 60 inches; very gravelly loam

Minor components

Ipson and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Evanston and Trimad soils are poorly suited to stockwater ponds because of the high potential for seepage losses. The Weed soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses.

This unit is well suited to mechanical range renovation. It is moderately well suited to range seeding. The main limitation affecting range seeding are the hazards of water erosion and wind erosion. In tilled and seeded areas, maintaining an adequate cover of residue on the surface of the soil after planting reduces the hazards of wind erosion and water erosion. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. In areas where the slope is more than 6 percent, applying tillage practices along the contour of the slope reduces the hazard of water erosion.

149—Featherlegs fine sandy loam, wet, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Featherlegs, wet, and similar soils: 85 percent
Minor components: 15 percent

Component Descriptions

Featherlegs, wet

Landform: Terraces
Parent material: Alluvium and residuum
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 5.5 inches (low)

Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: About 36 inches
Runoff class: Low
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Subirrigated (12-14sp)
Potential native vegetation: Basin wildrye, big bluestem, little bluestem, prairie cordgrass, slender wheatgrass, and switchgrass
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
Ap—0 to 14 inches; fine sandy loam
Bt—14 to 18 inches; sandy clay loam
Bk1—18 to 31 inches; sandy loam
2Bk2—31 to 60 inches; very gravelly loamy sand

Minor components

Claprych and similar soils
Extent within map unit: About 5 percent

Curabith and similar soils
Extent within map unit: About 5 percent

Selpats and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as irrigated cropland, nonirrigated cropland, or rangeland or for wildlife habitat.

The Featherlegs, wet, soil is moderately well suited to irrigated cropland. The main limitations are the hazard of wind erosion and droughtiness of the soil. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the depth to the water table, and the needs of the crop. Frequent applications of irrigation water will be necessary because of the low available water capacity. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on the surface of the soil reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is well suited to stockwater ponds. Pits dug below the level of the water table can provide water for livestock. If the pits are dug to a depth below the level of the water table in the fall and winter, water can be provided throughout the year. This soil is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately well suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

The wetness is a concern if pipelines are installed in areas of this soil. Constructing adequate foundations when water storage facilities are installed helps to prevent damage caused by frost heaving.

150—Featherlegs-Bayard fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Featherlegs and similar soils: 45 percent
Bayard and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Featherlegs

Landform: Alluvial fans and hills
Geomorphic position: Summits and backslopes
Parent material: Alluvium and residuum
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 6.6 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None

Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; fine sandy loam
Bt—10 to 26 inches; loam
Bk1—26 to 30 inches; loam
2Bk2—30 to 60 inches; very gravelly sandy loam

Bayard

Landform: Swales on hills
Geomorphic position: Summits
Parent material: Colluvium derived from sandstone
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 12 inches; fine sandy loam
C—12 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 5 percent

Curabith and similar soils
Extent within map unit: About 5 percent

Greenhope and similar soils
Extent within map unit: About 5 percent

Vetal and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

151—Featherlegs-Curabith fine sandy loams, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Featherlegs and similar soils: 50 percent
Curabith and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Featherlegs

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)

Available water capacity: About 6.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 10 inches; fine sandy loam
Bt—10 to 15 inches; sandy clay loam
2Bk1—15 to 45 inches; very cobbly sandy loam
2Bk2—45 to 60 inches; very cobbly loamy sand

Curabith

Landform: Hills
Geomorphic position: Toeslopes, summits, and backslopes
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 12 inches; fine sandy loam
Bk1—12 to 30 inches; very cobbly sandy loam
Bk2—30 to 60 inches; very cobbly loamy sand

Minor components

Claprych and similar soils
Extent within map unit: About 10 percent
Landform: Hills

Major Uses

This unit is used as nonirrigated cropland, irrigated cropland, or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, the rock fragments in the Curabith soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This unit is moderately well suited to irrigated cropland. The main limitations are the hazard of wind erosion, droughtiness of the soils, and the rock fragments in the Curabith soil. Frequent applications of irrigation water will be necessary because of the limited available water capacity. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

Because of the rock fragments in the Curabith soil, excavating trenches and installing pipelines may be difficult.

152—Featherlegs-Greenhope-Curabith fine sandy loams, 3 to 15 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)

Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Featherlegs and similar soils: 45 percent
Greenhope and similar soils: 25 percent
Curabith and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Featherlegs

Landform: Hills
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium and residuum
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 5 inches; fine sandy loam
Bt—5 to 13 inches; clay loam
2Bk—13 to 60 inches; very gravelly sandy loam

Greenhope

Landform: Hills
Geomorphic position: Backslopes, summits, and toeslopes
Parent material: Alluvium
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 6.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
Bk1—7 to 12 inches; loam
Bk2—12 to 36 inches; sandy loam
2Bk3—36 to 60 inches; very gravelly sandy loam

Curabith

Landform: Hills
Geomorphic position: Backslopes, summits, and toeslopes
Parent material: Alluvium
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 7 inches; fine sandy loam
Bk—7 to 60 inches; very gravelly sandy loam

Minor components

Taluce and similar soils
Extent within map unit: About 4 percent

Claprych and similar soils
Extent within map unit: About 3 percent

Snilloc and similar soils
Extent within map unit: About 3 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the slope, the low annual precipitation, and droughtiness of the soils. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. Stripcropping at right angles to prevailing winds, leaving the soil surface rough, and maintaining crop residue on the soil after tillage help to control the hazards of wind erosion and water erosion.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to range renovation. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils.

Because of the rock fragments in the Curabith soil, excavating trenches and installing pipelines may be difficult.

153—Featherlegs-Recluse loams, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Featherlegs and similar soils: 45 percent
Recluse and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Featherlegs

Landform: Terraces
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; loam
Bt—8 to 20 inches; clay loam
Bk1—20 to 30 inches; loam
2Bk2—30 to 60 inches; very gravelly loam

Recluse

Landform: Terraces
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.5 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; loam
Bt—8 to 22 inches; clay loam
Bk—22 to 60 inches; very fine sandy loam

Minor components

Forkwood and similar soils
Extent within map unit: About 5 percent

Selpats and similar soils
Extent within map unit: About 5 percent

Sweatbee and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as irrigated cropland or nonirrigated cropland or for wildlife habitat.

This unit is well suited to irrigated cropland. To prevent overirrigating and the leaching of plant

nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed to improve fertility. Fertilizer should be applied according to soil tests.

This unit is moderately well suited to nonirrigated cropland. The main limitation is the low annual precipitation. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

154—Featherlegs-Recluse loams, 3 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Featherlegs and similar soils: 45 percent
Recluse and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Featherlegs

Landform: Hills and terraces
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium and eolian deposits
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; loam
Bt—9 to 26 inches; loam
Bk1—26 to 35 inches; sandy clay loam
2Bk2—35 to 60 inches; very gravelly sandy loam

Recluse

Landform: Hills and terraces
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium and eolian deposits
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.5 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; loam
Bt—8 to 22 inches; loam
Bk—22 to 60 inches; very fine sandy loam

Minor components

Forkwood and similar soils
Extent within map unit: About 5 percent

Selpats and similar soils
Extent within map unit: About 5 percent

Snilloc and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as irrigated cropland, nonirrigated cropland, or rangeland or for wildlife habitat.

This unit is moderately well suited to irrigated cropland. The main limitation is the slope. To prevent

overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed to improve fertility. Fertilizer should be applied according to soil tests.

This unit is moderately well suited to nonirrigated cropland. The main limitation is the low annual precipitation. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is well suited to range seeding and range renovation.

155—Featherlegs-Recluse loams, 3 to 15 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Featherlegs and similar soils: 50 percent
Recluse and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Featherlegs

Landform: Hills and terraces
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium and eolian deposits
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.0 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and little bluestem
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 9 inches; loam
Bt—9 to 23 inches; sandy clay loam
Bk1—23 to 33 inches; sandy clay loam
2Bk2—33 to 60 inches; very gravelly sandy loam

Recluse

Landform: Hills and terraces
Geomorphic position: Backslopes, toeslopes, and summits
Parent material: Alluvium and eolian deposits
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.4 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 5 inches; loam
Bt1—5 to 10 inches; clay loam
Bt2—10 to 18 inches; clay loam
Bk—18 to 60 inches; loam

Minor components

Forkwood and similar soils
Extent within map unit: About 5 percent

Brown and similar soils
Extent within map unit: About 5 percent

Chugcity and similar soils
Extent within map unit: About 5 percent

Snilloc and similar soils
Extent within map unit: About 5 percent

Major Uses

this unit is used as nonirrigated cropland, nonirrigated hayland, or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland and hayland. The main limitations are the low annual precipitation and the hazards of wind erosion and water erosion. Maintaining crop residue on or near the surface reduces erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

The Featherlegs soil is poorly suited to stockwater ponds because of the high potential for seepage losses and the slope. The Recluse soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses and the slope. This unit is moderately well suited to range seeding and well suited to range renovation. The main limitation affecting range seeding is the hazard of water erosion. Applying range renovation and range seeding practices along the contour of the slope reduces the hazard of water erosion.

156—Fluvaquentic Endoaquolls-Whetsoon complex, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Fluvaquentic Endoaquolls and similar soils: 50 percent
Whetsoon and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Fluvaquentic Endoaquolls

Landform: Flood plains and terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Poorly drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.1 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding frequency: Rare
Seasonal water table minimum depth: About 12 inches
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Wetland (12-14sp)
Potential native vegetation: Prairie cordgrass, bluejoint, Nebraska sedge, and northern reedgrass
Land capability (irrigated): 5w
Land capability (nonirrigated): 5w

Typical profile:
A—0 to 7 inches; loam
Acg—7 to 16 inches; clay loam
Cg1—16 to 28 inches; sandy clay loam
Cg2—28 to 36 inches; sandy clay loam
Cg3—36 to 44 inches; fine sandy loam
Cg4—44 to 60 inches; sandy clay loam

Whetsoon

Landform: Terraces and flood plains
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Somewhat poorly drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.2 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: About 27 inches
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Subirrigated (12-14sp)
Potential native vegetation: Basin wildrye, big bluestem, little bluestem, prairie cordgrass, slender wheatgrass, and switchgrass
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
A—0 to 7 inches; fine sandy loam
Bt1—7 to 13 inches; loam
Bt2—13 to 21 inches; sandy clay loam
Bk1—21 to 33 inches; loam
Bk2—33 to 60 inches; loam

Minor components

Forkwood and similar soils
Extent within map unit: About 7 percent

Mainter and similar soils
Extent within map unit: About 7 percent

Albinas and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is mainly used as rangeland or for wildlife habitat. In some areas, the Whetsoon soil is used as irrigated and nonirrigated cropland.

This unit is poorly suited to irrigated cropland. The main limitation is the high water table. Proper irrigation water management and fertility management practices are necessary. Fertilizer should be applied according to soil tests. The wetness limits tillage.

This unit is poorly suited to nonirrigated cropland. The main limitation is the high water table. The wetness limits tillage.

This map unit is well suited to stockwater ponds. Pits dug below the level of the water table can provide water for livestock. If the pits are dug to a depth below the level of the water table in the fall, water can be provided throughout the year. This unit is poorly suited to range seeding and mechanical range renovation because of the wetness.

Areas of this map unit commonly include riparian zones. These zones are important because they help to protect streambanks from erosion. Deferring grazing, providing rest periods during the growing season, allowing only short-duration grazing, or excluding livestock from these areas can maintain or improve forage production, water quality, or wildlife habitat. Grazing during long periods when the soil is wet results in compaction of the surface layer.

Because of the high water table, the installation of pipelines may be limited. Constructing adequate foundations when water storage facilities are installed helps to prevent damage caused by frost heaving.

157—Forelle loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 5,800 to 7,200 feet (1,768 to 2,195 meters)
Mean annual precipitation: 12 to 17 inches (305 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Forelle and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Forelle

Landform: Hills and alluvial fans
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 14 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (10-14se)
Potential native vegetation: Western wheatgrass, needleandthread, big sagebrush, bluebunch wheatgrass, green needlegrass, green rabbitbrush, and muttongrass
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 4 inches; loam
Bt—4 to 25 inches; loam
Bk—25 to 60 inches; loam

Minor components

Blazon and similar soils
Extent within map unit: About 5 percent

Chaperton and similar soils
Extent within map unit: About 5 percent

Poposhia and similar soils
Extent within map unit: About 5 percent

Spinekop and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Forelle soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is well suited to range renovation.

158—Forelle-Diamondville association, 3 to 15 percent slopes

Map Unit Setting

MLRA: 34—Central Desertic Basins, Mountains, and Plateaus
Elevation: 5,800 to 7,200 feet (1,768 to 2,195 meters)
Mean annual precipitation: 12 to 17 inches (305 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Forelle and similar soils: 45 percent
Diamondville and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Forelle

Landform: Hills
Geomorphic position: Backslopes, toeslopes, and summits
Parent material: Alluvium
Slope: 3 to 8 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.8 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 14 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (10-14se)
Potential native vegetation: Western wheatgrass, needleandthread, big sagebrush, bluebunch wheatgrass, green needlegrass, green rabbitbrush, and muttongrass
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 4 inches; fine sandy loam
Bt—4 to 25 inches; loam
Bk—25 to 60 inches; sandy clay loam

Diamondville

Landform: Hills
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium derived from sandstone and shale residuum derived from sandstone and shale
Slope: 6 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 5.3 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 14 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (10-14se)
Potential native vegetation: Western wheatgrass, needleandthread, big sagebrush, bluebunch wheatgrass, green needlegrass, green rabbitbrush, and muttongrass
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 1 inch; fine sandy loam
Bt—1 to 23 inches; loam
Bk—23 to 34 inches; loam
Cr—34 to 44 inches; unweathered bedrock

Minor components

Blazon and similar soils
Extent within map unit: About 5 percent

Chaperton and similar soils
Extent within map unit: About 5 percent

Poposhia and similar soils
Extent within map unit: About 5 percent

Spinekop and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Forelle soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. The Diamondville soil is poorly suited to stockwater ponds because of the depth of bedrock. This unit is moderately well suited to range seeding. To reduce the hazards of wind erosion and water erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is well suited to range renovation.

159—Forkwood fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Forkwood and similar soils: 75 percent
Minor components: 25 percent

Component Descriptions

Forkwood

Landform: Terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.8 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; fine sandy loam
Bt—9 to 15 inches; loam
Bk1—15 to 39 inches; fine sandy loam
Bk2—39 to 60 inches; fine sandy loam

Minor components

Cambria and similar soils
Extent within map unit: About 13 percent

Vonalee and similar soils
Extent within map unit: About 12 percent

Major Uses

This unit is used as nonirrigated and irrigated cropland or rangeland or for wildlife habitat.

The Forkwood soil is moderately well suited to irrigated cropland. The main limitation is the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is well suited to mechanical range renovation; however, because of the coarse texture of the surface layer, range renovation may not be economically feasible.

160—Forkwood loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Forkwood and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Forkwood

Landform: Fans
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 2 inches; loam
Bt—2 to 12 inches; loam
Bk—12 to 60 inches; fine sandy loam

Minor components

Chugcity and similar soils
Extent within map unit: About 4 percent

Taluce and similar soils
Extent within map unit: About 4 percent

Snilloc and similar soils
Extent within map unit: About 4 percent

Featherlegs and similar soils
Extent within map unit: About 4 percent

Recluse and similar soils
Extent within map unit: About 4 percent

Major Uses

This unit is used as irrigated hayland or rangeland or for wildlife habitat.

The Forkwood soil is well suited to irrigated hayland. Grasses respond to nitrogen fertilizer, and legumes respond to applications of phosphorus. Fertilizer should be applied according to soil tests. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is well suited to mechanical range renovation.

161—Forkwood loam, wet, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Forkwood, wet, and similar soils: 85 percent
Minor components: 15 percent

Component Descriptions

Forkwood, wet

Landform: Terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.8 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: About 39 inches
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Subirrigated (12-14sp)
Potential native vegetation: Basin wildrye, big bluestem, little bluestem, prairie cordgrass, slender wheatgrass, and switchgrass
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
Ap—0 to 7 inches; loam
Bt—7 to 15 inches; loam
Bk1—15 to 19 inches; loam
Bk2—19 to 60 inches; fine sandy loam

Minor components

Mainter and similar soils
Extent within map unit: About 15 percent

Major Uses

This unit is used as irrigated cropland or rangeland or for wildlife habitat.

The Forkwood, wet, soil is moderately well suited to irrigated cropland. The main limitation is the high water table. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the depth of the water table, and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This soil is well suited to stockwater ponds. Pits dug below the level of the water table can provide water for livestock. If the pits are dug to a depth below the level of the water table in the fall, water can be provided throughout the year. This soil is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is well suited to range renovation.

Grazing during long periods when the soil is wet results in compaction of the surface layer. Short-duration grazing is preferable to continuous, season-long grazing.

The wetness is a concern if pipelines are installed in areas of this soil. Constructing adequate foundations when water storage facilities are installed helps to prevent damage caused by frost heaving.

162—Glendo silt loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Glendo and similar soils: 75 percent
Minor components: 25 percent

Component Descriptions

Glendo

Landform: Hills and alluvial fans
Geomorphic position: Toeslopes, summits, and backslopes
Parent material: Alluvium derived from sandstone and siltstone
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.5 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 3 inches; silt loam
Bw—3 to 14 inches; silt loam
C—14 to 60 inches; silt loam

Minor components

Clarkelen and similar soils
Extent within map unit: About 13 percent

Mitchell and similar soils
Extent within map unit: About 12 percent

Major Uses

This unit is used as irrigated cropland or nonirrigated cropland, or for wildlife habitat, or as rangeland.

The Glendo soil is well suited to irrigated cropland. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately well suited to nonirrigated cropland. The main limitation is the low annual precipitation. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture

should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is well suited to range seeding and range renovation.

163—Graystone-Alice fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Graystone and similar soils: 50 percent
Alice and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Graystone

Landform: Hills
Geomorphic position: Backslopes, shoulders, and summits
Parent material: Alluvium and eolian deposits
Slope: 2 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.5 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; fine sandy loam
Bk1—8 to 24 inches; fine sandy loam
Bk2—24 to 60 inches; sandy loam

Alice

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 0 to 4 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.0 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 8 inches; fine sandy loam
Bk1—8 to 36 inches; fine sandy loam
Bk2—36 to 60 inches; sandy loam

Minor components

Bayard and similar soils
Extent within map unit: About 3 percent

Keeline and similar soils
Extent within map unit: About 3 percent

Mainter and similar soils
Extent within map unit: About 3 percent

Snilloc and similar soils
Extent within map unit: About 3 percent

Moskee and similar soils
Extent within map unit: About 3 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind

erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils.

164—Graystone-Greenhope-Bayard fine sandy loams, 0 to 10 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Graystone and similar soils: 30 percent
Greenhope and similar soils: 30 percent
Bayard and similar soils: 20 percent
Minor components: 20 percent

Component Descriptions

Graystone

Landform: Hills and alluvial fans
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 8 inches; fine sandy loam
Bk1—8 to 16 inches; fine sandy loam
Bk2—16 to 36 inches; fine sandy loam
C—36 to 60 inches; fine sandy loam

Greenhope

Landform: Alluvial fans and hills
Geomorphic position: Backslopes, summits, and toeslopes
Parent material: Alluvium
Slope: 0 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 6.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 9 inches; fine sandy loam
Bk1—9 to 20 inches; fine sandy loam
Bk2—20 to 23 inches; gravelly fine sandy loam
2Bk3—23 to 35 inches; very gravelly fine sandy loam
2C—35 to 60 inches; gravelly fine sandy loam

Bayard

Landform: Alluvial fans and swales on hills
Geomorphic position: Footslopes
Parent material: Colluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.8 inches (moderate)

Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 8 inches; fine sandy loam
C—8 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 5 percent

Curabith and similar soils
Extent within map unit: About 5 percent

Keeline and similar soils
Extent within map unit: About 5 percent

Sweatbee and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of erosion. Maintaining crop residue on or near the surface reduces runoff and the hazards of water erosion and wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. Stripcropping at right angles to prevailing winds, leaving the soil surface rough, and maintaining crop residue on the soil after tillage help to control wind erosion.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to range renovation. The main limitation affecting range seeding is the hazard of wind erosion. To reduce the hazard of erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils.

165—Graystone-Mainter fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Graystone and similar soils: 60 percent
Mainter and similar soils: 20 percent
Minor components: 20 percent

Component Descriptions

Graystone

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.8 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; fine sandy loam
Bk1—8 to 17 inches; fine sandy loam
Bk2—17 to 30 inches; loam
C—30 to 60 inches; very fine sandy loam

Mainter

Landform: Hills
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium and eolian deposits
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; fine sandy loam
Bt1—9 to 16 inches; fine sandy loam
Bt2—16 to 28 inches; fine sandy loam
Bk—28 to 60 inches; fine sandy loam

Minor components

Keeline and similar soils
Extent within map unit: About 7 percent

Featherlegs and similar soils
Extent within map unit: About 7 percent

Recluse and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding because of the hazard of wind erosion. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

166—Graystone-Phiferson-Treon very fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Graystone and similar soils: 35 percent
Phiferson and similar soils: 35 percent
Treon and similar soils: 15 percent
Minor components: 15 percent

Component Descriptions

Graystone

Landform: Hills
Geomorphic position: Toeslopes and backslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 4 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 9.1 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; very fine sandy loam
Bk1—8 to 20 inches; loam
Bk2—20 to 60 inches; very fine sandy loam

Phiferson

Landform: Hills
Geomorphic position: Backslopes
Parent material: Residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; very fine sandy loam
Bw—9 to 25 inches; very fine sandy loam
Bk—25 to 36 inches; very fine sandy loam
Cr—36 to 46 inches; unweathered bedrock

Treon

Landform: Hills
Geomorphic position: Summits, shoulders, and backslopes
Parent material: Residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.3 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
Ap—0 to 7 inches; very fine sandy loam
C—7 to 19 inches; fine sandy loam
Cr—19 to 29 inches; unweathered bedrock

Minor components

Albinas and similar soils
Extent within map unit: About 3 percent

Alice and similar soils
Extent within map unit: About 3 percent

Bayard and similar soils
Extent within map unit: About 3 percent

Cedak and similar soils
Extent within map unit: About 2 percent

Mainter and similar soils
Extent within map unit: About 2 percent

Recluse and similar soils
Extent within map unit: About 2 percent

Major Uses

This unit is used for nonirrigated cropland or rangeland or for wildlife habitat.

The Graystone and Phiferson soils are moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also helps to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. The Treon soil is very shallow to bedrock and is not suited to use as cropland.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock in the Treon and Phiferson soils. The Graystone and Phiferson soils are moderately well suited to range seeding. The main limitation is the hazard of wind erosion. The Treon soil is moderately suited to range seeding because of the depth to bedrock. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at

right angles to the prevailing wind. The Graystone and Phiferson soils are moderately suited to mechanical range renovation; however, because of the coarse texture of the soils, range renovation may not be economically feasible. The Treon soil is poorly suited to mechanical range renovation because of the depth to bedrock.

The Treon soil is poorly suited to the installation of pipelines because of the depth to bedrock.

167—Greenhope-Featherlegs complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Greenhope and similar soils: 40 percent
Featherlegs and similar soils: 35 percent
Minor components: 25 percent

Component Descriptions

Greenhope

Landform: Terraces and hills
Geomorphic position: Toeslopes, summits, and backslopes
Parent material: Alluvium
Slope: 2 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 5.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; fine sandy loam
Bk1—9 to 16 inches; fine sandy loam
Bk2—16 to 25 inches; gravelly sandy loam
2Bk3—25 to 60 inches; very cobbly sandy loam

Featherlegs

Landform: Hills and terraces
Geomorphic position: Toeslopes
Parent material: Alluvium and residuum
Slope: 0 to 4 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 7 inches; gravelly fine sandy loam
Bt—7 to 13 inches; gravelly sandy clay loam
Bk1—13 to 17 inches; gravelly sandy loam
2Bk2—17 to 60 inches; very gravelly sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 7 percent

Bayard and similar soils
Extent within map unit: About 6 percent

Snilloc and similar soils
Extent within map unit: About 6 percent

Moskee and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland, irrigated cropland, or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near

the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This unit is moderately well suited to irrigated cropland. The main limitations are the hazard of wind erosion, droughtiness of the soils, and the gravel in the surface layer of the Featherlegs soil. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soils. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding because of the hazard of wind erosion and the gravel in the surface layer of the Featherlegs soil. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soils, range renovation may not be economically feasible.

168—Hiland fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Hiland and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Hiland

Landform: Fans and terraces
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.1 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 9 inches; fine sandy loam
Bt—9 to 15 inches; sandy clay loam
Bk1—15 to 18 inches; fine sandy loam
Bk2—18 to 38 inches; fine sandy loam
C—38 to 60 inches; fine sandy loam

Minor components

Keeline and similar soils
Extent within map unit: About 7 percent

Vonalee and similar soils
Extent within map unit: About 7 percent

Forkwood and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as irrigated and nonirrigated cropland or rangeland or for wildlife habitat.

The Hiland soil is moderately suited to irrigated cropland. The main limitation is the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately well suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop

rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This soil is well suited to mechanical range renovation.

169—Hiland-Cambria sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Hiland and similar soils: 45 percent
Cambria and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Hiland

Landform: Hills
Geomorphic position: Backslopes, toeslopes, and summits
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 10 inches; sandy loam
Bt—10 to 15 inches; sandy clay loam
Bk—15 to 30 inches; fine sandy loam
C—30 to 60 inches; fine sandy loam

Cambria

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.6 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 7 inches; sandy loam
Bt—7 to 10 inches; sandy clay loam
Bk1—10 to 13 inches; sandy clay loam
Bk2—13 to 29 inches; loam
Bk3—29 to 60 inches; loam

Minor components

Keeline and similar soils
Extent within map unit: About 10 percent

Selpats and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as nonirrigated and irrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at

right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This unit is moderately well suited to irrigated cropland. The main limitation is the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

The Hiland soil is poorly suited to stockwater ponds, and the Cambria soil is moderately well suited because of the potential for seepage losses. This unit is moderately well suited to range seeding. To reduce the hazard of wind erosion during seeding, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the surface layer, range renovation may not be economically feasible.

170—Ipson-Evanston complex, 6 to 30 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Ipson and similar soils: 50 percent
Evanston and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Ipson

Landform: Hills and alluvial fans
Geomorphic position: Footslopes, backslopes, and summits
Parent material: Gravelly alluvium
Slope: 10 to 30 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.7 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 8 inches; gravelly loam
Bt—8 to 14 inches; very gravelly sandy clay loam
Bk—14 to 60 inches; very gravelly sandy loam

Evanston

Landform: Terraces, alluvial fans, and hills
Geomorphic position: Backslopes, footslopes, and summits
Parent material: Loamy alluvium
Slope: 6 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.9 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 7 inches; loam
Bt—7 to 28 inches; clay loam
Bk—28 to 60 inches; loam

Minor components

Poposhia and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used mainly as rangeland or for wildlife habitat.

The Ipson soil is poorly suited to range seeding, mechanical range renovation, and stockwater ponds because of the slope. The high potential for seepage losses also limits the development of stockwater ponds on this soil.

The Evanston soil is moderately well suited to stockwater ponds because of the slope and the moderate potential for seepage losses.

The Evanston soil is moderately well suited to range seeding and well suited to mechanical range renovation. In tilled and seeded areas, an adequate cover of residue to reduce the hazard of water erosion should be maintained on the surface of the soil until the seeding is established. Applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion.

171—Ipson-Evanston-Rock outcrop complex, 0 to 30 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (203 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 11 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Ipson and similar soils: 50 percent
Evanston and similar soils: 25 percent
Areas of Rock outcrop: 20 percent
Minor components: 5 percent

Component Descriptions

Ipson

Landform: Alluvial fans, hills, and terraces
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Gravelly alluvium
Slope: 6 to 30 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.7 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 8 inches; gravelly loam
Bt—8 to 14 inches; very gravelly sandy clay loam
Bk—14 to 60 inches; very gravelly sandy loam

Evanston

Landform: Alluvial fans, hills, and terraces
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium
Slope: 0 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.9 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 9 inches; loam
Bt—9 to 26 inches; clay loam
Bk—26 to 60 inches; loam

Rock outcrop

Landform: Hills
Geomorphic position: Summits, shoulders, and backslopes
Slope: 0 to 30 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Weed and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Ipson soil is poorly suited to range seeding, mechanical range renovation, and stockwater ponds because of the slope. The areas of Rock outcrop are also a limitation to range seeding and mechanical range renovation. The Ipson soil is not suited to tillage for range improvement. Interseeding and band spraying of herbicides can be used.

The Evanston soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is moderately well suited to range seeding and well suited to mechanical range renovation. The main limitation affecting range seeding is the hazard of water erosion. To reduce the hazard of water erosion, adequate residue must be maintained on the surface of the soil until the seeding is established. Applying tillage practices for range improvement along the contour of the slope reduces the hazard of water erosion.

172—Jayem-Mainter-Moskee fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Jayem and similar soils: 35 percent
Mainter and similar soils: 30 percent
Moskee and similar soils: 25 percent
Minor components: 10 percent

Component Descriptions

Jayem

Landform: Hills
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium derived from sandstone (fig. 9)
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 13 inches; fine sandy loam
Bw—13 to 30 inches; fine sandy loam
C—30 to 60 inches; fine sandy loam

Mainter

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium and eolian deposits (fig. 9)
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.5 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 4 inches; fine sandy loam
Bt—4 to 25 inches; fine sandy loam
Bk—25 to 60 inches; fine sandy loam

Moskee

Landform: Hills
Geomorphic position: Backslopes, toeslopes, and summits
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone (fig. 9)
Slope: 0 to 6 percent
Drainage class: Well drained

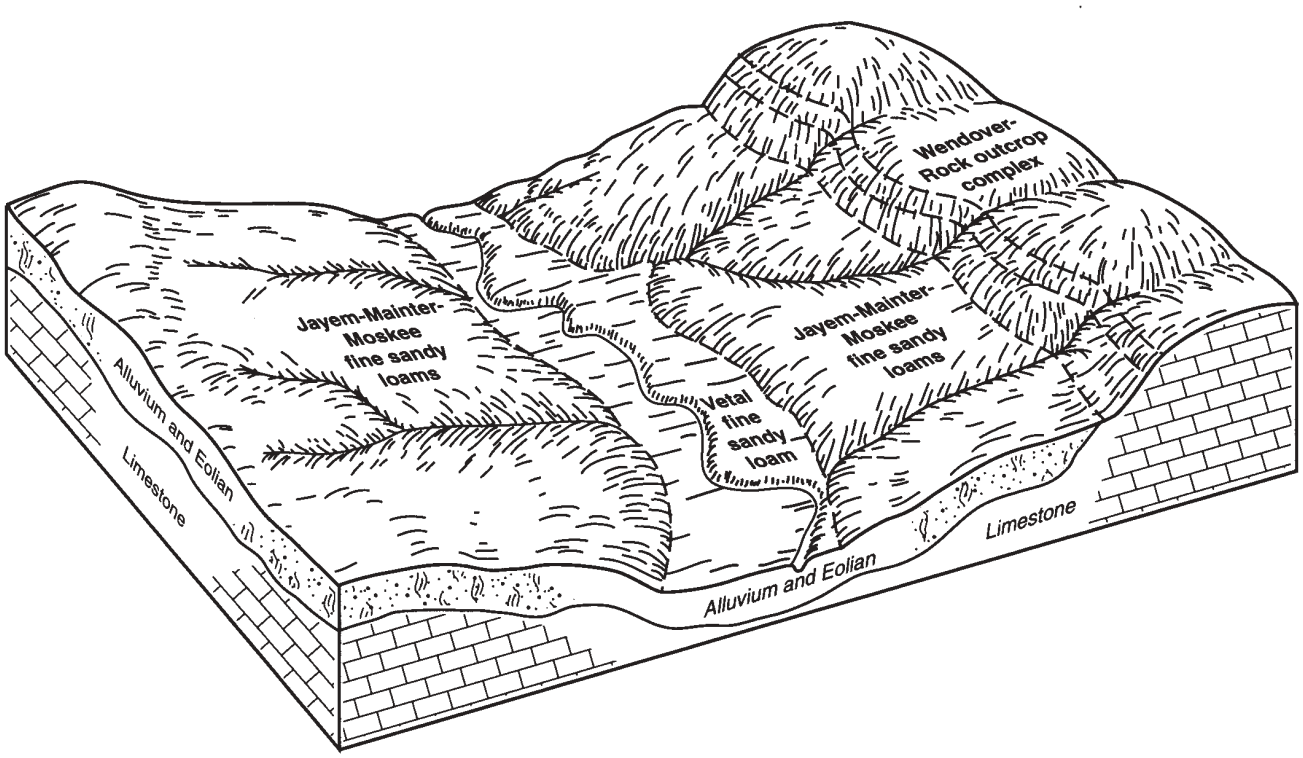

Figure 9.—Typical pattern of soils, topography, and parent material in map units 172, 255, and 263.

Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
Bt—7 to 28 inches; sandy clay loam
Bk—28 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils.

173—Julesburg-Jayem-Phiferson fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)

Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Julesburg and similar soils: 40 percent
Jayem and similar soils: 25 percent
Phiferson and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Julesburg

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.5 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
BA—7 to 14 inches; fine sandy loam
Bt—14 to 39 inches; fine sandy loam
C1—39 to 48 inches; fine sandy loam
C2—48 to 54 inches; fine sandy loam
C3—54 to 60 inches; fine sandy loam

Jayem

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium derived from sandstone
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 12 inches; fine sandy loam
Bw—12 to 26 inches; fine sandy loam
C1—26 to 38 inches; fine sandy loam
C2—38 to 54 inches; fine sandy loam
C3—54 to 60 inches; very fine sandy loam

Phiferson

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Eolian deposits derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.7 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 10 inches; fine sandy loam
Bw—10 to 17 inches; fine sandy loam
Bk—17 to 25 inches; fine sandy loam
Cr—25 to 35 inches; unweathered bedrock

Minor components

Alice and similar soils
Extent within map unit: About 4 percent

Mainter and similar soils
Extent within map unit: About 4 percent

Turnercrest and similar soils
Extent within map unit: About 4 percent

Treon and similar soils
Extent within map unit: About 3 percent

Major Uses

This unit is mainly used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils.

174—Keeline fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,800 to 5,400 feet (1,463 to 1,646 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Keeline and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Keeline

Landform: Benches
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 12 inches; fine sandy loam
C—12 to 60 inches; fine sandy loam

Minor components

Mainter and similar soils
Extent within map unit: About 10 percent

Snilloc and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as nonirrigated cropland or irrigated cropland or for wildlife habitat.

The Keeline soil is moderately well suited to irrigated cropland. The main limitations are the hazard of wind erosion and droughtiness of the soil. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soil. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture

should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

175—Keeline fine sandy loam, 3 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,800 to 5,400 feet (1,463 to 1,646 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Keeline and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Keeline

Landform: Hills
Geomorphic position: Toeslopes, summits, and backslopes
Parent material: Eolian deposits derived from sandstone
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
C—6 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 4 percent

Bayard and similar soils
Extent within map unit: About 4 percent

Cambria and similar soils
Extent within map unit: About 4 percent

Hiland and similar soils
Extent within map unit: About 4 percent

Snilloc and similar soils
Extent within map unit: About 4 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Keeline soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

176—Keeline fine sandy loam, 6 to 10 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,800 to 5,400 feet (1,463 to 1,646 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Keeline and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Keeline

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Eolian deposits derived from sandstone
Slope: 6 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
Bw—6 to 34 inches; fine sandy loam
C—34 to 60 inches; very fine sandy loam

Minor components

Cambria and similar soils
Extent within map unit: About 4 percent

Clarkelen and similar soils
Extent within map unit: About 4 percent

Hiland and similar soils
Extent within map unit: About 4 percent

Turnercrest and similar soils
Extent within map unit: About 4 percent

Selpats and similar soils
Extent within map unit: About 4 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Keeline soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazards of wind erosion and water erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil. Applying mechanical range renovation along the contour of the slope reduces the hazard of water erosion.

177—Keeline-Mainter very fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Keeline and similar soils: 40 percent
Mainter and similar soils: 40 percent
Minor components: 20 percent

Component Descriptions

Keeline

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 9.4 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet

Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 5 inches; very fine sandy loam
C—5 to 60 inches; very fine sandy loam

Mainter

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; very fine sandy loam
Bt1—8 to 16 inches; very fine sandy loam
Bt2—16 to 22 inches; very fine sandy loam
Bk—22 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 5 percent

Mitchell and similar soils
Extent within map unit: About 5 percent

Phiferson and similar soils
Extent within map unit: About 5 percent

Turnercrest and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils.

178—Keeline-Nidix-Taluce complex, 10 to 60 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Keeline and similar soils: 35 percent
Nidix and similar soils: 30 percent
Taluce and similar soils: 25 percent
Minor components: 10 percent

Component Descriptions

Keeline

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium derived from sandstone
Slope: 10 to 40 percent
Drainage class: Well drained

Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 7 inches; gravelly sandy loam
C—7 to 60 inches; sandy loam

Nidix

Landform: Hills
Geomorphic position: Backslopes, toeslopes, and summits
Parent material: Alluvium and colluvium
Slope: 10 to 60 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.3 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Coarse Upland (12-14sp)
Potential native vegetation: Little bluestem, western wheatgrass, needleandthread, big bluestem, bluebunch wheatgrass, and sideoats grama
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 8 inches; very cobbly sandy loam
Bw—8 to 20 inches; very cobbly sandy loam
C—20 to 30 inches; cobbly sandy loam
Cr—30 to 40 inches; unweathered bedrock

Taluce

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 10 to 60 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.1 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; cobbly fine sandy loam
C—4 to 19 inches; fine sandy loam
Cr—19 to 29 inches; unweathered bedrock

Minor components

Curabith and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses, depth to bedrock in the Taluce and Nidix soils, and the slope. It is poorly suited to range seeding and range renovation because of the slope, droughtiness of the soils, and the low potential for forage production on the Taluce soil.

The Taluce soil is poorly suited to the installation of pipelines because of the depth to bedrock.

179—Keeline-Taluce-Turnercrest fine sandy loams, 3 to 40 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains

Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Keeline and similar soils: 45 percent
Taluce and similar soils: 25 percent
Turnercrest and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Keeline

Landform: Hills
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
Bw—6 to 39 inches; fine sandy loam
C—39 to 60 inches; very fine sandy loam

Taluce

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 3 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.3 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 5 inches; fine sandy loam
C1—5 to 14 inches; very fine sandy loam
C2—14 to 18 inches; fine sandy loam
Cr—18 to 28 inches; unweathered bedrock

Turnercrest

Landform: Hills
Geomorphic position: Shoulders and backslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 30 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.5 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; fine sandy loam
Bk1—4 to 11 inches; fine sandy loam
Bk2—11 to 27 inches; very fine sandy loam
Cr—27 to 37 inches; unweathered bedrock

Minor components

Areas of Rock outcrop
Extent within map unit: About 4 percent

Claprych and similar soils
Extent within map unit: About 1 percent

Chugcity and similar soils
Extent within map unit: About 1 percent

Snilloc and similar soils
Extent within map unit: About 2 percent

Vonalee and similar soils
Extent within map unit: About 2 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock in the Taluce and Turnercrest soils, and the slope. It is poorly suited to range seeding and range renovation. The main limitation is the slope.

180—Keeline-Turnercrest fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Keeline and similar soils: 60 percent
Turnercrest and similar soils: 20 percent
Minor components: 20 percent

Component Descriptions

Keeline

Landform: Benches
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 9.2 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 4 inches; fine sandy loam
Bw—4 to 9 inches; fine sandy loam
C—9 to 60 inches; very fine sandy loam

Turnercrest

Landform: Benches
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
Bk—6 to 32 inches; fine sandy loam
Cr—32 to 42 inches; unweathered bedrock

Minor components

Alice and similar soils
Extent within map unit: About 5 percent

Cedak and similar soils
Extent within map unit: About 5 percent

Recluse and similar soils
Extent within map unit: About 5 percent

Taluce and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils.

181—Keeline-Turnercrest fine sandy loams, 6 to 10 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Keeline and similar soils: 50 percent
Turnercrest and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Keeline

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 6 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 9.3 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 5 inches; fine sandy loam
C—5 to 60 inches; very fine sandy loam

Turnercrest

Landform: Hills
Geomorphic position: Shoulders and summits
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 10 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 8 inches; fine sandy loam
Bk1—8 to 19 inches; fine sandy loam

Bk2—19 to 36 inches; sandy loam
Cr—36 to 46 inches; unweathered bedrock

Minor components

Snilloc and similar soils
Extent within map unit: About 7 percent

Albinas and similar soils
Extent within map unit: About 7 percent

Taluce and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazards of wind erosion and water erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils. Applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion.

182—Kishona clay loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Kishona and similar soils: 85 percent
Minor components: 15 percent

Component Descriptions

Kishona

Landform: Terraces
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.6 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 8 mmhos/cm (slightly saline)
Sodicity (maximum): About 13 SAR (moderately sodic)
Ecological site: Saline Lowland (12-14sp)
Potential native vegetation: Western wheatgrass, alkali sacaton, inland saltgrass, Indian ricegrass, and Sandberg bluegrass
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 5 inches; clay loam
C—5 to 60 inches; clay loam

Minor components

Coaliams and similar soils
Extent within map unit: About 5 percent

Forkwood and similar soils
Extent within map unit: About 5 percent

Haverdad and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Kishona soil is poorly suited to nonirrigated cropland. The main limitations are the low annual precipitation and the high content of salts in the soil. Maintaining crop residue on or near the surface can minimize the loss of soil moisture and the acummulation of salts in the soil or on the soil surface. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is poorly suited to range seeding and range renovation because of the high content of salts in the soil. If pasture and range seedings are conducted, seeding rates should be increased and plant species carefully selected because of the high content of salts in the soil.

183—Livan-Clarkelen complex, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,600 feet (1,372 to 1,707 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Livan and similar soils: 50 percent
Clarkelen and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Livan

Landform: Flood plains
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.1 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: More than 6 feet
Runoff class: Negligible
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Gravelly Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, little bluestem, bluebunch wheatgrass, and Indian ricegrass
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 6 inches; gravelly coarse sandy loam
C1—6 to 32 inches; stratified very gravelly loamy sand and gravelly sandy loam
C2—32 to 60 inches; very gravelly sand stratified with sandy loam

Clarkelen

Landform: Flood plains
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 6.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 3 inches; fine sandy loam
C1—3 to 40 inches; stratified gravelly sandy loam
C2—40 to 60 inches; stratified sandy loam to very gravelly loam

Minor components

Quarterback and similar soils
Extent within map unit: About 7 percent

Haverdad and similar soils
Extent within map unit: About 7 percent

Riverwash and similar soils
Extent within map unit: About 6 percent
Landform: Flood plains

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. The Clarkelen soil is moderately well suited to range seeding because of the hazard of wind erosion. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. The Clarkelen soil is moderately well suited to mechanical range renovation; however,

because of the coarse texture of the soil, range renovation may not be economically feasible.

The Livan soil is poorly suited to range seeding and range renovation because of the gravel in the surface layer. The establishment of the seeding may be extremely difficult in the Livan soil because of droughtiness. Because of the rock fragments in the Livan soil, excavating trenches and installing pipelines may be difficult.

184—Livan-Riverwash complex, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,600 to 5,600 feet (1,402 to 1,707 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Livan and similar soils: 50 percent
Riverwash and similar soils: 25 percent
Minor components: 25 percent

Component Descriptions

Livan

Landform: Flood plains
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.3 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Gravelly Loamy (12-14sp)
Potential native vegetation: Needleandthread, little bluestem, western wheatgrass, blue grama, bluebunch wheatgrass, and small soapweed
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 5 inches; fine sandy loam
C1—5 to 16 inches; coarse sandy loam
C2—16 to 60 inches; stratified very gravelly coarse sand to very gravelly loamy sand

Riverwash

Landform: Flood plains
Parent material: Alluvium
Slope: 0 to 3 percent
Slowest permeability: About 5.95 in/hr (rapid)
Available water capacity: About 2.4 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Frequent
Seasonal water table minimum depth: About 12 inches
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Land capability (nonirrigated): 8w

Minor components

Clarkelen and similar soils
Extent within map unit: About 13 percent

Quarterback and similar soils
Extent within map unit: About 12 percent

Major Uses

This unit is mainly used as rangeland or for wildlife habitat.

The Livan soil is poorly suited to ponds because of the high potential for seepage losses and the rock fragments in the soil. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

Because of the rock fragments in the Livan soil, excavating trenches and installing pipelines may be difficult.

The Riverwash is poorly suited to ponds, range seeding, and range renovation because of the frequent flooding.

185—Mainter fine sandy loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Mainter and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Mainter

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; fine sandy loam
Bt—8 to 21 inches; fine sandy loam
Bk—21 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 4 percent

Featherlegs and similar soils
Extent within map unit: About 4 percent

Recluse and similar soils
Extent within map unit: About 4 percent

Taluce and similar soils
Extent within map unit: About 4 percent

Turnercrest and similar soils
Extent within map unit: About 4 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Mainter soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

186—Mainter fine sandy loam, wet, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,000 feet (1,311 to 1,524 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Mainter, wet, and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Mainter, wet

Landform: Benches
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: About 54 inches
Runoff class: Very low
Calcium carbonate (maximum): About 14 percent
Gypsum (maximum): None

Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Subirrigated (12-14sp)
Potential native vegetation: Basin wildrye, big bluestem, little bluestem, prairie cordgrass, slender wheatgrass, and switchgrass
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
Ap—0 to 11 inches; fine sandy loam
Bt1—11 to 17 inches; very fine sandy loam
Bt2—17 to 21 inches; very fine sandy loam
Bk1—21 to 34 inches; loam
Bk2—34 to 60 inches; sandy loam

Minor components

Graystone and similar soils
Extent within map unit: About 10 percent

Keeline and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as irrigated cropland or rangeland or for wildlife habitat.

The Mainter soil is moderately well suited to irrigated cropland. The main limitation is the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. Pits dug below the level of the water table can provide water for livestock. If the pits are dug to a depth below the level of the water table in the fall, water can be provided throughout the year. This soil is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established, and areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

187—Mainter-Keeline fine sandy loams, 6 to 10 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Mainter and similar soils: 45 percent
Keeline and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Mainter

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium
Slope: 6 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Nedleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 11 inches; fine sandy loam
Bt1—11 to 20 inches; fine sandy loam
Bt2—20 to 30 inches; fine sandy loam
Bk—30 to 60 inches; fine sandy loam

Keeline

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes

Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 6 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 5 inches; fine sandy loam
Bw—5 to 14 inches; fine sandy loam
C—14 to 60 inches; fine sandy loam

Minor components

Hiland and similar soils
Extent within map unit: About 7 percent

Bayard and similar soils
Extent within map unit: About 7 percent

Alice and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazards of wind erosion and water erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue shoould be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils. Applying range renovation practices along the contour of the slope reduces the hazard of water erosion.

188—McFadden gravelly fine sandy loam, 1 to 6 percent slopes

Map Unit Setting

MLRA: 34—Central Desertic Basins, Mountains, and Plateaus
Elevation: 5,700 to 7,000 feet (1,737 to 2,134 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 39 to 45 degrees F (2 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

McFadden and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

McFadden soils

Landform: Terraces
Parent material: Alluvium
Slope: 1 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.6 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Shallow Sandy (10-14se)
Potential native vegetation: Needleandthread, bluebunch wheatgrass, threadleaf sedge, Indian ricegrass, muttongrass, and black sagebrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 5 inches; gravelly fine sandy loam
Bk1—5 to 9 inches; gravelly fine sandy loam

Bk2—9 to 18 inches; gravelly fine sandy loam
2Bk3—18 to 60 inches; loam

Minor components

Brownsto and similar soils
Extent within map unit: About 7 percent

Blazon and similar soils
Extent within map unit: About 7 percent

Rentsac and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The McFadden soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately suited to range seeding and range renovation. The main limitations affecting seeding are the hazard of wind erosion and the gravel in the surface layer. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

189—Mines and Quarries

Map Unit Setting

MLRA: 67—Central High Plains

Map Unit Composition

Areas of Mines: 45 percent
Areas of Quarries: 45 percent
Minor components: 10 percent

Component Descriptions

Mines

Seasonal water table minimum depth: More than 6 feet

Quarries

Seasonal water table minimum depth: More than 6 feet
Runoff class: Low

Minor components

Fluvaquentic Endoaquolls and similar soils
Extent within map unit: About 10 percent
Landform: Flood plains

Major Uses

This unit is used mainly as rock quarries or for gravel and sand operations.

190—Mitchell very fine sandy loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Mitchell and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Mitchell

Landform: Hills
Geomorphic position: Toeslopes, summits, and backslopes
Parent material: Alluvium derived from siltstone
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.8 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 7 inches; very fine sandy loam
C1—7 to 30 inches; silt loam
C2—30 to 60 inches; very fine sandy loam

Minor components

Taluce and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland.

The Mitchell soil is moderately suited to nonirrigated cropland. The main limitations are the the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

191—Mitchell very fine sandy loam, 6 to 10 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Mitchell and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Mitchell

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium derived from siltstone
Slope: 6 to 10 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 10.9 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 12 inches; very fine sandy loam
C—12 to 60 inches; very fine sandy loam

Minor components

Taluce and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Mitchell soil is poorly suited to stockwater ponds because of the moderate potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil. Applying range renovation practices along the contour of the slope reduces the hazard of water erosion.

192—Moskee sandy loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Moskee and similar soils: 85 percent
Minor components: 15 percent

Component Descriptions

Moskee

Landform: Hills and fan remnants
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium derived from sandstone
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.1 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 11 inches; sandy loam
Bt—11 to 21 inches; sandy clay loam
Btk—21 to 32 inches; sandy clay loam
Bk1—32 to 42 inches; very fine sandy loam
Bk2—42 to 60 inches; sandy loam

Minor components

Mainter and similar soils
Extent within map unit: About 4 percent

Recluse and similar soils
Extent within map unit: About 4 percent

Taluce and similar soils
Extent within map unit: About 4 percent

Vonalee and similar soils
Extent within map unit: About 3 percent

Major Uses

This unit is used as nonirrigated cropland, irrigated hayland, or rangeland or for wildlife habitat.

The Moskee soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is moderately well suited to irrigated hayland. The main limitation is droughtiness of the soil. Frequent applications of irrigation water will be necessary because of the limited available water capacity. Grasses respond to nitrogen fertilizer, and legumes respond to applications of phosphorus. Fertilizer should be applied according to soil tests. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

193—Moskee fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Moskee and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Moskee

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone

Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; fine sandy loam
Bt—10 to 19 inches; sandy clay loam
Bk—19 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 5 percent

Hiland and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Recluse and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used for nonirrigated cropland, irrigated cropland, or rangeland or for wildlife habitat.

The Moskee soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is moderately well suited to irrigated cropland. The main limitations are the hazard of wind erosion and droughtiness of the soil. Frequent applications of irrigation water will be necessary because of the limited available water capacity. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

194—Orpha fine sand, 0 to 15 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (254 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Orpha and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Orpha

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Eolian deposits
Slope: 0 to 15 percent
Drainage class: Excessively drained
Slowest permeability: About 5.95 in/hr (very rapid)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): None

Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sands (12-14sp)
Potential native vegetation: Sand bluestem, needleandthread, prairie sandreed, little bluestem, thickspike wheatgrass, and sand sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 5 inches; fine sand
C—5 to 60 inches; sand

Minor components

Areas of Rock outcrop
Extent within map unit: About 5 percent

Tullock and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Orpha soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately suited to range seeding because of the severe hazard of wind erosion. This soil is poorly suited to range renovation. Rangeland improvement practices that disturb the surface layer or temporarily remove the plant cover are not recommended because of the severe hazard of wind erosion. The best methods for seedbed preparation are interseeding and band spraying of herbicides. Range renovation may not be economically feasible because of the coarse texture of the soil.

195—Orpha-Tullock loamy fine sands, 6 to 20 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Orpha and similar soils: 60 percent
Tullock and similar soils: 25 percent
Minor components: 15 percent

Component Descriptions

Orpha

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Eolian deposits
Slope: 6 to 20 percent
Drainage class: Excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sands (12-14sp)
Potential native vegetation: Sand bluestem, needleandthread, prairie sandreed, little bluestem, thickspike wheatgrass, and sand sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 12 inches; loamy fine sand
C—12 to 60 inches; loamy sand

Tullock

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Eolian deposits derived from sandstone
Slope: 6 to 20 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Excessively drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sands (12-14sp)
Potential native vegetation: Sand bluestem, needleandthread, prairie sandreed, little bluestem, thickspike wheatgrass, and sand sagebrush
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 12 inches; loamy fine sand
C—12 to 21 inches; loamy fine sand
2Cr—21 to 31 inches; unweathered bedrock

Minor components

Areas of Rock outcrop
Extent within map unit: About 15 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the slope. It is poorly suited to range seeding and range renovation. Rangeland improvement practices that disturb the soil surface or temporarily remove the plant cover are not recommended because of the severe hazard of wind erosion. Interseeding and band spraying of herbicides for seedbed preparation are suitable practices. Range renovation may not be economically feasible because of the coarse texture of the soils.

196—Phiferson-Alice, bedrock substratum, very fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Phiferson and similar soils: 45 percent
Alice, bedrock substratum, and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Phiferson

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Eolian deposits derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 9 inches; very fine sandy loam
Bw—9 to 15 inches; very fine sandy loam
Bk—15 to 30 inches; very fine sandy loam
Cr—30 to 40 inches; unweathered bedrock

Alice, bedrock substratum

Landform: Hills
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; very fine sandy loam
Bw—10 to 17 inches; very fine sandy loam
Bk—17 to 50 inches; fine sandy loam
Cr—50 to 60 inches; unweathered bedrock

Minor components

Alice and similar soils
Extent within map unit: About 7 percent

Keeline and similar soils
Extent within map unit: About 7 percent

Mainter and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

197—Phiferson-Mainter fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Phiferson and similar soils: 50 percent
Mainter and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Phiferson

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Eolian deposits derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.5 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 9 inches; fine sandy loam
Bw—9 to 16 inches; fine sandy loam
Bk—16 to 36 inches; fine sandy loam
Cr—36 to 46 inches; unweathered bedrock

Mainter

Landform: Hills and benches
Geomorphic position: Backslopes, summits, and toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)

Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; fine sandy loam
Bt—8 to 20 inches; fine sandy loam
Bk—20 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 5 percent

Jayem and similar soils
Extent within map unit: About 5 percent

Recluse and similar soils
Extent within map unit: About 5 percent

Cedak and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established, and areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils.

198—Phiferson-Treon complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Phiferson and similar soils: 40 percent
Treon and similar soils: 40 percent
Minor components: 20 percent

Component Descriptions

Phiferson

Landform: Benches
Parent material: Residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 8 inches; sandy loam
Bw—8 to 19 inches; sandy loam
Bk—19 to 30 inches; sandy loam
Cr—30 to 40 inches; unweathered bedrock

Treon

Landform: Benches
Parent material: Residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.6 inches (very low)

Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
C—7 to 11 inches; fine sandy loam
Cr—11 to 21 inches; unweathered bedrock

Minor components

Cedak and similar soils
Extent within map unit: About 20 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Phiferson soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. The Treon soil is poorly suited to nonirrigated cropland and not recommended for this use because of droughtiness of the soil. In areas of this soil the amount of crop residue is not sufficient to protect the soil from erosion.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock in the Treon soil. The Phiferson soil is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. The Treon soil is moderately suited to range seeding because of droughtiness of the soil. It is poorly suited to range renovation because of the depth to bedrock. Range renovation may not be economically feasible because of the coarse texture of the soils.

The Treon soil is poorly suited to stockwater ponds and the installation of pipelines because of the depth to bedrock.

199—Pinelli loam, 3 to 10 percent slopes

Map Unit Setting

MLRA: 34—Central Desertic Basins, Mountains, and Plateaus
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Pinelli and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Pinelli

Landform: Alluvial fans and hills
Geomorphic position: Toeslopes, summits, and backslopes
Parent material: Clayey alluvium
Slope: 3 to 10 percent
Drainage class: Well drained
Slowest permeability: About 0.06 in/hr (slow)
Available water capacity: About 10.6 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very high
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Clayey (15-17sp)
Potential native vegetation: Western wheatgrass, green needlegrass, winterfat, and blue grama
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 3 inches; loam
Bt—3 to 30 inches; clay loam
Bk—30 to 60 inches; sandy clay loam

Minor components

Chivington and similar soils
Extent within map unit: About 10 percent
Slope: 0 to 6 percent
Drainage class: Well drained
Ecological site: Clayey (15-17sp)

Major Uses

This unit is used mainly as rangeland or for wildlife habitat. A few areas are used for irrigated hay.

The Pinelli soil is moderately well suited to irrigated hay. The main limitation is the slope. A sprinkler system is the best method of irrigation. Contour ditch irrigation can be used if the design of the system promotes the uniform distribution of water and prevents the application of excessive amounts of water. To prevent the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop.

This soil is moderately well suited to stockwater ponds and range seeding. It is well suited to mechanical range renovation. The main limitation affecting stockwater ponds is the slope. The main limitation affecting range seeding is the hazard of water erosion. To reduce the hazard of erosion, adequate residue should be maintained on the surface of the soil after planting. Applying tillage practices for range improvement along the contour of the slope reduces the hazard of water erosion.

200—Poposhia silt loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 34—Central Desertic Basins, Mountains, and Plateaus
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Poposhia and similar soils: 85 percent
Minor components: 15 percent

Component Descriptions

Poposhia

Landform: Alluvial fans
Parent material: Silty alluvium derived from sandstone and shale
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 11.8 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 6 inches; silt loam
Bk—6 to 60 inches; silt loam

Minor components

Piezon and similar soils
Extent within map unit: About 8 percent
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy (15-17sp)

Blazon and similar soils
Extent within map unit: About 7 percent
Landform: Hills
Geomorphic position: Summits and shoulders

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Poposhia soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is well suited to range seeding and mechanical range renovation. To reduce the hazard of erosion, adequate residue should be maintained on the surface of the soil after planting. Planted areas should be kept narrow and at right angles to the prevailing wind.

201—Poposhia-Blazon silt loams, 3 to 30 percent slopes

Map Unit Setting

MLRA: 34—Central Desertic Basins, Mountains, and Plateaus

Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Poposhia and similar soils: 70 percent
Blazon and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Poposhia

Landform: Hills and alluvial fans
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Silty alluvium derived from sandstone and shale
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 11.8 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 10 inches; silt loam
Bk—10 to 60 inches; silt loam

Blazon

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Silty alluvium derived from siltstone and silty residuum derived from siltstone
Slope: 6 to 30 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 2.5 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 8 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Loamy (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, western wheatgrass, blue grama, and needleandthread
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 6 inches; silt loam
C—6 to 13 inches; silt loam
Cr—13 to 23 inches; unweathered bedrock

Minor components

Areas of Rock outcrop
Extent within map unit: About 10 percent
Landform: Hills
Geomorphic position: Summits, shoulders, and backslopes

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Poposhia soil is moderately well suited to stockwater ponds, range seeding, and mechanical range renovation. The main limitations affecting stockwater ponds are the moderate potential for seepage losses and the slope. The main limitation affecting range seeding and mechanical range renovation is the hazard of water erosion. In tilled and seeded areas, maintaining an adequate cover of residue on the surface of the soil after planting reduces the hazard of water erosion. Applying tillage practices along the contour of the slope reduces the hazard of water erosion.

The Blazon soil is poorly suited to range seeding and mechanical range renovation because of the slope. It is poorly suited to stockwater ponds because of the depth to bedrock and the slope. Mechanical range renovation and range seeding on the Blazon soil may not be economically feasible because of the low potential for forage production. Also, this soil is not suited to tillage for range improvement. Some methods of seeding could be used if range improvement cannot be accomplished by applying grazing management measures.

202—Poposhia-Blazon, thin solum-Rock outcrop complex, 5 to 35 percent slopes

Map Unit Setting

MLRA: 34—Central Desertic Basins, Mountains, and Plateaus
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Poposhia and similar soils: 40 percent
Blazon, thin solum, and similar soils: 35 percent
Areas of Rock outcrop: 20 percent
Minor components: 5 percent

Component Descriptions

Poposhia

Landform: Hills and alluvial fans
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Silty alluvium derived from sandstone and shale
Slope: 5 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 11.8 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 4 inches; silt loam
Bk—4 to 60 inches; silt loam

Blazon, thin solum

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Silty alluvium derived from siltstone and silty residuum derived from siltstone
Slope: 15 to 35 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.4 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 8 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, Indian ricegrass, needleandthread, and Rocky Mountain juniper
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 3 inches; silt loam
C—3 to 9 inches; silt loam
Cr—9 to 19 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Summits
Slope: 5 to 35 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Areas of a moderately deep, loamy soil and similar soils
Extent within map unit: About 5 percent
Landform: Hills
Geomorphic position: Toeslopes and footslopes

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Poposhia soil is moderately well suited to stockwater ponds, range seeding, and mechanical range renovation. The main limitations affecting stockwater ponds are the moderate potential for seepage losses and the slope. The main limitation affecting range seeding and mechanical range renovation is the hazard of water erosion. Mechanical range renovation may be used in areas of the Poposhia soil where desirable vegetation has been replaced by sod-forming plants. Maintaining an adequate cover of residue on the surface of the soil

after planting reduces the hazard of erosion. Also, tillage must be along the contour of the slope.

The Blazon soil is poorly suited to range seeding and mechanical range renovation because of the slope. It is poorly suited to stockwater ponds because of the depth to bedrock and the slope. Mechanical range renovation and range seeding on the Blazon soil may not be economically feasible because of the low potential for forage production. Also, this soil is not suited to tillage for range improvement because of the hazard of water erosion. Some methods of seeding could be used if range improvement cannot be accomplished by applying grazing management measures.

203—Poposhia-Chaperton association, 6 to 12 percent slopes

Map Unit Setting

MLRA: 34—Central Desertic Basins, Mountains, and Plateaus
Elevation: 5,600 to 7,200 feet (1,707 to 2,195 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Poposhia and similar soils: 45 percent
Chaperton and similar soils: 30 percent
Minor components: 25 percent

Component Descriptions

Poposhia

Landform: Hills
Geomorphic position: Summits and footslopes
Parent material: Alluvium derived from sandstone and shale
Slope: 6 to 9 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.6 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): About 1 percent
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (10-14se)
Potential native vegetation: Western wheatgrass, needleandthread, big sagebrush, bluebunch wheatgrass, green needlegrass, muttongrass, and Truckee rabbitbrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 5 inches; loam
Bk—5 to 29 inches; loam
C—29 to 60 inches; loam

Chaperton

Landform: Hills
Geomorphic position: Backslopes and shoulders
Parent material: Alluvium derived from shale and residuum derived from shale
Slope: 8 to 12 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.3 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): About 5 percent
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (10-14se)
Potential native vegetation: Western wheatgrass, needleandthread, big sagebrush, bluebunch wheatgrass, green needlegrass, muttongrass, and Truckee rabbitbrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 3 inches; clay loam
Bw—3 to 25 inches; clay loam
Cr—25 to 35 inches; unweathered bedrock

Minor components

Blazon and similar soils
Extent within map unit: About 13 percent
Landform: Hills
Geomorphic position: Shoulders and backslopes

Forelle and similar soils
Extent within map unit: About 12 percent
Landform: Swales on hills
Geomorphic position: Footslopes

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Poposhia soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. The Chaperton soil is poorly suited to stockwater ponds because of the depth to bedrock. This unit is moderately well suited to range seeding. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. In areas where the slope is 6 to 12 percent, applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion. This unit is well suited to range renovation.

204—Poposhia-Forelle complex, 1 to 8 percent slopes

Map Unit Setting

MLRA: 34—Central Desertic Basins, Mountains, and Plateaus
Elevation: 5,800 to 7,200 feet (1,768 to 2,195 meters)
Mean annual precipitation: 12 to 17 inches (305 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Poposhia and similar soils: 50 percent
Forelle and similar soils: 25 percent
Minor components: 25 percent

Component Descriptions

Poposhia

Landform: Hills
Geomorphic position: Summits and footslopes
Parent material: Alluvium derived from sandstone and shale
Slope: 2 to 8 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.6 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): About 1 percent
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (10-14se)
Potential native vegetation: Western wheatgrass, needleandthread, big sagebrush, bluebunch wheatgrass, green needlegrass, muttongrass, and Truckee rabbitbrush
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 2 inches; loam
Bk—2 to 60 inches; clay loam

Forelle

Landform: Hills
Geomorphic position: Toeslopes, shoulders, and backslopes
Parent material: Alluvium
Slope: 1 to 5 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.8 inches (moderate)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 14 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (10-14se)
Potential native vegetation: Blue grama, needleandthread, big sagebrush, bluebunch wheatgrass, green needlegrass, green rabbitbrush, and muttongrass
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 2 inches; fine sandy loam
Bt—2 to 34 inches; sandy clay loam
Bk—34 to 60 inches; sandy clay loam

Minor components

Blazon and similar soils
Extent within map unit: About 13 percent
Landform: Hills
Geomorphic position: Shoulders and backslopes

Chaperton and similar soils
Extent within map unit: About 12 percent
Landform: Hills
Geomorphic position: Footslopes

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is moderately well suited to range seeding and well suited to range renovation. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion.

205—Quarterback loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,600 to 5,600 feet (1,402 to 1,707 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Quarterback and similar soils: 75 percent
Minor components: 25 percent

Component Descriptions

Quarterback

Landform: Terraces, drainageways, and flood plains
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 8.1 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap1—0 to 1 inch; loam
Ap2—1 to 12 inches; sandy loam
C1—12 to 17 inches; coarse sandy loam
C2—17 to 21 inches; very fine sandy loam
C3—21 to 52 inches; fine sandy loam
C4—52 to 60 inches; fine sandy loam

Minor components

Livan and similar soils
Extent within map unit: About 9 percent

Clarkelen and similar soils
Extent within map unit: About 8 percent

Haverdad and similar soils
Extent within map unit: About 8 percent

Major Uses

This unit is used as irrigated cropland, nonirrigated cropland, or rangeland or for wildlife habitat.

The Quarterback soil is moderately well suited to irrigated cropland. The main limitations are the hazard of wind erosion and droughtiness of the soil. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soil. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately well suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. This soil is well suited to range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established, and areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

206—Quarterback, thick surface-Albinas complex, 0 to 3 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Quarterback, thick surface, and similar soils: 45 percent
Albinas and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Quarterback, thick surface

Landform: Terraces and drainageways
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 5.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 4 inches; sandy loam
C1—4 to 16 inches; coarse sandy loam
C2—16 to 60 inches; stratified very gravelly loamy sand to coarse sandy loam

Albinas

Landform: Drainageways and terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.1 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and little bluestem
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 5 inches; fine sandy loam
Bt—5 to 23 inches; clay loam
Bk—23 to 60 inches; loam

Minor components

Livan and similar soils
Extent within map unit: About 7 percent

Coaliams and similar soils
Extent within map unit: About 5 percent

Riverwash and similar soils
Extent within map unit: About 3 percent
Landform: Flood plains

Major Uses

This unit is used as irrigated and nonirrigated hayland, nonirrigated cropland, or rangeland or for wildlife habitat.

The Quarterback soil is moderately well suited to irrigated hayland. The main limitation is droughtiness of the soil. The Albinas soil is well suited to irrigated hayland. Grasses respond to nitrogen fertilizer, and legumes respond to applications of phosphorus. Fertilizer should be applied according to soil tests. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop.

This unit is moderately suited to nonirrigated hayland. The main limitations are droughtiness of the Quarterback soil and the low annual precipitation. Grasses respond to nitrogen fertilizer, and legumes respond to applications of phosphorus. Fertilizer should be applied according to soil tests.

This unit is moderately suited to nonirrigated cropland. The main limitations are the hazard of wind

erosion, the low annual precipitation, and droughtiness of the Quarterback soil. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

The Quarterback soil is poorly suited to stockwater ponds because of the high potential for seepage losses. The Albinas soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses.

This unit is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind.

The Quarterback soil is moderately well suited to mechanical range renovation. Range renovation may not be economically feasible because of the coarse texture of the soil. The Albinas soil is well suited to range renovation.

207—Recluse fine sandy loam, 3 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Recluse and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Recluse

Landform: Benches
Parent material: Alluvium
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.2 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; fine sandy loam
Bt1—10 to 16 inches; loam
Bt2—16 to 30 inches; clay loam
Bk1—30 to 42 inches; loam
Bk2—42 to 60 inches; loam

Minor components

Albinas and similar soils
Extent within map unit: About 7 percent

Moskee and similar soils
Extent within map unit: About 7 percent

Cedak and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used for irrigated cropland, nonirrigated cropland, or rangeland or for wildlife habitat.

The Recluse soil is moderately well suited to irrigated cropland. The main limitation is the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This soil is moderately suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible.

208—Recluse loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Recluse and similar soils: 85 percent
Minor components: 15 percent

Component Descriptions

Recluse

Landform: Hills and benches
Geomorphic position: Summits
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.7 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap1—0 to 5 inches; loam
Ap2—5 to 12 inches; loam
Bt—12 to 16 inches; loam
Bk1—16 to 26 inches; loam
Bk2—26 to 60 inches; very fine sandy loam

Minor components

Albinas and similar soils
Extent within map unit: About 8 percent

Moskee and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as irrigated cropland, nonirrigated cropland, or rangeland or for wildlife habitat.

The Recluse soil is well suited to irrigated cropland. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed to improve fertility. Fertilizer should be applied according to soil tests.

This soil is moderately well suited to nonirrigated cropland. The main limitation is the low annual precipitation. Maintaining crop residue on or near the surface can minimize the loss of soil moisture and reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is well suited to range seeding and range renovation.

209—Recluse loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Recluse and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Recluse

Landform: Terraces, hills, and benches
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 10.0 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; loam
Bt—9 to 20 inches; clay loam
Bk—20 to 60 inches; very fine sandy loam

Minor components

Albinas and similar soils
Extent within map unit: About 7 percent

Moskee and similar soils
Extent within map unit: About 7 percent

Cedak and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Recluse soil is moderately well suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Stripcropping at right angles to prevailing winds, leaving the soil surface rough, and maintaining crop residues on the soil after tillage help to control the hazard of wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is well suited to range renovation.

210—Recluse-Albinas-Treon, thin solum, complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Recluse and similar soils: 50 percent
Albinas and similar soils: 20 percent
Treon, thin solum, and similar soils: 15 percent
Minor components: 15 percent

Component Descriptions

Recluse

Landform: Drainageways, hills, and terraces
Geomorphic position: Toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.1 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 18 inches; fine sandy loam
Bt—18 to 31 inches; loam
Bk1—31 to 49 inches; very fine sandy loam
Bk2—49 to 60 inches; very fine sandy loam

Albinas

Landform: Drainageways and terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.1 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; fine sandy loam
Bt—9 to 22 inches; loam
Bk—22 to 60 inches; loam

Treon, thin solum

Landform: Hills and terraces
Geomorphic position: Summits, backslopes, and shoulders
Parent material: Residuum derived from sandstone
Slope: 1 to 6 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.8 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (12-14sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, blue grama, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
Ap—0 to 6 inches; cobbly fine sandy loam
C—6 to 9 inches; fine sandy loam
Cr—9 to 19 inches; unweathered bedrock

Minor components

Moskee and similar soils
Extent within map unit: About 8 percent

Taluce and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used for nonirrigated cropland or rangeland or for wildlife habitat.

The Recluse and Albinas soils are moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. The Treon soil is poorly suited to nonirrigated cropland because of the depth to bedrock and droughtiness of the soil. In areas of this soil the amount of crop residue is not sufficient to help control soil erosion.

The Albinas soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. The Recluse and Treon soils are poorly suited to stockwater ponds because of the high potential for seepage losses and depth to bedrock in the Treon soil.

The Recluse and Albinas soils are moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. The Treon soil is poorly suited to range seeding because of droughtiness.

The Recluse and Albinas soils are well suited to range renovation. The Treon soil is poorly suited to range renovation because of the low potential for forage production.

The Treon soil is poorly suited to the installation of pipelines because of the depth to bedrock.

211—Recluse-Cedak loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Recluse and similar soils: 50 percent
Cedak and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Recluse

Landform: Hills
Geomorphic position: Backslopes, summits, and toeslopes
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.7 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; loam
Bt1—8 to 23 inches; loam
Bt2—23 to 28 inches; loam
Bk—28 to 60 inches; very fine sandy loam

Cedak

Landform: Hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium derived from calcareous sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.7 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 9 inches; loam
Bt—9 to 20 inches; sandy clay loam
Bk—20 to 29 inches; very fine sandy loam
Cr—29 to 39 inches; unweathered bedrock

Minor components

Albinas and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Moskee and similar soils
Extent within map unit: About 5 percent

Treon and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately well suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil

surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is well suited to range seeding and range renovation.

212—Recluse-Cedak loams, 6 to 10 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Recluse and similar soils: 40 percent
Cedak and similar soils: 35 percent
Minor components: 25 percent

Component Descriptions

Recluse

Landform: Hills
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium
Slope: 6 to 10 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.2 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 13 inches; loam
Bt1—13 to 18 inches; loam
Bt2—18 to 23 inches; clay loam
Bk—23 to 60 inches; loam

Cedak

Landform: Hills
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium derived from calcareous sandstone
Slope: 6 to 10 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 5.3 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, little bluestem, prairie junegrass, threadleaf sedge, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 8 inches; loam
Bt—8 to 19 inches; clay loam
Bk—19 to 32 inches; very fine sandy loam
Cr—32 to 42 inches; unweathered bedrock

Minor components

Phiferson and similar soils
Extent within map unit: About 13 percent

Vetal and similar soils
Extent within map unit: About 12 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately well suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazards of wind erosion and water erosion. Maintaining crop residue on or near the surface reduces the hazard of erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should

be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

The Recluse soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. The Cedak soil is poorly suited to stockwater ponds because of the depth to bedrock.

This unit is well suited to range renovation. It is moderately well suited to range seeding. The main limitation is the hazard of water erosion. To reduce the hazard of erosion, adequate residue should be maintained on the surface of the soil until the seeding is established. Applying range renovation and range seeding practices along the contour of the slope reduces the hazard of water erosion.

213—Recluse-Graystone very fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Recluse and similar soils: 50 percent
Graystone and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Recluse

Landform: Hills
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.6 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; very fine sandy loam
Bt—10 to 28 inches; loam
Bk—28 to 60 inches; very fine sandy loam

Graystone

Landform: Hills
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 9.3 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; very fine sandy loam
Bk1—9 to 16 inches; loam
Bk2—16 to 44 inches; very fine sandy loam
C—44 to 60 inches; very fine sandy loam

Minor components

Albinas and similar soils
Extent within map unit: About 5 percent

Cedak and similar soils
Extent within map unit: About 5 percent

Keeline and similar soils
Extent within map unit: About 5 percent

Taluce and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately well suited to nonirrigated cropland. The main limitations are the low annual

precipitation, droughtiness of the Graystone soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

The Recluse soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. The Graystone soil is poorly suited to stockwater ponds because of the high potential for seepage losses. This unit is moderately well suited to range seeding and mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils.

214—Recluse-Nuncho loams, 0 to 10 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Recluse and similar soils: 60 percent
Nuncho and similar soils: 30 percent
Minor components: 10 percent

Component Descriptions

Recluse

Landform: Hills and fans
Geomorphic position: Backslopes and summits
Parent material: Alluvium
Slope: 0 to 10 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.0 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (irrigated): 4e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 11 inches; loam
Bt—11 to 28 inches; loam
Bk—28 to 60 inches; loam

Nuncho

Landform: Fan remnants and hills
Geomorphic position: Toeslopes
Parent material: Alluvium and colluvium derived from sandstone and shale
Slope: 0 to 10 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 11.1 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 14 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Clayey Overflow (15-17sp)
Potential native vegetation: Western wheatgrass, green needlegrass, sideoats grama, fourwing saltbush, prairie junegrass, and slender wheatgrass
Land capability (irrigated): 4e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; loam
Bt—10 to 21 inches; clay loam
Btk—21 to 31 inches; clay loam
Bk—31 to 60 inches; silt loam

Minor components

Clarkelen and similar soils
Extent within map unit: About 3 percent

Coaliams and similar soils
Extent within map unit: About 3 percent

Haverdad and similar soils
Extent within map unit: About 2 percent

Quarterback and similar soils
Extent within map unit: About 2 percent

Major Uses

This unit is used as irrigated hayland or rangeland or for wildlife habitat.

This unit is well suited to irrigated hayland. Grasses respond to nitrogen fertilizer, and legumes respond to applications of phosphorus. Fertilizer should be applied according to soil tests. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop.

This unit is moderately well suited to stockwater ponds because of the slope. It is moderately well suited to range seeding because of the hazards of wind erosion and water erosion. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is well suited to range renovation.

215—Rentsac-Brownsto-Ipson complex, 10 to 45 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 5,500 to 6,500 feet (1,676 to 1,981 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Rentsac and similar soils: 35 percent
Brownsto and similar soils: 30 percent
Ipson and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Rentsac

Landform: Hills
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Colluvium derived from sandstone and residuum derived from sandstone
Slope: 20 to 45 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.0 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Rocky Hills (15-17sp)
Potential native vegetation: True mountainmahogany, needleandthread, bluebunch wheatgrass, western wheatgrass, and little bluestem
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 3 inches; very gravelly sandy loam
Bk—3 to 15 inches; very gravelly sandy loam
R—15 to 25 inches; unweathered bedrock

Brownsto

Landform: Hills
Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium and colluvium
Slope: 10 to 45 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Gravelly (15-17sp)
Potential native vegetation: Little bluestem, bluebunch wheatgrass, Indian ricegrass, needleandthread, western wheatgrass, and small soapweed
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; very gravelly sandy loam
Bk—4 to 60 inches; very cobbly sandy loam

Ipson

Landform: Hills

Geomorphic position: Toeslopes, backslopes, and summits
Parent material: Alluvium and colluvium
Slope: 10 to 25 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.5 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Coarse Upland (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, Indian ricegrass, sideoats grama, and western wheatgrass
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 9 inches; gravelly loam
Bt—9 to 23 inches; very gravelly sandy clay loam
Bk—23 to 60 inches; very gravelly sandy loam

Minor components

Evanston and similar soils
Extent within map unit: About 5 percent

Dalecreek and similar soils
Extent within map unit: About 5 percent

Blazon and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock in the Rentsac soil, and the slope. It is poorly suited to range seeding and range renovation because of the slope.

Because of the rock fragments in this unit, excavating trenches and installing pipelines may be difficult. The Rentsac soil is poorly suited to the installation of pipelines because of the depth to bedrock.

216—Riverwash

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 5,000 to 7,000 feet (1,524 to 2,134 meters)
Mean annual precipitation: 8 to 15 inches (203 to 381 millimeters)
Average annual air temperature: 46 to 52 degrees F (8 to 11 degrees C)
Frost-free period: 110 to 180 days

Map Unit Composition

Riverwash and similar soils: 100 percent

Component Descriptions

Riverwash

Landform: Flood plains
Slope: 0 to 4 percent
Drainage class: Excessively drained
Flooding frequency: Frequent
Seasonal water table minimum depth: About 12 inches
Land capability (nonirrigated): 8w

217—Rock outcrop-Blazon, thin solum, complex, 30 to 60 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Areas of Rock outcrop: 50 percent
Blazon, thin solum, and similar soils: 40 percent
Minor components: 10 percent

Component Descriptions

Rock outcrop

Landform: Hills
Geomorphic position: Summits, shoulders, and backslopes
Slope: 30 to 40 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Blazon, thin solum

Landform: Hills and ridges
Geomorphic position: Summits, footslopes, shoulders, and backslopes
Parent material: Silty alluvium derived from shale and siltstone and residuum derived from shale and siltstone

Slope: 30 to 60 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.1 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 8 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Rocky Hills (15-17sp)
Potential native vegetation: True mountainmahogany, needleandthread, bluebunch wheatgrass, western wheatgrass, and little bluestem
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 9 inches; gravelly silt loam
Cr—9 to 19 inches; unweathered bedrock

Minor components

Poposhia and similar soils
Extent within map unit: About 10 percent
Landform: Hills and alluvial fans
Geomorphic position: Summits

Major Uses

This unit is used mainly as rangeland or for wildlife habitat.

This unit is poorly suited to range seeding, mechanical range renovation, and stockwater ponds because of the slope.

218—Rock outcrop-Bonjea complex, 40 to 60 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 5,600 to 7,200 feet (1,707 to 2,195 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Areas of Rock outcrop: 50 percent
Bonjea and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Rock outcrop

Landform: Foothills
Geomorphic position: Summits, backslopes, and shoulders
Slope: 40 to 60 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Bonjea

Landform: Foothills
Geomorphic position: Footslopes, summits, backslopes, and shoulders
Parent material: Residuum derived from granite and residuum derived from gneiss
Slope: 40 to 60 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.9 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, black sagebrush, threetip sagebrush, Griffith wheatgrass, and Idaho fescue
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 3 inches; sandy loam
Bt1—3 to 13 inches; sandy clay loam
Bt2—13 to 17 inches; gravelly sandy clay loam
R—17 to 27 inches; unweathered bedrock

Minor components

Boyle and similar soils
Extent within map unit: About 8 percent

Lininger and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock and the slope. The

Bonjea soil is poorly suited to range seeding and range renovation because of the slope.

The areas of Rock outcrop in this unit also limit range seeding and range renovation.

219—Rock outcrop-Cathedral complex, 20 to 40 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 7,200 feet (1,829 to 2,195 meters)
Mean annual precipitation: 15 to 19 inches (381 to 483 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 11 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Areas of Rock outcrop: 50 percent
Cathedral and similar soils: 30 percent
Minor components: 20 percent

Component Descriptions

Rock outcrop

Landform: Foothills
Geomorphic position: Summits, shoulders, and backslopes
Slope: 20 to 40 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Cathedral

Landform: Foothills
Geomorphic position: Shoulders, backslopes, summits, and footslopes
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 20 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 5.95 in/hr (rapid)
Available water capacity: About 0.7 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, black sagebrush, threetip sagebrush, Griffith wheatgrass, and Idaho fescue
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 5 inches; very stony coarse sandy loam
C—5 to 11 inches; very gravelly coarse sandy loam
R—11 to 21 inches; unweathered bedrock

Minor components

Alderon and similar soils
Extent within map unit: About 7 percent

Boyle and similar soils
Extent within map unit: About 7 percent

Breece and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock and the slope. The Cathedral soil is poorly suited to range seeding because of droughtiness of the soil and the slope. This unit is poorly suited to range renovation because of the slope and the low potential for forage production. The areas of Rock outcrop in this unit also limit range seeding and range renovation.

This map unit is poorly suited to the installation of pipelines because of the depth to bedrock.

220—Rock outcrop-Cathedral-Alderon complex, 25 to 50 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,000 to 7,200 feet (1,829 to 2,195 meters)
Mean annual precipitation: 15 to 19 inches (381 to 483 millimeters)
Average annual air temperature: 39 to 45 degrees F (2 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Areas of Rock outcrop: 40 percent
Cathedral and similar soils: 25 percent
Alderon and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Rock outcrop

Landform: Foothills
Geomorphic position: Summits, shoulders, and backslopes
Slope: 25 to 50 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Cathedral

Landform: Foothills
Geomorphic position: Shoulders, backslopes, and footslopes
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 25 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 5.95 in/hr (rapid)
Available water capacity: About 0.6 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Igneous (15-19se)
Potential native vegetation: Bluebunch wheatgrass, slimstem muhly, black sagebrush, threetip sagebrush, Griffith wheatgrass, and Idaho fescue
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 2 inches; very gravelly coarse sandy loam
C—2 to 10 inches; very gravelly coarse sandy loam
R—10 to 20 inches; unweathered bedrock

Alderon

Landform: Foothills
Geomorphic position: Backslopes and footslopes
Parent material: Colluvium derived from granite and residuum derived from granite
Slope: 25 to 50 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 3.2 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Land capability (nonirrigated): 7e

Typical profile:
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 3 inches; sandy loam
E—3 to 8 inches; sandy clay loam
Bt—8 to 27 inches; gravelly sandy clay loam
C—27 to 39 inches; very gravelly coarse sandy loam
Cr—39 to 49 inches; weathered bedrock

Minor components

Boyle and similar soils
Extent within map unit: About 10 percent

Lininger and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock in the Cathedral soil and the slope. It is poorly suited to range seeding and range renovation because of the slope.

221—Selpats fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Selpats and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Selpats

Landform: Terraces
Parent material: Alluvium and eolian deposits

Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
Bt1—7 to 11 inches; sandy clay loam
Bt2—11 to 24 inches; very fine sandy loam
Btk—24 to 38 inches; very fine sandy loam
2Bk—38 to 60 inches; very gravelly sandy loam

Minor components

Forkwood and similar soils
Extent within map unit: About 7 percent

Featherlegs and similar soils
Extent within map unit: About 7 percent

Sweatbee and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as irrigated cropland, nonirrigated cropland, or rangeland or for wildlife habitat.

The Selpats soil is moderately well suited to irrigated cropland. The main limitation is the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue must be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding must be kept narrow and at right angles to the prevailing wind. This unit is well suited to mechanical range renovation.

222—Selpats-Forkwood loams, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Selpats and similar soils: 60 percent
Forkwood and similar soils: 30 percent
Minor components: 10 percent

Component Descriptions

Selpats

Landform: Terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.2 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 3 inches; loam
Bt1—3 to 13 inches; clay loam
Bt2—13 to 24 inches; loam
Btk—24 to 30 inches; loam
2Bk1—30 to 51 inches; very gravelly sandy loam
2Bk2—51 to 60 inches; very gravelly loamy sand

Forkwood

Landform: Terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; loam
Bt—8 to 19 inches; loam
Bk1—19 to 36 inches; fine sandy loam
Bk2—36 to 60 inches; fine sandy loam

Minor components

Featherlegs and similar soils
Extent within map unit: About 5 percent

Recluse and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland, irrigated cropland, or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This unit is moderately well suited to irrigated cropland. The main limitation is the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is well suited to range renovation.

223—Selpats-Hiland complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Selpats and similar soils: 60 percent
Hiland and similar soils: 25 percent
Minor components: 15 percent

Component Descriptions

Selpats

Landform: Hills and terraces
Geomorphic position: Backslopes, toeslopes, and summits
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 5.3 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low

Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; gravelly sandy loam
Bt1—6 to 13 inches; gravelly sandy clay loam
Bt2—13 to 24 inches; gravelly sandy loam
Btk—24 to 35 inches; sandy loam
2Bk—35 to 60 inches; very gravelly sandy loam

Hiland

Landform: Terraces and hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.7 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 6 inches; sandy loam
Bt—6 to 9 inches; sandy clay loam
Bk—9 to 60 inches; loam

Minor components

Cambria and similar soils
Extent within map unit: About 8 percent

Moskee and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as nonirrigated cropland, irrigated cropland, or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. The gravel in the surface layer and droughtiness of the Selpats soil are also limitations. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This unit is moderately suited to irrigated cropland. The main limitations are the hazard of wind erosion and the gravel in the surface layer and droughtiness of the Selpats soil. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

The Selpats soil is poorly suited to stockwater ponds and the Hiland soil is moderately well suited because of the potential for seepage losses. The unit is moderately well suited to range seeding. The main limitations are the hazard of wind erosion and gravel in the surface layer of the Selpats soil. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

This unit is moderately suited to range renovation; however, because of the coarse texture of the surface layer, range renovation may not be economically feasible.

224—Snilloc-Chugcity complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Snilloc and similar soils: 60 percent
Chugcity and similar soils: 20 percent
Minor components: 20 percent

Component Descriptions

Snilloc

Landform: Terraces and hills
Geomorphic position: Toeslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (12-14sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, and threadleaf sedge
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 8 inches; very fine sandy loam
Bk1—8 to 17 inches; loam
Bk2—17 to 30 inches; loam
Bk3—30 to 60 inches; sandy loam

Chugcity

Landform: Terraces and hills
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Eolian deposits derived from sandstone and siltstone and residuum derived from sandstone and siltstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
Bk1—7 to 21 inches; loam
Bk2—21 to 28 inches; loam
Bk3—28 to 35 inches; very fine sandy loam
Cr—35 to 45 inches; unweathered bedrock

Minor components

Featherlegs and similar soils
Extent within map unit: About 7 percent

Recluse and similar soils
Extent within map unit: About 7 percent

Sweatbee and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used for irrigated hayland, nonirrigated cropland, or rangeland or for wildlife habitat.

This unit is moderately well suited to irrigated cropland. The main limitation is droughtiness of the soils. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soils. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is

moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

225—Snilloc-Recluse complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Snilloc and similar soils: 60 percent
Recluse and similar soils: 20 percent
Minor components: 20 percent

Component Descriptions

Snilloc

Landform: Terraces and hills
Geomorphic position: Backslopes and summits
Parent material: Alluvium and eolian deposits
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.9 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
A—0 to 5 inches; very fine sandy loam
Bk—5 to 60 inches; very fine sandy loam

Recluse

Landform: Terraces and swales on hills
Geomorphic position: Toeslopes, backslopes, and shoulders
Parent material: Alluvium and eolian deposits
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.0 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; loam
Bt—6 to 21 inches; loam
Bk—21 to 60 inches; loam

Minor components

Featherlegs and similar soils
Extent within map unit: About 5 percent

Chugcity and similar soils
Extent within map unit: About 5 percent

Taluce and similar soils
Extent within map unit: About 5 percent

Sweatbee and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated hayland, irrigated cropland, or rangeland or for wildlife habitat.

The Snilloc soil is moderately well suited to irrigated hayland. The main limitation is droughtiness of the soil. The Recluse soil is well suited to irrigated hayland. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the Snilloc soil. To prevent overirrigating and the leaching of plant nutrients, applications of

irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the Snilloc soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

The Snilloc soil is poorly suited to stockwater ponds because of the high potential for seepage losses. The Recluse soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses.

The Snilloc soil is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established, and areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil. The Recluse soil is well suited to range seeding and range renovation.

226—Spearfish-Sixmile-Rock outcrop complex, 5 to 45 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Spearfish and similar soils: 40 percent
Sixmile and similar soils: 35 percent
Areas of Rock outcrop: 20 percent
Minor components: 5 percent

Component Descriptions

Spearfish

Landform: Hills
Geomorphic position: Summits, footslopes, and backslopes
Parent material: Residuum derived from sandstone
Slope: 5 to 45 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 2.5 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): About 5 percent
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Loamy (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, western wheatgrass, needleandthread, and blue grama
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; loam
AC—4 to 8 inches; loam
C—8 to 16 inches; loam
Cr—16 to 26 inches; weathered bedrock

Sixmile

Landform: Hills
Geomorphic position: Toeslopes and footslopes
Parent material: Alluvium and residuum derived from sandstone
Slope: 5 to 30 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.8 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)

Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 4 inches; loam
BC—4 to 15 inches; loam
C—15 to 28 inches; loam
Cr—28 to 38 inches; unweathered bedrock

Rock outcrop

Slope: 5 to 45 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Keeline and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock and the slope. It is poorly suited to range seeding and range renovation because of the slope.

227—Storsun-Sunup-Rock outcrop complex, 3 to 50 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Storsun and similar soils: 35 percent
Sunup and similar soils: 30 percent
Areas of Rock outcrop: 20 percent
Minor components: 15 percent

Component Descriptions

Storsun

Landform: Hills
Geomorphic position: Toeslopes, summits, and backslopes
Parent material: Alluvium derived from sandstone
Slope: 3 to 50 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 5.3 inches (low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 60 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Rocky Hills (15-17sp)
Potential native vegetation: Mountainmahogany, needleandthread, bluebunch wheatgrass, western wheatgrass, and little bluestem
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; very gravelly loam
Bw—4 to 8 inches; very gravelly loam
Bk1—8 to 25 inches; very cobbly loam
Bk2—25 to 60 inches; very cobbly loam

Sunup

Landform: Hills
Geomorphic position: Shoulders and summits
Parent material: Residuum derived from sandstone
Slope: 3 to 50 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.0 inch (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 8 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Rocky Hills (15-17sp)
Potential native vegetation: True mountainmahogany, needleandthread, bluebunch wheatgrass, western wheatgrass, and little bluestem
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 5 inches; very cobbly loam
C—5 to 11 inches; very cobbly loam
R—11 to 21 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Backslopes, shoulders, and summits
Slope: 3 to 50 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Wendover and similar soils
Extent within map unit: About 15 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock in the Sunup soil and the slope. It is poorly suited to range seeding and range renovation. The main limitations are the slope, the content of rock fragments in the Storsun and Sunup soils, and the depth to bedrock in the Sunup soil. The areas of Rock outcrop in this unit also limit range seeding and range renovation.

228—Sunup-Rock outcrop complex, 10 to 40 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Sunup and similar soils: 70 percent
Areas of Rock outcrop: 20 percent
Minor components: 10 percent

Component Descriptions

Sunup

Landform: Hills
Geomorphic position: Shoulders, backslopes, footslopes, and summits
Parent material: Residuum derived from sandstone
Slope: 10 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 0.8 inch (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 8 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (10-14np)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, and western wheatgrass
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 2 inches; very cobbly fine sandy loam
C—2 to 10 inches; very cobbly loam
R—10 to 20 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Backslopes, shoulders, and summits
Slope: 10 to 40 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Nidix and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock and the slope. It is poorly suited to range seeding and range renovation. The main limitations are the slope, droughtiness of the Sunup soil, the low potential for forage production, and the content of rock fragments in the soil. The areas of Rock outcrop in this unit also limit range seeding and range renovation.

229—Sunup-Snavee-Rock outcrop complex, 0 to 30 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)

Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Sunup and similar soils: 40 percent
Snavee and similar soils: 30 percent
Areas of Rock outcrop: 20 percent
Minor components: 10 percent

Component Descriptions

Sunup

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Residuum derived from sandstone (fig. 6)
Slope: 0 to 30 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.3 inches (very low)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 8 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Loamy (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, western wheatgrass, needleandthread, and blue grama
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; very channery fine sandy loam
C—4 to 17 inches; very channery loam
R—17 to 27 inches; unweathered bedrock

Snavee

Landform: Hills
Geomorphic position: Backslopes, summits, and footslopes
Parent material: Colluvium derived from limestone (fig. 6)
Slope: 10 to 30 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 20 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, Indian ricegrass, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 4 inches; extremely channery loam
Bt—4 to 9 inches; extremely flaggy loam
Bk—9 to 60 inches; extremely flaggy loam

Rock outcrop

Landform: Hills
Geomorphic position: Shoulders, backslopes, and summits
Slope: 0 to 30 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Storsun and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock in the Sunup soil, the potential for seepage losses, and the slope. It is poorly suited to range seeding and range renovations because of the slope, the content of rock fragments in the Sunup and Snavee soils, and the woodland vegetation on the Snavee soil (fig. 10). The areas of Rock outcrop in this unit also limit range seeding and range renovation.

The Sunup soil is poorly suited to the installation of pipelines because of the depth to bedrock.

230—Sweatbee fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,600 to 5,500 feet (1,402 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)

Figure 10.—An area of woodland in Sunup-Snavee-Rock outcrop complex, 0 to 30 percent slopes.

Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Sweatbee and similar soils: 75 percent
Minor components: 25 percent

Component Descriptions

Sweatbee

Landform: Terraces
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 5.5 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 11 inches; fine sandy loam
Bk1—11 to 26 inches; fine sandy loam
Bk2—26 to 60 inches; very gravelly sandy loam

Minor components

Selpats and similar soils
Extent within map unit: About 10 percent

Graystone and similar soils
Extent within map unit: About 8 percent

Mainter and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as nonirrigated cropland, irrigated cropland, or rangeland or for wildlife habitat.

The Sweatbee soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established, and areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

231—Sweatbee fine sandy loam, wet, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,600 to 5,500 feet (1,402 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Sweatbee, wet, and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Sweatbee, wet

Landform: Terraces
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 6.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: About 54 inches
Runoff class: Very low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Subirrigated (12-14sp)
Potential native vegetation: Basin wildrye, big bluestem, little bluestem, prairie cordgrass, slender wheatgrass, and switchgrass
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
A—0 to 3 inches; fine sandy loam
Bk1—3 to 32 inches; fine sandy loam
Bk2—32 to 39 inches; sandy loam
Bk3—39 to 60 inches; very gravelly sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 10 percent

Typic Calciaquolls and similar soils
Extent within map unit: About 10 percent
Landform: Flood plains

Major Uses

This unit is used as irrigated and nonirrigated cropland. It is also used as rangeland or for wildlife habitat.

The Sweatbee, wet, soil is moderately well suited to irrigated cropland. The main limitation is the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the depth to the water table, and the needs of the crop. Proper irrigation

water management and fertility management practices may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is moderately well suited to stockwater ponds. Pits dug below the level of the water table can provide water for livestock. If the pits are dug to a depth below the level of the water table in the fall, water can be provided throughout the year.

This soil is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

The wetness is a concern if pipelines are installed in areas of this soil below a depth of 3 feet. Constructing adequate foundations when water storage facilities are installed helps to prevent damage caused by frost heaving.

232—Sweatbee-Numa sandy clay loams, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,600 to 5,500 feet (1,402 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Sweatbee and similar soils: 45 percent
Numa and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Sweatbee

Landform: Terraces
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 40 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 11 inches; sandy clay loam
Bk1—11 to 17 inches; sandy loam
Bk2—17 to 22 inches; gravelly sandy loam
Bk3—22 to 35 inches; very gravelly sandy loam
Bk4—35 to 60 inches; very gravelly sand

Numa

Landform: Terraces
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.6 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; sandy clay loam
Bk—10 to 30 inches; sandy clay loam
C—30 to 60 inches; fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 7 percent

Selpats and similar soils
Extent within map unit: About 7 percent

Hiland and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as irrigated cropland or nonirrigated cropland or for wildlife habitat.

This unit is moderately well suited to irrigated cropland. The main limitations are droughtiness of the Sweatbee soil and the high content of calcium carbonate in the Numa soil. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soils. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, the high content of calcium carbonate in the Numa soil, and droughtiness of the Sweatbee soil. Maintaining crop residue on or near the surface can minimize the loss of soil moisture and reduce the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

233—Taluce, thin solum-Rock outcrop complex, 10 to 60 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,600 feet (1,372 to 1,707 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce, thin solum, and similar soils: 45 percent
Areas of Rock outcrop: 35 percent
Minor components: 20 percent

Component Descriptions

Taluce, thin solum

Landform: Hills (fig. 11)
Geomorphic position: Shoulders, summits, backslopes, and footslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 10 to 60 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.9 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (12-14sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, blue grama, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 2 inches; gravelly fine sandy loam
C—2 to 10 inches; gravelly fine sandy loam
Cr—10 to 20 inches; unweathered bedrock

Rock outcrop

Landform: Hills (fig. 11)
Geomorphic position: Shoulders, summits, and backslopes
Slope: 10 to 60 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Turnercrest and similar soils
Extent within map unit: About 10 percent

Keeline and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

Figure 11.—An area of Taluce, thin solum-Rock outcrop complex, 10 to 60 percent slopes, near Chugwater.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the slope, and the depth to bedrock. The Taluce, thin solum, soil is poorly suited to range seeding and mechanical range renovation because of the slopes and the areas of Rock outcrop. It is poorly suited to the installation of pipelines because of the depth to bedrock.

234—Taluce, thin solum-Keeline complex, 6 to 50 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,600 feet (1,372 to 1,707 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce, thin solum, and similar soils: 50 percent
Keeline and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Taluce, thin solum

Landform: Hills
Geomorphic position: Footslopes, summits, and shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 50 percent

Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.6 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, Indian ricegrass, needleandthread, and Rocky Mountain juniper
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 1 inches; gravelly fine sandy loam
C—1 to 5 inches; gravelly fine sandy loam
Cr—5 to 15 inches; unweathered bedrock

Keeline

Landform: Hills
Geomorphic position: Footslopes and toeslopes
Parent material: Alluvium derived from sandstone
Slope: 6 to 30 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 4 inches; fine sandy loam
C—4 to 60 inches; fine sandy loam

Minor components

Creighton and similar soils
Extent within map unit: About 5 percent

Mitchell and similar soils
Extent within map unit: About 5 percent

Areas of Rock outcrop
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock in the Taluce soil, and the slope. It is poorly suited to range seeding and range renovation because of droughtiness of the soils and the slope.

235—Taluce, thin solum-Rock outcrop-Turnercrest complex, 6 to 50 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce, thin solum, and similar soils: 35 percent
Areas of Rock outcrop: 30 percent
Turnercrest and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Taluce, thin solum

Landform: Hills
Geomorphic position: Summits, backslopes, and shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 50 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.0 inch (very low)

Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (12-14sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, blue grama, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 3 inches; fine sandy loam
C—3 to 9 inches; fine sandy loam
Cr—9 to 19 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Backslopes, summits, and shoulders
Slope: 6 to 50 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Turnercrest

Landform: Hills
Geomorphic position: Backslopes and footslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 25 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 12 inches; very fine sandy loam
Bk—12 to 25 inches; very fine sandy loam
Cr—25 to 35 inches; unweathered bedrock

Minor components

Claprych and similar soils
Extent within map unit: About 5 percent

Keeline and similar soils
Extent within map unit: About 5 percent

Snilloc and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the slope, and the depth to bedrock. It is poorly suited to range seeding and mechanical range renovation because of the slope.

236—Taluce-Rock outcrop-Turnercrest complex, 6 to 50 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce and similar soils: 35 percent
Areas of Rock outcrop: 30 percent
Turnercrest and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Taluce

Landform: Hills
Geomorphic position: Shoulders, backslopes, and summits
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 50 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)

Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.4 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (10-14np)
Potential native vegetation: Needleandthread, prairie sandreed, and little bluestem
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; sandy loam
C—4 to 12 inches; sandy loam
Cr—12 to 22 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Summits, backslopes, and shoulders
Slope: 6 to 50 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Turnercrest

Landform: Hills
Geomorphic position: Backslopes and footslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 25 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (10-14np)
Potential native vegetation: Needleandthread, prairie sandreed, and Indian ricegrass
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 5 inches; fine sandy loam
Bk1—5 to 12 inches; fine sandy loam
Bk2—12 to 34 inches; fine sandy loam
Cr—34 to 44 inches; unweathered bedrock

Minor components

Keeline and similar soils
Extent within map unit: About 8 percent

Albinas and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock and the slope. It is poorly suited to range seeding and range renovation because of the slope. The areas of Rock outcrop in this unit also limit range seeding and range renovation.

237—Taluce-Rock outcrop-Turnercrest complex, moist, 6 to 50 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce and similar soils: 35 percent
Areas of Rock outcrop: 30 percent
Turnercrest and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Taluce

Landform: Hills
Geomorphic position: Summits, shoulders, and backslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 50 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)

Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 6 inches; fine sandy loam
C—6 to 11 inches; very fine sandy loam
Cr—11 to 21 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Summits, shoulders, and backslopes
Slope: 6 to 50 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Turnercrest

Landform: Hills
Geomorphic position: Backslopes, shoulders, and footslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 25 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 10 inches; fine sandy loam
Bk1—10 to 17 inches; fine sandy loam
Bk2—17 to 36 inches; fine sandy loam
Cr—36 to 46 inches; unweathered bedrock

Minor components

Keeline and similar soils
Extent within map unit: About 4 percent

Claprych and similar soils
Extent within map unit: About 4 percent

Snilloc and similar soils
Extent within map unit: About 4 percent

Numa and similar soils
Extent within map unit: About 3 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the slope, and the depth to bedrock. It is poorly suited to range seeding and mechanical range renovation because of the slope and droughtiness of the Taluce and Turnercrest soils. The areas of Rock outcrop in this unit also limit range seeding and range renovation.

238—Taluce-Taluce, thin solum-Rock outcrop complex, 3 to 30 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce and similar soils: 40 percent
Taluce, thin solum, and similar soils: 30 percent
Areas of Rock outcrop: 20 percent
Minor components: 10 percent

Component Descriptions

Taluce

Landform: Hills
Geomorphic position: Shoulders, footslopes, and backslopes
Parent material: Residuum derived from sandstone
Slope: 3 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.0 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (15-17sp)
Potential native vegetation: Little bluestem, needleandthread, Indian ricegrass, western wheatgrass, small soapweed, and threadleaf sedge
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 6 inches; fine sandy loam
C—6 to 17 inches; fine sandy loam
Cr—17 to 27 inches; unweathered bedrock

Taluce, thin solum

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Residuum derived from sandstone
Slope: 6 to 15 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.8 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, Indian ricegrass, needleandthread, and Rocky Mountain juniper
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 6 inches; fine sandy loam
Cr—6 to 16 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Shoulders and summits
Slope: 6 to 30 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Keeline and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the depth to bedrock and the slope. It is poorly suited to mechanical range renovation and range seeding because of the slope, the areas of Rock outcrop, and droughtiness of the Taluce soils.

239—Taluce-Taluce, thin solum-Turnercrest fine sandy loams, 3 to 15 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce and similar soils: 40 percent
Taluce, thin solum, and similar soils: 30 percent
Turnercrest and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Taluce

Landform: Hills
Geomorphic position: Summits and shoulders

Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 3 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.0 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (15-17sp)
Potential native vegetation: Little bluestem, needleandthread, Indian ricegrass, western wheatgrass, small soapweed, and threadleaf sedge
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 6 inches; fine sandy loam
C—6 to 17 inches; fine sandy loam
Cr—17 to 27 inches; unweathered bedrock

Taluce, thin solum

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 10 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.0 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, Indian ricegrass, needleandthread, and Rocky Mountain juniper
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 3 inches; fine sandy loam
C—3 to 7 inches; sandy loam
Cr—7 to 17 inches; unweathered bedrock

Turnercrest

Landform: Hills
Geomorphic position: Backslopes and footslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 10 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 6 inches; fine sandy loam
Bk—6 to 28 inches; fine sandy loam
Cr—28 to 38 inches; unweathered bedrock

Minor components

Embry and similar soils
Extent within map unit: About 5 percent

Orpha and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock in the Taluce soil. The Taluce soil is poorly suited to range seeding because of the depth to bedrock. The Turnercrest soil is moderately well suited to range seeding. To reduce the hazard of

erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. The Taluce soils are poorly suited to mechanical range renovation because of the low potential for forage production. The Turnercrest soil is moderately well suited to mechanical range renovation; however, because of the coarse texture of the soil, range renovation may not be economically feasible. Applying range renovation practices along the contour of the slope reduces the hazard of water erosion.

The Taluce soils are poorly suited to installation of pipelines because of the depth to bedrock.

240—Taluce-Treon complex, thin solums, 6 to 10 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce, thin solum, and similar soils: 50 percent
Treon, thin solum, and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Taluce, thin solum

Landform: Hills
Geomorphic position: Footslopes, summits, and backslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 6 to 10 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 0.9 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (12-14sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, blue grama, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 5 inches; sandy loam
C—5 to 9 inches; gravelly sandy loam
Cr—9 to 19 inches; unweathered bedrock

Treon, thin solum

Landform: Hills
Geomorphic position: Backslopes, summits, and footslopes
Parent material: Residuum derived from sandstone
Slope: 6 to 10 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.0 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (12-14sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, blue grama, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 5 inches; fine sandy loam
C—5 to 10 inches; fine sandy loam
Cr—10 to 20 inches; unweathered bedrock

Minor components

Cedak and similar soils
Extent within map unit: About 8 percent

Phiferson and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock. It is moderately suited to range seeding because of the depth to

bedrock. This unit is poorly suited to mechanical range renovation because of the low potential for forage production. Applying range seeding or mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion.

This map unit is poorly suited to the installation of pipelines because of the depth to bedrock.

241—Taluce-Turnercrest sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce and similar soils: 45 percent
Turnercrest and similar soils: 35 percent
Minor components: 20 percent

Component Descriptions

Taluce

Landform: Hills
Geomorphic position: Backslopes, footslopes, and summits
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.8 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
Ap—0 to 8 inches; sandy loam
C—8 to 19 inches; gravelly sandy loam
Cr—19 to 29 inches; unweathered bedrock

Turnercrest

Landform: Hills
Geomorphic position: Footslopes, backslopes, and summits
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 7 inches; sandy loam
Bk—7 to 24 inches; fine sandy loam
Cr—24 to 34 inches; unweathered bedrock

Minor components

Bayard and similar soils
Extent within map unit: About 7 percent

Phiferson and similar soils
Extent within map unit: About 7 percent

Keeline and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used for nonirrigated cropland or rangeland or for wildlife habitat.

This unit is poorly suited to nonirrigated cropland and is not recommended for this use. The main limitations are droughtiness of the soils, the shallow depth to bedrock in the Taluce soil, the low annual precipitation, and the hazard of wind erosion.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock. The Taluce soil is moderately suited to range seeding because of droughtiness. It is poorly suited to mechanical range renovation. The Turnercrest soil is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil and the low potential for forage production on the Taluce soil.

The Taluce soil is poorly suited to the installation of pipelines because of the depth to bedrock.

242—Taluce-Turnercrest-Keeline fine sandy loams, 3 to 20 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,500 to 5,800 feet (1,372 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Taluce and similar soils: 35 percent
Turnercrest and similar soils: 30 percent
Keeline and similar soils: 20 percent
Minor components: 15 percent

Component Descriptions

Taluce

Landform: Hills
Geomorphic position: Backslopes, summits, and shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 3 to 20 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.6 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Shallow Sandy (10-14np)
Potential native vegetation: Needleandthread, prairie sandreed, and little bluestem
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; fine sandy loam
C—4 to 14 inches; fine sandy loam
Cr—14 to 24 inches; unweathered bedrock

Turnercrest

Landform: Hills
Geomorphic position: Shoulders and backslopes
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 3 to 20 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (10-14np)
Potential native vegetation: Needleandthread, prairie sandreed, and Indian ricegrass
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 12 inches; fine sandy loam
Bk1—12 to 29 inches; fine sandy loam
Bk2—29 to 39 inches; fine sandy loam
Cr—39 to 49 inches; unweathered bedrock

Keeline

Landform: Hills
Geomorphic position: Backslopes and footslopes
Parent material: Eolian deposits derived from sandstone
Slope: 3 to 20 percent
Drainage class: Well drained

Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 7.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (10-14np)
Potential native vegetation: Needleandthread, prairie sandreed, and Indian ricegrass
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 3 inches; fine sandy loam
C—3 to 60 inches; fine sandy loam

Minor components

Areas of Rock outcrop
Extent within map unit: About 8 percent

Jayem and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock in the Taluce and Turnercrest soils, the high potential for seepage losses, and the slope. It is moderately suited to range seeding. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to range renovation; however, because of the coarse texture of the soils and the low potential for forage production on the Taluce soil, range renovation may not be economically feasible. In areas where the slope is 6 to 15 percent, applying range seeding or mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion. This map unit is not suited to tillage in areas where the slope is more than 15 percent.

The Taluce soil is poorly suited to the installation of pipelines because of the depth to bedrock.

243—Torriorthents, gullied

Map Unit Setting

MLRA: 67—Central High Plains

Map Unit Composition

Areas of Torriorthents, gullied: 50 percent
Areas of gullied land: 45 percent
Minor components: 5 percent

Component Descriptions

Torriorthents, gullied

Landform: Gullies
Slope: 3 to 20 percent
Drainage class: Well drained
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Ecological site: Sandy (12-14sp)
Land capability (nonirrigated): 7e

Areas of gullied land

Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8e

Minor components

Areas of Rock outcrop
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds, range seeding, and range renovation because of the slope, the hazard of water erosion, and the areas of gullies.

244—Treon-Aberone fine sandy loams, 6 to 30 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 5,000 to 6,500 feet (1,524 to 1,981 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 10 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Treon and similar soils: 60 percent
Aberone and similar soils: 30 percent
Minor components: 10 percent

Component Descriptions

Treon

Landform: Benches
Parent material: Residuum derived from sandstone

Slope: 6 to 30 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.1 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (15-17sp)
Potential native vegetation: Little bluestem, needleandthread, Indian ricegrass, western wheatgrass, small soapweed, and threadleaf sedge
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 7 inches; fine sandy loam
C—7 to 19 inches; fine sandy loam
Cr—19 to 29 inches; unweathered bedrock

Aberone

Landform: Benches
Parent material: Alluvium
Slope: 10 to 30 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 70 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 8 inches; fine sandy loam
Bk—8 to 60 inches; very gravelly sandy loam

Minor components

Vetal and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock in the Treon soil, the high potential for seepage losses, and the slope. It is poorly suited to range seeding and mechanical range renovation. The main limitation is the slope.

245—Treon-Alice-Phiferson complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Treon and similar soils: 30 percent
Alice and similar soils: 25 percent
Phiferson and similar soils: 25 percent
Minor components: 20 percent

Component Descriptions

Treon

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Residuum derived from sandstone
Slope: 1 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 2.0 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)

Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
Ap—0 to 8 inches; gravelly fine sandy loam
C—8 to 15 inches; fine sandy loam
Cr—15 to 25 inches; unweathered bedrock

Alice

Landform: Hills
Geomorphic position: Toeslopes and footslopes
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; fine sandy loam
Bw—9 to 18 inches; fine sandy loam
Bk1—18 to 31 inches; fine sandy loam
Bk2—31 to 60 inches; very fine sandy loam

Phiferson

Landform: Hills
Geomorphic position: Summits, backslopes, and shoulders
Parent material: Eolian deposits derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
Bw—6 to 11 inches; fine sandy loam
Bk—11 to 23 inches; fine sandy loam
Cr—23 to 33 inches; unweathered bedrock

Minor components

Albinas and similar soils
Extent within map unit: About 7 percent

Keeline and similar soils
Extent within map unit: About 6 percent

Cedak and similar soils
Extent within map unit: About 4 percent

Areas of Rock outcrop
Extent within map unit: About 3 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Treon soil is poorly suited to nonirrigated cropland and is not recommended for this use because of the shallow depth to bedrock. The Alice and Phiferson soils are moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock in the Treon and Phiferson soils. The Treon soil is moderately suited to range seeding because of the depth to bedrock. The Alice and Phiferson soils are moderately well suited to range

seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

The Treon soil is poorly suited to mechanical range renovation because of low potential for forage production. The Alice and Phiferson soils are moderately well suited to mechanical range renovation; however, because of the coarse texture of the soils, range renovation may not be economically feasible.

The Treon soil is poorly suited to the installation of pipelines because of the depth to bedrock.

246—Treon-Rock outcrop complex, 6 to 60 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Treon and similar soils: 45 percent
Areas of Rock outcrop: 35 percent
Minor components: 20 percent

Component Descriptions

Treon

Landform: Hills
Geomorphic position: Footslopes, shoulders, backslopes, and summits
Parent material: Residuum derived from sandstone
Slope: 6 to 60 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.9 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 6 inches; fine sandy loam
C—6 to 19 inches; gravelly fine sandy loam
Cr—19 to 29 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Backslopes and shoulders
Slope: 6 to 60 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Phiferson and similar soils
Extent within map unit: About 7 percent

Bayard and similar soils
Extent within map unit: About 7 percent

Storsun and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the slope, and the depth to bedrock. This Treon soil is poorly suited to range seeding and mechanical range renovation because of the slope and the depth to bedrock. It is poorly suited to the installation of pipelines because of the depth to bedrock. The areas of Rock outcrop in this unit also limit range seeding and range renovation.

247—Treon, thin solum-Phiferson-Keeline fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Treon, thin solum, and similar soils: 40 percent
Phiferson and similar soils: 25 percent
Keeline and similar soils: 15 percent
Minor components: 20 percent

Component Descriptions

Treon, thin solum

Landform: Hills
Geomorphic position: Shoulders and summits
Parent material: Residuum weathered from sandstone
Slope: 1 to 6 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.0 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (12-14sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, needleandthread, blue grama, threadleaf sedge, and western wheatgrass
Land capability (nonirrigated): 7s

Typical profile:
Ap—0 to 7 inches; fine sandy loam
C—7 to 10 inches; fine sandy loam
Cr—10 to 20 inches; unweathered bedrock

Phiferson

Landform: Hills
Geomorphic position: Shoulders, summits, and toeslopes
Parent material: Eolian deposits derived from sandstone and residuum derived from sandstone
Slope: 0 to 5 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
Bw—7 to 16 inches; very fine sandy loam
Bk—16 to 23 inches; very fine sandy loam
Cr—23 to 33 inches; unweathered bedrock

Keeline

Landform: Hills
Geomorphic position: Summits, backslopes, and footslopes
Parent material: Alluvium derived from sandstone and eolian deposits derived from sandstone
Slope: 0 to 5 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.2 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 2 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
Bw—7 to 41 inches; fine sandy loam
C—41 to 60 inches; very fine sandy loam

Minor components

Alice and similar soils
Extent within map unit: About 5 percent

Bayard and similar soils
Extent within map unit: About 5 percent

Orpha and similar soils
Extent within map unit: About 5 percent

Areas of Rock outcrop
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Treon soil is poorly suited to nonirrigated cropland because of the depth to bedrock and droughtiness. In areas of this soil, the amount of crop residue is not sufficient to help control erosion.

The Phiferson and Keeline soils are moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock in the Phiferson and Treon soils. The Treon soil is poorly suited to range seeding because of the depth to bedrock. The Phiferson and Keeline soils are moderately well suited to range seeding. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

The Treon soil is poorly suited to mechanical range renovation because of low potential for forage production. The Phiferson and Keeline soils are moderately suited to mechanical range renovation; however, because of the coarse texture of the soils, range renovation may not be economically feasible.

The Treon soil is poorly suited to the installation of pipelines because of the depth to bedrock.

248—Trimad-Blazon-Rock outcrop complex, 3 to 40 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Trimad and similar soils: 40 percent
Blazon and similar soils: 30 percent
Areas of Rock outcrop: 25 percent
Minor components: 5 percent

Component Descriptions

Trimad

Landform: Hills
Geomorphic position: Shoulders
Parent material: Gravelly alluvium
Slope: 3 to 30 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 5.6 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Rocky Hills (15-17sp)
Potential native vegetation: True mountainmahogany, needleandthread, bluebunch wheatgrass, western wheatgrass, and little bluestem
Land capability (nonirrigated): 6s

Typical profile:
A—0 to 7 inches; loam
Bk1—7 to 25 inches; gravelly loam
Bk2—25 to 41 inches; very gravelly sandy loam
Bk3—41 to 60 inches; very gravelly sandy loam

Blazon

Landform: Hills
Geomorphic position: Backslopes
Parent material: Alluvium derived from sandstone and shale and residuum derived from sandstone and shale
Slope: 20 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.9 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet

Runoff class: High
Calcium carbonate (maximum): About 8 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Loamy (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, western wheatgrass, blue grama, and needleandthread
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 4 inches; silt loam
C—4 to 10 inches; silt loam
Cr—10 to 20 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Summits and backslopes
Slope: 3 to 40 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Evanston and similar soils
Extent within map unit: About 3 percent

Ipson and similar soils
Extent within map unit: About 2 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock in the Blazon soil, and the slope. It is poorly suited to range seeding and mechanical range renovation because of the slope.

249—Trimad-Evanston complex, 3 to 30 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 110 days

Map Unit Composition

Trimad and similar soils: 60 percent
Evanston and similar soils: 30 percent
Minor components: 10 percent

Component Descriptions

Trimad

Landform: Hills
Geomorphic position: Shoulders and summits
Parent material: Gravelly alluvium
Slope: 6 to 30 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 4.1 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 8 inches; gravelly loam
Bk—8 to 60 inches; very gravelly sandy loam

Evanston

Landform: Alluvial fans, hills, and terraces
Geomorphic position: Backslopes, summits, and footslopes
Parent material: Loamy alluvium
Slope: 3 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 9.8 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 8 inches; loam
Bt—8 to 23 inches; clay loam
Bk—23 to 60 inches; loam

Minor components

Poposhia and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used mainly as rangeland or for wildlife habitat.

The Trimad soil is poorly suited to stockwater ponds because of the slope and the high potential for seepage losses. The Evanston soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses and the slope.

The Trimad soil is poorly suited to range seeding and mechanical range renovation because of the hazard of water erosion and the slope. This soil is not suited to tillage for range improvement.

The Evanston soil is moderately suited to range seeding and mechanical range renovation. Applying tillage practices along the contour of the slope and maintaining adequate residue on the surface of the soil until the seeding is established reduces the hazard of erosion.

250—Trimad-Weed-Blazon association, 0 to 15 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Trimad and similar soils: 40 percent
Weed and similar soils: 30 percent
Blazon and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Trimad

Landform: Hills and alluvial fans
Geomorphic position: Shoulders, backslopes, and summits
Parent material: Gravelly alluvium
Slope: 6 to 15 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 6.2 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Rocky Hills (15-17sp)
Potential native vegetation: True mountainmahogany, needleandthread, bluebunch wheatgrass, western wheatgrass, and little bluestem
Land capability (nonirrigated): 6s

Typical profile:
A—0 to 8 inches; loam
Bk1—8 to 14 inches; gravelly loam
Bk2—14 to 60 inches; very gravelly loam

Weed

Landform: Fans
Parent material: Loamy alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 3 inches; loam
Bt1—3 to 9 inches; sandy clay loam
Bt2—9 to 27 inches; clay loam
Bk—27 to 60 inches; sandy loam

Blazon

Landform: Hills
Geomorphic position: Summits, shoulders, and backslopes

Parent material: Silty alluvium derived from sandstone and shale and residuum derived from sandstone and shale
Slope: 6 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 2.8 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 8 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Loamy (15-17sp)
Potential native vegetation: Bluebunch wheatgrass, little bluestem, western wheatgrass, blue grama, and needleandthread
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 2 inches; gravelly silt loam
C—2 to 15 inches; silt loam
Cr—15 to 25 inches; unweathered bedrock

Minor components

Poposhia and similar soils
Extent within map unit: About 5 percent

Evanston and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used mainly as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds. The main limitation affecting the Trimad and Weed soils is the severe potential for seepage losses. The main limitation affecting the Blazon soil is the depth to bedrock.

The Trimad soil is moderately well suited to mechanical range renovation and range seeding. The main limitation is the hazard of erosion. The Weed soil is well suited to range seeding and mechanical range renovation. Mechanical range renovation may not be feasible on the Trimad soil because of the content of shrubs in the plant community. To reduce the hazard of erosion, adequate residue should be maintained on the surface of the soil until the seeding is established. In areas where the slope is more than 6 percent, applying mechanical range renovation and range seeding practices along the contour of the slope reduces the hazard of erosion.

The Blazon soil is poorly suited to range seeding and mechanical range renovation because of droughtiness and the hazard of water erosion.

251—Turnercrest-Phiferson-Taluce complex, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,700 feet (1,311 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (7 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Turnercrest and similar soils: 40 percent
Phiferson and similar soils: 20 percent
Taluce and similar soils: 20 percent
Minor components: 20 percent

Component Descriptions

Turnercrest

Landform: Hills
Geomorphic position: Shoulders, backslopes, footslopes, and summits
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 3.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 7 inches; fine sandy loam
Bk—7 to 38 inches; fine sandy loam
Cr—38 to 48 inches; unweathered bedrock

Phiferson

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Residuum derived from sandstone
Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 4e

Typical profile:
Ap—0 to 10 inches; fine sandy loam
Bw—10 to 18 inches; fine sandy loam
Bk—18 to 34 inches; fine sandy loam
Cr—34 to 44 inches; unweathered bedrock

Taluce

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Alluvium derived from sandstone and residuum derived from sandstone
Slope: 0 to 6 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.8 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
Ap—0 to 7 inches; sandy loam
C—7 to 18 inches; sandy loam
Cr—18 to 28 inches; unweathered bedrock

Minor components

Alice and similar soils
Extent within map unit: About 5 percent

Bayard and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Keeline and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

The Turnercrest and Phiferson soils are moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture. The Taluce soil is poorly suited to nonirrigated cropland because of the depth to bedrock and droughtiness and is not recommended for this use. In areas of this soil the amount of crop residue is not sufficient to help control erosion.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the depth to bedrock. The Turnercrest and Phiferson soils are moderately well suited to range seeding and moderately suited to mechanical range renovation. The Taluce soil is moderately suited to range seeding because of the depth to bedrock. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the

prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soils. The Taluce soil is poorly suited to mechanical range renovation because of the low potential for forage production.

The Taluce soil is poorly suited to the installation of pipelines because of the depth to bedrock.

252—Typic Calciaquolls-Whetsoon fine sandy loams, 0 to 3 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,800 feet (1,311 to 1,768 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Typic Calciaquolls and similar soils: 45 percent
Whetsoon and similar soils: 40 percent
Minor components: 15 percent

Component Descriptions

Typic Calciaquolls

Landform: Flood plains and terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Somewhat poorly drained
Slowest permeability: About 0.57 in/hr (moderate)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: About 12 inches
Runoff class: Very low
Calcium carbonate (maximum): About 25 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 3 SAR (nonsodic)
Ecological site: Wetland (12-14sp)
Potential native vegetation: Prairie cordgrass, bluejoint, Nebraska sedge, and northern reedgrass
Land capability (nonirrigated): 5w

Typical profile:
A—0 to 5 inches; fine sandy loam
ABkg—5 to 11 inches; sandy clay loam
Bkg—11 to 22 inches; very fine sandy loam
Cg—22 to 60 inches; fine sandy loam

Whetsoon

Landform: Flood plains and terraces
Parent material: Alluvium
Slope: 0 to 3 percent
Drainage class: Somewhat poorly drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 10.5 inches (high)
Shrink-swell potential: About 1.5 LEP (low)
Flooding frequency: Rare
Seasonal water table minimum depth: About 27 inches
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Subirrigated (12-14sp)
Potential native vegetation: Basin wildrye, big bluestem, little bluestem, prairie cordgrass, slender wheatgrass, and switchgrass
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile:
A—0 to 4 inches; fine sandy loam
Bt1—4 to 11 inches; loam
Bt2—11 to 27 inches; clay loam
Bk1—27 to 40 inches; clay loam
Bk2—40 to 60 inches; loam

Minor components

Forkwood and similar soils
Extent within map unit: About 5 percent

Recluse and similar soils
Extent within map unit: About 5 percent

Snilloc and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat. In some areas, the Whetsoon soil is used as irrigated or nonirrigated cropland.

This map unit is well suited to stockwater ponds. Pits dug below the level of the water table can provide water for livestock. If the pits are dug to a depth below the level of the water table in the fall, water can be provided throughout the year.

This unit is poorly suited to range seeding and mechanical range renovation because of the wetness. It may contain riparian zones that are important for protecting streambanks from erosion. Deferring grazing, providing rest periods during the growing season, allowing only short-duration grazing, or excluding livestock from these areas can maintain or

improve forage production, water quality, or wildlife habitat. Grazing during long periods when the soil is wet results in compaction of the surface layer.

The wetness is a concern if pipelines are installed in areas of these soils. Constructing adequate foundations when water storage facilities are installed helps to prevent damage caused by frost heaving.

253—Tyzak-Tyzak, thin solum-Rock outcrop complex, 8 to 50 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,300 to 7,000 feet (1,920 to 2,134 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 85 to 110 days

Map Unit Composition

Tyzak and similar soils: 30 percent
Tyzak, thin solum, and similar soils: 30 percent
Areas of Rock outcrop: 25 percent
Minor components: 15 percent

Component Descriptions

Tyzak

Landform: Hills (fig. 12)
Geomorphic position: Footslopes and shoulders
Parent material: Alluvium derived from limestone, colluvium derived from limestone, and residuum derived from limestone
Slope: 8 to 40 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 0.7 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Rocky Hills (15-19se)
Potential native vegetation: Mountainmahogany, bluebunch wheatgrass, needleandthread, spike fescue, and antelope bitterbrush
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 3 inches; extremely channery loam
Bk—3 to 11 inches; extremely channery loam
R—11 to 21 inches; unweathered bedrock

Tyzak, thin solum

Landform: Hills (fig. 12)
Geomorphic position: Summits and backslopes
Parent material: Alluvium derived from limestone, colluvium derived from limestone, and residuum derived from limestone
Slope: 8 to 50 percent
Depth to restrictive feature: 4 to 10 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 0.4 inch (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: High
Calcium carbonate (maximum): About 35 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Very Shallow (15-19se)
Potential native vegetation: Bluebunch wheatgrass, antelope bitterbrush, Idaho fescue, needleandthread, Parry danthonia, and black sagebrush
Land capability (nonirrigated): 7s

Typical profile:
A—0 to 3 inches; extremely channery loam
Bk—3 to 7 inches; extremely channery loam
R—7 to 17 inches; unweathered bedrock

Rock outcrop

Landform: Hills (fig. 12)
Geomorphic position: Shoulders, summits, and backslopes
Slope: 20 to 50 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Evanston and similar soils
Extent within map unit: About 8 percent

Ipson and similar soils
Extent within map unit: About 7 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

Figure 12.—An area of Tyzak-Tyzak, thin solum-Rock outcrop complex, 8 to 50 percent slopes, on the hills and ridge. An area of Evanston-Ipson complex, 0 to 20 percent slopes, is in the foreground.

This unit is poorly suited to stockwater ponds because of the depth to bedrock and the slope. It is poorly suited to range seeding and range renovation because of the slope, the high content of rock fragments in the surface layer, and the depth to bedrock. The areas of Rock outcrop in this unit also limit range seeding and range renovation.

The Tyzak soil is poorly suited to the installation of pipelines because of the depth to bedrock.

254—Valent loamy fine sand, moist, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains

Elevation: 5,000 to 6,500 feet (1,524 to 1,981 meters)

Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)

Average annual air temperature: 46 to 48 degrees F (7 to 10 degrees C)

Frost-free period: 110 to 130 days

Map Unit Composition

Valent and similar soils: 85 percent
Minor components: 15 percent

Component Descriptions

Valent

Landform: Dunes

Parent material: Sandy eolian deposits derived from sandstone
Slope: 0 to 6 percent
Drainage class: Excessively drained
Slowest permeability: About 1.98 in/hr (moderately rapid)
Available water capacity: About 5.9 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Negligible
Calcium carbonate (maximum): None
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sands (15-17sp)
Potential native vegetation: Prairie sandreed, sand bluestem, Indian ricegrass, needleandthread, and sand sagebrush
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical profile:
A—0 to 10 inches; loamy fine sand
C—10 to 60 inches; loamy fine sand

Minor components

Otero and similar soils
Extent within map unit: About 8 percent
Slope: 0 to 6 percent
Drainage class: Well drained
Ecological site: Sandy (15-17sp)

Tassel and similar soils
Extent within map unit: About 7 percent
Slope: 3 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Shallow Sandy (15-17sp)

Major Uses

This unit is used mainly as rangeland or for wildlife habitat. Some areas are used as irrigated hayland.

The Valent soil is moderately suited to irrigated hay. The main limitations are the limited available water capacity and the hazard of wind erosion. A sprinkler system is the best method of irrigation for this soil. Frequent applications of irrigation water will be necessary. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is poorly suited to range seeding and mechanical range renovation. The main limitation affecting range seeding is the hazard of wind erosion. This soil is not suited to tillage for range improvement. Interseeding and band spraying of herbicides can be used. Mechanical range renovation may not be economically feasible because of the coarse texture of the surface layer.

255—Vetal fine sandy loam, 3 to 9 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Vetal and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Vetal

Landform: Swales on uplands and on fans
Parent material: Alluvium and eolian deposits (fig. 9)
Slope: 3 to 9 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (15-17sp)
Potential native vegetation: Needleandthread, little bluestem, prairie sandreed, thickspike wheatgrass, Indian ricegrass, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 10 inches; fine sandy loam
Bw1—10 to 34 inches; fine sandy loam
Bw2—34 to 60 inches; fine sandy loam

Minor components

Albinas and similar soils
Extent within map unit: About 20 percent
Landform: Drainageways and terraces
Slope: 0 to 3 percent
Drainage class: Well drained
Ecological site: Sandy (12-14sp)

Major Uses

This unit is used as rangeland or for wildlife habitat.

The Vetal soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to range renovation. To reduce the hazard of erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

256—Vetal-Julesburg fine sandy loams, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Vetal and similar soils: 50 percent
Julesburg and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Vetal

Landform: Hills and terraces
Geomorphic position: Summits, toeslopes, and backslopes
Parent material: Alluvium and eolian deposits
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 9 inches; fine sandy loam
Bw—9 to 39 inches; fine sandy loam
C—39 to 60 inches; fine sandy loam

Julesburg

Landform: Hills and terraces
Geomorphic position: Toeslopes and backslopes
Parent material: Alluvium and eolian deposits
Slope: 1 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.5 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 0 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
BA—6 to 15 inches; fine sandy loam
Bt—15 to 31 inches; fine sandy loam
C1—31 to 50 inches; fine sandy loam
C2—50 to 60 inches; very fine sandy loam

Minor components

Bayard and similar soils
Extent within map unit: About 5 percent

Mainter and similar soils
Extent within map unit: About 5 percent

Albinas and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as nonirrigated cropland or rangeland or for wildlife habitat.

This unit is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soils, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This map unit is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding because of the hazard of wind erosion. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. This unit is moderately suited to mechanical range renovation; however, because of the coarse texture of the soils, range renovation may not be economically feasible.

257—Vetal-Treon-Phiferson complex, 3 to 20 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,500 to 5,700 feet (1,372 to 1,737 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Vetal and similar soils: 45 percent
Treon and similar soils: 25 percent
Phiferson and similar soils: 20 percent
Minor components: 10 percent

Component Descriptions

Vetal

Landform: Hills
Geomorphic position: Toeslopes
Parent material: Alluvium and eolian deposits
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.3 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 24 inches; fine sandy loam
Bw1—24 to 36 inches; fine sandy loam
Bw2—36 to 60 inches; fine sandy loam

Treon

Landform: Hills
Geomorphic position: Summits and shoulders
Parent material: Residuum derived from sandstone
Slope: 3 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 1.9 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, and small soapweed
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 5 inches; sandy loam
C—5 to 14 inches; fine sandy loam
Cr—14 to 24 inches; unweathered bedrock

Phiferson

Landform: Hills
Geomorphic position: Backslopes
Parent material: Eolian deposits derived from sandstone and residuum derived from sandstone
Slope: 6 to 20 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 4.4 inches (low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 10 inches; fine sandy loam
Bw—10 to 24 inches; fine sandy loam
Bk—24 to 33 inches; sandy loam
Cr—33 to 43 inches; unweathered bedrock

Minor components

Turnercrest and similar soils
Extent within map unit: About 5 percent

Areas of Rock outcrop
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses, the depth to bedrock in the Treon and Phiferson soils, and the slope. It is moderately suited to range seeding. To reduce the hazard of erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

The Vetal and Phiferson soils are moderately suited to range renovation; however, because of the coarse texture of the soils, range renovation may not be economically feasible. This map unit is not suited to tillage in areas where the slope is more than 15 percent. The Treon soil is poorly suited to range renovation because of the low potential for forage production.

The Treon soil is poorly suited to the installation of pipelines because of the depth to bedrock.

258—Vonalee fine sandy loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 67—Central High Plains
Elevation: 4,300 to 5,500 feet (1,311 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Vonalee and similar soils: 80 percent
Minor components: 20 percent

Component Descriptions

Vonalee

Landform: Hills and terraces
Geomorphic position: Summits, backslopes, and toeslopes
Parent material: Eolian deposits derived from sandstone
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 2.00 in/hr (moderately rapid)
Available water capacity: About 8.7 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Very low
Calcium carbonate (maximum): About 5 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Sandy (12-14sp)
Potential native vegetation: Needleandthread, prairie sandreed, thickspike wheatgrass, threadleaf sedge, blue grama, sand bluestem, and silver sagebrush
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile:
Ap—0 to 6 inches; fine sandy loam
Bt—6 to 18 inches; fine sandy loam
Bk—18 to 60 inches; fine sandy loam

Minor components

Hiland and similar soils
Extent within map unit: About 7 percent

Keeline and similar soils
Extent within map unit: About 7 percent

Sweatbee and similar soils
Extent within map unit: About 6 percent

Major Uses

This unit is used as nonirrigated cropland, irrigated cropland, or rangeland or for wildlife habitat.

The Vonalee soil is moderately well suited to irrigated cropland. The main limitations are the hazard of wind erosion and droughtiness of the soil. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Frequent applications of irrigation water will be necessary because of the limited available water capacity of the soil. To prevent overirrigating and the leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity and the needs of the crop. Proper irrigation water management and fertility management practices also may be needed. Fertilizer should be applied according to soil tests.

This soil is moderately suited to nonirrigated cropland. The main limitations are the low annual precipitation, droughtiness of the soil, and the hazard of wind erosion. Maintaining crop residue on or near the surface reduces the hazard of wind erosion. Stripcropping at right angles to prevailing winds and leaving the soil surface rough also help to control wind erosion. Because of the low annual precipitation, a crop rotation that most effectively uses soil moisture should be used. Reducing or eliminating tillage operations increases the effective use of soil moisture.

This soil is poorly suited to stockwater ponds because of the high potential for seepage losses. It is moderately well suited to range seeding and moderately suited to mechanical range renovation. To reduce the hazard of wind erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established, and areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. Range renovation may not be economically feasible because of the coarse texture of the soil.

259—Wagonhound-Selpats complex, 3 to 20 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,500 to 5,500 feet (1,372 to 1,676 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Wagonhound and similar soils: 50 percent
Selpats and similar soils: 35 percent
Minor components: 15 percent

Component Descriptions

Wagonhound

Landform: Hills
Geomorphic position: Backslopes
Parent material: Alluvium and colluvium
Slope: 3 to 20 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 8.5 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 6e

Typical profile:
Oi—1 inch to 0; undecomposed needles
Oe—0 to 1 inch; decomposed forest litter
A—1 to 4 inches; loam
Bt—4 to 16 inches; sandy clay loam
Bk—16 to 60 inches; loam

Selpats

Landform: Hills
Geomorphic position: Shoulders, toeslopes, and summits
Parent material: Alluvium and eolian deposits

Slope: 3 to 20 percent
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 7.4 inches (moderate)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 30 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, big sagebrush, blue grama, little bluestem, and winterfat
Land capability (nonirrigated): 6e

Typical profile:
Ap—0 to 3 inches; fine sandy loam
Bt1—3 to 12 inches; loam
Bt2—12 to 18 inches; loam
Btk—18 to 35 inches; loam
2Bk1—35 to 50 inches; very gravelly sandy loam
2Bk2—50 to 60 inches; very gravelly loamy sand

Minor components

Recluse and similar soils
Extent within map unit: About 10 percent

Brown and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the high potential for seepage losses and the slope. The Selpats soil is moderately suited to range seeding. To reduce the hazards of wind erosion and water erosion, adequate residue should be maintained on the surface of the soil at all times until the seeding is established. Areas tilled for seeding should be kept narrow and at right angles to the prevailing wind. In areas where the slope is 6 to 15 percent, applying mechanical range renovation practices along the contour of the slope reduces the hazard of water erosion. This map unit is not suited to tillage in areas where the slope is more than 15 percent. The Selpats soil is moderately suited to range renovation; however, because of the coarse texture of the surface layer, range renovation may not be economically feasible. Because the Wagonhound soil is used for woodland vegetation, range seeding and range renovation are not suitable practices.

260—Water areas, less than 40 acres

This map unit consists of areas of perennial water less than 40 acres in size. Some are water storage areas made by human beings. Others are naturally occurring. Areas of perennial water less than 40 acres in size occur near streams or rivers or are in closed basins.

261—Water areas, more than 40 acres

This map unit consists of areas of perennial water more than 40 acres in size. Most are water storage areas made by human beings near streams or rivers.

262—Weed loam, 0 to 6 percent slopes

Map Unit Setting

MLRA: 49—Southern Rocky Mountain Foothills
Elevation: 6,500 to 7,500 feet (1,981 to 2,286 meters)
Mean annual precipitation: 15 to 17 inches (381 to 432 millimeters)
Average annual air temperature: 39 to 45 degrees F (4 to 7 degrees C)
Frost-free period: 90 to 100 days

Map Unit Composition

Weed and similar soils: 90 percent
Minor components: 10 percent

Component Descriptions

Weed

Landform: Fans
Parent material: Loamy alluvium
Slope: 0 to 6 percent
Drainage class: Well drained
Slowest permeability: About 0.20 in/hr (moderately slow)
Available water capacity: About 9.3 inches (high)
Shrink-swell potential: About 4.5 LEP (moderate)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Low
Calcium carbonate (maximum): About 10 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Loamy (15-17sp)
Potential native vegetation: Needleandthread, western wheatgrass, blue grama, big sagebrush, little bluestem, and winterfat
Land capability (nonirrigated): 4e

Typical profile:
A—0 to 6 inches; loam
Bt1—6 to 14 inches; sandy clay loam
Bt2—14 to 28 inches; clay loam
Bk—28 to 60 inches; sandy clay loam

Minor components

Evanston and similar soils
Extent within map unit: About 5 percent

Ipson and similar soils
Extent within map unit: About 5 percent

Major Uses

This unit is used mainly as rangeland or for wildlife habitat.

The Weed soil is moderately well suited to stockwater ponds because of the moderate potential for seepage losses. It is well suited to range seeding and mechanical range renovation. In tilled and seeded areas, maintaining an adequate cover of residue on the surface of the soil after planting reduces the hazard of wind erosion. Also, the areas tilled for seeding should be kept narrow and at right angles to the prevailing wind.

263—Wendover-Rock outcrop complex, 10 to 60 percent slopes

Map Unit Setting

MLRA: 58B—Northern Rolling High Plains, Southern Part
Elevation: 4,900 to 6,100 feet (1,494 to 1,859 meters)
Mean annual precipitation: 12 to 15 inches (305 to 381 millimeters)
Average annual air temperature: 46 to 48 degrees F (8 to 9 degrees C)
Frost-free period: 110 to 130 days

Map Unit Composition

Wendover and similar soils: 50 percent
Areas of Rock outcrop: 30 percent
Minor components: 20 percent

Component Descriptions

Wendover

Landform: Hills
Geomorphic position: Summits, backslopes, and footslopes
Parent material: Colluvium derived from limestone (fig. 9)
Slope: 10 to 60 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: About 0.60 in/hr (moderate)
Available water capacity: About 1.2 inches (very low)
Shrink-swell potential: About 1.5 LEP (low)
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Runoff class: Medium
Calcium carbonate (maximum): About 15 percent
Gypsum (maximum): None
Salinity (maximum): About 2 mmhos/cm (nonsaline)
Sodicity (maximum): About 0 SAR (nonsodic)
Ecological site: Shallow Sandy (15-17sp)
Potential native vegetation: Little bluestem, needleandthread, Indian ricegrass, western wheatgrass, small soapweed, and threadleaf sedge
Land capability (nonirrigated): 7e

Typical profile:
A—0 to 6 inches; very cobbly fine sandy loam
Bt—6 to 12 inches; very cobbly loam
Bk—12 to 18 inches; very cobbly loam
R—18 to 28 inches; unweathered bedrock

Rock outcrop

Landform: Hills
Geomorphic position: Backslopes, summits, and shoulders
Slope: 10 to 60 percent
Flooding hazard: None
Seasonal water table minimum depth: More than 6 feet
Land capability (nonirrigated): 8s

Minor components

Taluce and similar soils
Extent within map unit: About 10 percent

Sunup and similar soils
Extent within map unit: About 10 percent

Major Uses

This unit is used as rangeland or for wildlife habitat.

This unit is poorly suited to stockwater ponds because of the depth to bedrock and the slope. It is poorly suited to range seeding and range renovation because of the slope, droughtiness of the Wendover soil, and the low potential for forage production. The areas of Rock outcrop in this unit also limit range seeding and range renovation.

The Wendover soil is poorly suited to the installation of pipelines because of the depth to bedrock.

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 and forestland; 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.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, 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 detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in tables 5a and 5b. 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 each map unit also is shown in the tables.

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

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

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared

with that of other soils, however, is not likely to change.

Crops other than those shown in tables 5a and 5b are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the 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 landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

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 few limitations that restrict their use.

Class 2 soils have moderate limitations that reduce 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.

The capability classification of the map units in this survey area is given in the section “Detailed Soil Map Units” and in tables 5a and 5b.

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, forest land, 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 2,000 acres in the survey area, or less than 0.2 percent of the total acreage, meets the soil requirements for prime farmland, if irrigated. Scattered areas of this land are throughout the county, but most are in the central part of the county. The crops grown on this land are mainly corn, sugar beets, and beans.

The map units in the survey area that are considered prime farmland are listed at the end of this section. 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. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

The map units that meet the requirements for prime farmland are:

102—Albinas loam, 0 to 6 percent slopes

208—Recluse loam, 0 to 3 percent slopes

Rangeland

About 83 percent of the survey area is rangeland. More than 80 percent of the farm income is derived from livestock, mainly cattle. Most ranches are cow-calf enterprises. The average size of ranches is 1,847 acres.

Most of the survey area is in the 12- to 14-inch Southern Plains precipitation zone. The western border is in the 15- to 17-inch Southern Plains and 15- to 19-inch Foothills and Mountains, Southeast, precipitation zones. The northern border is in the 10- to 14-inch Northern Plains precipitation zone. The 12- to 14-inch Southern Plains precipitation zone is well suited to cattle grazing. The 15- to 17-inch Southern Plains and 15- to 19-inch Foothills and Mountains, Southeast, precipitation zones are at the higher elevations where snow cover is heavy; thus, two to three months of supplemental feed need to be provided for livestock.

A major part of the survey area has sandy loam and loam soils that are underlain by fine grained sandstone. These soils support short and mid grasses. Along the western border, shallow soils are underlain by granite and limestone. These soils support a mixture of tall, mid, and short grasses.

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 6 shows, for each soil that supports rangeland vegetation suitable for grazing, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in the table 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, that 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 population. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year’s growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation 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.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the potential natural plant

community on each soil—is listed by common name. Under *Maximum rangeland composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range 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 range 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 the range similarity index and rangeland trend is available in chapter 4 of the "National Range and Pasture Handbook," which is available in local offices of the Natural Resources Conservation Service.

The objective in range management 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 range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Range management practices that are important to maintain productivity are proper grazing use and planned grazing systems that include proper distribution of livestock, proper season of use, and deferred grazing. Such practices as watering facilities, fences, and proper salt placement are needed to obtain proper grazing use. Such improvements as brush management, range seeding, and range renovation are dependent on the soil and climate of a given site.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they 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. Field windbreaks protect cropland and crops from wind, hold snow on the fields, and provide food and cover for wildlife.

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.

Detailed information on planning windbreaks and screens and planting and caring for trees and shrubs is available in the local office of the Natural Resources Conservation Service.

Recreation

The soils of the survey area are rated in table 7 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for 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.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 9 and interpretations for dwellings without

basements and for local roads and streets in table 8.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

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

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

Wildlife Habitat

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

Detailed information about the potential of the soils in the survey area for providing habitat for various kinds of wildlife is available in the local office of the Natural Resources Conservation Service. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

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 estimated data and test data in the "Soil Properties" section.

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

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

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations 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, ponding, slope, likelihood of flooding,

natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

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

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

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

Building Site Development

Table 8 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

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

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

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 9 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are

generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

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

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

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

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

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

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

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

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

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

and are difficult to spread; sandy soils are subject to wind erosion.

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

Construction Materials

Table 10 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

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

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

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

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

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

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

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

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

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

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

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

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

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

Water Management

Table 11 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

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

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

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

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

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

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

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

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and

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

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

Soil Properties

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

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

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

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

Engineering Index Properties

Table 12 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading “Soil Series and Their Morphology.”

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998).

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

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

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 grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical Properties

Table 13 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.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 13, 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.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, 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 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 determined 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 13, 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 13 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 as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

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 14 shows estimates of some chemical characteristics and feature 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 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 great 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.

Soil Features

Table 15 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. *Depth* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

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.

Water Features

Table 16 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 impeded 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.

Water table refers to a saturated zone in the soil. Table 16 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 16 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.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1975 and 1996). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven 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 Ustalf (*Ust*, meaning burnt, 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 Haplustalfs (*Hapl*, meaning minimal horizonation, plus *ustalf*, the suborder of the Alfisols that has a ustic 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 *Aridic* identifies the subgroup that is drier than the great group. An example is Aridic Hapludalfs.

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 fine-loamy, mixed, superactive, mesic Aridic Haplustalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1975) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 1996). 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.

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

Aberone Series

The Aberone series consists of very deep, somewhat excessively drained and well drained, moderately rapidly permeable soils on hills and benches. They formed in alluvium derived from various sources. Elevation is 4,900 to 6,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The

frost-free season is 110 to 130 days. Slope is 0 to 30 percent.

These soils are loamy-skeletal, carbonatic, mesic Aridic Haplustolls.

Typical pedon of Aberone gravelly sandy loam, 3 percent slopes, in an area of Aberone gravelly sandy loam, 0 to 15 percent slopes, 1,700 feet east, 1,300 feet north of the southwest corner of sec. 36, T. 22 N., R. 68 W.

A—0 to 7 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) crushed, moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; common fine and medium roots; 15 percent gravel; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bw—7 to 10 inches; grayish brown (10YR 5/2) gravelly sandy loam, dark grayish brown (10YR 4/2) crushed, moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; 20 percent gravel; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt wavy boundary.

2Bk1—10 to 16 inches; white (10YR 8/2) very gravelly loam, light brownish gray (10YR 6/2) crushed, moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few fine roots; many distinct calcium carbonate coats on rock fragments; common fine and medium irregular soft masses of calcium carbonate; 45 percent calcium carbonate equivalent; 30 percent gravel and 10 percent cobbles; violently effervescent; moderately alkaline; clear smooth boundary.

2Bk2—16 to 60 inches; white (10YR 8/2) very gravelly loam, brown (10YR 5/3) crushed, moist; massive; hard, firm, slightly sticky and slightly plastic; few fine roots; many distinct calcium carbonate coats on rock fragments; common fine and medium irregular soft masses of calcium carbonate; 35 percent calcium carbonate equivalent; 35 percent gravel and 15 percent cobbles; violently effervescent; moderately alkaline.

Gravel covers 0 to 25 percent of the surface. The particle-size control section ranges from 5 to 18 percent clay, with more than 35 percent fine or coarser sand and 40 to 60 percent rock fragments. The depth to skeletal material ranges from 8 to 16 inches. The mollic epipedon is 7 to 8 inches thick. The depth to horizons that have calcium carbonate is 0 to 7 inches.

The A horizon has value 4 or 5 dry and chroma of 2 or 3. Texture is gravelly sandy loam or fine sandy loam. The content of rock fragments ranges from 0 to 25 percent. The content of gravel ranges from 0 to 20 percent, and the content of cobbles ranges from 0 to 5 percent.

Some pedons do not have a Bw horizon.

The 2Bk horizon has value of 6 to 8 dry (5 or 6 moist) and chroma of 2 or 3. It is very gravelly loam, very gravelly sandy loam, and extremely gravelly sandy loam. The calcium carbonate equivalent ranges from 40 to 70 percent in the diagnostic calcic horizon. The content of rock fragments ranges from 40 to 70 percent. The content of gravel ranges from 30 to 50 percent, and the content of cobbles ranges from 10 to 20 percent. Reaction is moderately alkaline or strongly alkaline.

The Aberone soils in Platte County are taxadjuncts to the Aberone series because they have free calcium carbonate above a depth of 10 inches. These soils are classified as loamy-skeletal, carbonatic, mesic Aridic Haplustolls. This difference does not significantly affect the use and management of the soils.

Albinas Series

The Albinas series consists of very deep, well drained, moderately permeable soils in draws and on terraces and alluvial fans. They formed in alluvium derived from various sources. Elevation is 4,100 to 6,500 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F. The frost-free season is 110 to 140 days. Slope is 0 to 6 percent.

These soils are fine-loamy, mixed, superactive, mesic Pachic Argiustolls.

Typical pedon of Albinas fine sandy loam, 2 percent slopes, in an area of Recluse-Albinas-Treon, thin solum, complex, 0 to 6 percent slopes, 800 feet north, 1,500 feet east of the southwest corner of sec. 14, T. 21 N., R. 66 W.

Ap—0 to 9 inches; brown (10YR 4/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine continuous irregular pores; slightly alkaline; abrupt smooth boundary.

Bt1—9 to 16 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, sticky and slightly plastic; common very fine and fine roots; common very fine and fine pores; few faint clay films on faces of peds; slightly alkaline; clear smooth boundary.

Bt2—16 to 22 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; weak fine and medium and coarse subangular blocky structure; hard, friable, sticky and slightly plastic; common very fine and fine roots; common very fine and fine continuous irregular pores; few faint clay films on faces of peds; slightly alkaline; clear smooth boundary.

Bk1—22 to 33 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine continuous irregular pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bk2—33 to 60 inches; light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine continuous irregular pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section is commonly 20 to 35 percent clay and is 20 to 35 percent fine or coarser sand. The mollic epipedon is 20 to 40 inches thick. The depth to continuous horizons of secondary calcium carbonate accumulation is 20 to 39 inches.

The A horizon has chroma of 2 or 3. Reaction is neutral or slightly alkaline.

The Bt horizon has value of 2 or 3 moist and chroma 2 or 3. Texture is sandy clay loam, clay loam, or loam. Reaction is neutral or slightly alkaline.

A Btk horizon is present in some pedons.

The Bk horizon has value of 6 or 7 dry (4 or 5 moist) and chroma of 2 or 3. Texture is loam or fine sandy loam. Reaction is moderately alkaline or strongly alkaline.

Alderon Series

The Alderon series consists of moderately deep, well drained, moderately permeable soils on foothills. They formed in residuum and colluvium derived from granite. Elevation is 6,000 to 7,200 feet. The mean annual precipitation is 15 to 19 inches, and the mean annual air temperature is 36 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 25 to 50 percent.

These soils are fine-loamy, mixed, superactive, frigid Typic Haplustalfs.

Typical pedon of Alderon sandy loam, in an area of Rock outcrop-Cathedral-Alderon complex, 25 to 50 percent slopes, 600 feet north, 1,100 feet east of the southwest corner of sec, 14, T. 21 N., R. 71 W.

Oe—0 to 1 inch; decomposed needles, twigs, and bark.

A—1 to 3 inches; very dark grayish brown (10YR 3/2) sandy loam, very dark brown (10YR 2/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common fine and medium and few coarse roots; 10 percent gravel; neutral; abrupt wavy boundary.

E—3 to 8 inches; light brown (7.5YR 6/4) sandy clay loam, dark brown (7.5YR 4/4) moist; weak fine platy structure; soft, very friable, slightly sticky and slightly plastic; common fine and medium and few coarse roots; 10 percent gravel; neutral; abrupt smooth boundary.

Bt—8 to 27 inches; yellowish red (5YR 4/6) gravelly sandy clay loam, reddish brown (5YR 4/4) moist; strong coarse and medium subangular blocky structure; hard, firm, sticky and plastic; few medium and coarse roots; few thick clay films on faces of peds; 30 percent gravel; neutral; clear wavy boundary.

C—27 to 39 inches; brown (7.5YR 4/4) very gravelly coarse sandy loam, dark brown (7.5YR 3/4) moist; single grained; loose, very friable, nonsticky and nonplastic; few coarse roots; 45 percent gravel; neutral; clear wavy boundary.

Cr—39 to 49 inches; weathered granite.

The depth to weathered granite and paralithic contact ranges from 20 to 40 inches. The particle-size control section ranges from 20 to 35 percent clay with more than 35 percent fine or coarser sand and 10 to 35 percent rock fragments. The depth to the top of the argillic horizon ranges from 6 to 16 inches.

The C horizon has a texture of very gravelly coarse sandy loam or very gravelly sandy loam. It is 35 to 45 percent gravel.

Alice Series

The Alice series consists of very deep, well drained, moderately rapidly permeable soils on hills and terraces. They formed in alluvium and eolian material derived from sandstone. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 10 percent.

These soils are coarse-loamy, mixed, superactive, mesic Aridic Haplustolls.

Typical pedon of Alice fine sandy loam, 3 percent slopes, in an area of Alice-Recluse-Cedak fine sandy

loams, 0 to 6 percent slopes, 1,900 feet east, 2,000 feet north of the southwest corner of sec. 17, T. 21 N., R. 65 W.

Ap1—0 to 6 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to weak medium subangular blocky; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; few very fine pores; slightly alkaline; abrupt smooth boundary.
Ap2—6 to 13 inches; dark brown (10YR 3/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse and very coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine pores; neutral; clear wavy boundary.
Bw—13 to 24 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; weak medium prismatic structure parting to weak fine and medium subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; slightly alkaline; abrupt wavy boundary.
Bk—24 to 32 inches; very pale brown (10YR 7/3) fine sandy loam, yellowish brown (10YR 5/4) moist; weak fine and medium subangular blocky structure; hard, friable, nonsticky and nonplastic; common very fine roots; violently effervescent; disseminated calcium carbonate; moderately alkaline; clear wavy boundary.
C1—32 to 48 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; violently effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.
C2—48 to 60 inches; pale brown (10YR 6/3) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; violently effervescent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section is 6 to 16 percent clay and is 25 to 50 percent fine or coarser sand. The content of rock fragments on the surface ranges from 0 to 10 percent. The thickness of the mollic epipedon ranges from 8 to 17 inches. The depth to horizons of calcium carbonate accumulation ranges from 18 to 24 inches.

The A horizon has value of 3 to 5 dry. Reaction is neutral or slightly alkaline. Texture is very fine sandy loam or fine sandy loam.

The Bw horizon has value of 5 or 6 dry (3 or 4 moist) and chroma of 2 to 4. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 6 to 8 dry (5 or 6 moist) and chroma of 2 to 4. Texture is fine sandy loam or very fine sandy loam that has less than 18 percent clay. The content of rock fragments ranges from 0 to 15 percent. Reaction is slightly alkaline or moderately alkaline.

The C horizon has value of 6 or 7 dry and chroma of 3 or 4. Texture is fine sandy loam, very fine sandy loam, or sandy loam. The content of rock fragments ranges from 0 to 15 percent. Reaction is slightly alkaline or moderately alkaline.

The Alice soil in map unit 196 has soft bedrock at a depth of 40 to 60 inches. Also, reaction in the A horizon is moderately alkaline in some places. These differences do not significantly affect the use and management of the soil.

Anvil Series

The Anvil series consists of very deep, moderately well drained, moderately rapidly permeable or rapidly permeable soils on terraces and flood plains. They formed in high energy alluvium derived from various sources. Elevation is 4,600 to 5,600 feet. The average annual precipitation is 12 to 15 inches, and the average annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are sandy-skeletal, mixed, calcareous, mesic Oxyaquic Torrifluvents.

Typical pedon of Anvil loam, on a slope of 1 percent, in an area of Clarkelen, wet-Anvil loams, 0 to 3 percent slopes, 2,100 feet east, 2,230 feet south of the northwest corner of sec. 19, T. 29 N., R. 68 W.

A1—0 to 2 inches; yellowish brown (10YR 5/4) loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine, medium, and coarse roots; common very fine continuous random irregular pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.
A2—2 to 5 inches; yellowish brown (10YR 5/4) gravelly sandy loam, brown (10YR 4/3) moist; weak medium and coarse granular structure; slightly hard, friable, slightly sticky and nonplastic; many very fine and few fine, medium, and coarse roots; common very fine and fine continuous random irregular pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.
C1—5 to 15 inches; brown (7.5YR 5/4) gravelly coarse sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly

sticky and nonplastic; many very fine and few fine, medium, and coarse roots; common very fine and fine continuous random irregular pores; 16 percent gravel; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

2C2—15 to 33 inches; light brown (7.5YR 6/4) extremely cobbly coarse sand, dark yellowish brown (10YR 4/4) moist; single grained; loose, nonsticky and nonplastic; few very fine, fine, medium, and coarse roots; 40 percent gravel and 25 percent cobbles; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear wavy boundary.

3C3—33 to 60 inches; brown (7.5YR 5/4) fine sandy loam, brown (7.5YR 4/4) moist with common distinct strong brown (7.5YR 4/6) redoximorphic concentrations; massive; slightly hard, very friable, nonsticky and nonplastic; slightly effervescent; disseminated calcium carbonate; moderately alkaline.

The depth to the seasonal high water table is 3 to 5 feet from May to October. The particle-size control section ranges from 35 to 55 percent rock fragments.

The A horizon has hue of 10YR or 7.5YR, value 5 or 6 dry (3 or 4 moist), and chroma of 3 or 4. Texture is loam or gravelly sandy loam. The content of rock fragments ranges from 0 to 20 percent.

The C horizon has hue 7.5YR or 10YR, value of 5 or 6 dry (3 to 5 moist), and chroma of 3 to 6. The texture is dominantly very gravelly loamy sand, extremely cobbly coarse sand, or gravelly coarse sandy loam, but layers of fine sandy loam or coarse sandy loam occur in many pedons. This horizon is stratified, and the thickness and textures of the strata are highly variable. The content of rock fragments in individual subhorizons ranges from 10 to 65 percent.

Bayard Series

The Bayard series consists of very deep, well drained, moderately rapidly permeable soils on terraces, alluvial fans, and hills and in swales. They formed in alluvium and colluvium derived from sandstone and various sources. Elevation is 4,300 to 6,500 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 20 percent.

These soils are coarse-loamy, mixed, superactive, mesic Torriorthentic Haplustolls.

Typical pedon of Bayard fine sandy loam, 2 percent slopes, in an area of Bayard-Phiferson-Treon, thin solum, complex, 0 to 6 percent slopes, 2,550 feet west, 1,500 feet south of the northeast corner of sec. 29, T. 21 N., R. 65 W.

Ap—0 to 5 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to weak medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine pores; slightly alkaline; abrupt smooth boundary.

A—5 to 13 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine pores; slightly alkaline; abrupt smooth boundary.

Bk1—13 to 20 inches; light brownish gray (10YR 6/2) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine random pores; violently effervescent; disseminated calcium carbonate; less than 5 percent gravel; moderately alkaline; abrupt smooth boundary.

Bk2—20 to 29 inches; light gray (10YR 7/2) fine sandy loam, pale brown (10YR 6/3) moist; massive; soft, friable, slightly sticky and slightly plastic; few very fine roots; common fine and very fine random pores; violently effervescent; disseminated calcium carbonate; less than 5 percent gravel; moderately alkaline; clear smooth boundary.

Bk3—29 to 60 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine random pores; strongly effervescent; disseminated calcium carbonate; 5 to 10 percent gravel; moderately alkaline.

Gravel covers 0 to 5 percent of the surface. The particle-size control section ranges from 7 to 16 percent clay. The content of rock fragments ranges from 0 to 10 percent. The particle-size control section ranges from 15 and 35 percent fine and coarser sand, with mainly fine sand. The depth to calcium carbonate accumulation ranges from 8 to 13 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Reaction is neutral or slightly alkaline.

The Bk or C horizon has value of 5 to 7 dry (4 to 6 moist) and chroma of 2 or 3. Texture is fine sandy loam or very fine sandy loam. The calcium carbonate equivalent ranges from 2 to 10 percent, but a diagnostic calcic horizon is not present.

Blackhall Series

The Blackhall series consists of shallow, well drained, moderately rapidly permeable soils on hills. They formed in residuum and colluvium derived from sandstone. Elevation is 6,000 to 7,200 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 5 to 20 percent.

These soils are loamy, mixed, superactive, calcareous, frigid, shallow Ustic Torriorthents.

Typical pedon of Blackhall sandy loam, 10 percent slopes, in an area of Blackhall-Satanka-Rock outcrop complex, 5 to 20 percent slopes, 1,900 feet west, 300 feet south of the northeast corner of sec. 1, T. 14 N., R. 74 W.

A—0 to 2 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate coarse platy structure parting to moderate medium granular; slightly hard, very friable, nonsticky and nonplastic; common very fine, fine, and medium roots; 20 percent channers on the surface; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

C—2 to 16 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few medium roots; slightly effervescent; disseminated calcium carbonate; 10 percent gravel; moderately alkaline; abrupt wavy boundary.

Cr—16 to 26 inches; soft, calcareous sandstone.

Gravel, channers, or stones cover 20 to 40 percent of the surface. The depth to bedrock ranges from 10 to 20 inches. The particle-size control section is 5 to 15 percent clay, with more than 35 percent fine or coarser sand and 0 to 15 percent rock fragments. The Bw horizon is not a diagnostic cambic horizon and is absent in some pedons.

The A horizon has value of 5 or 6 dry (3 or 4 moist). The content of rock fragments ranges from 0 to 15 percent gravel. Reaction is slightly alkaline or moderately alkaline.

The C horizon has value of 4 or 5 moist. Texture is fine sandy loam or sandy loam. The content of rock fragments ranges from 0 to 15 percent gravel and 0 to 40 percent soft sandstone fragments that break down when wet.

Blazon Series

The Blazon series consists of very shallow and shallow, well drained, moderately permeable and moderately slowly permeable soils on hills, ridges, and alluvial fans. They formed in residuum and alluvium derived from soft shale, siltstone, and interbedded sandstone. Elevation is 6,000 to 7,500 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 6 to 60 percent.

These soils are loamy, mixed, superactive, calcareous, frigid, shallow Ustic Torriorthents.

Typical pedon of Blazon silt loam, in an area of Trimad-Blazon-Rock outcrop complex, 3 to 40 percent slopes, 1,000 feet north, 2,600 feet east of the southwest corner of sec. 31, T. 20 N., R. 67 W.

A—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, friable, sticky and plastic; 5 percent gravel; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

C—4 to 10 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; hard, firm, sticky and plastic; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Cr—10 to 20 inches; soft, calcareous shale and interbedded sandstone.

The depth to soft shale, siltstone, and interbedded sandstone ranges from 4 to 20 inches. The content of gravel commonly ranges from 0 to 20 percent throughout the profile. Reaction is moderately alkaline or strongly alkaline throughout.

The A horizon has value of 4 to 6 dry (3 to 5 moist) and chroma of 2 to 4. Texture is clay loam, gravelly silt loam, or silt loam.

The C horizon has value of 5 to 7 dry (3 to 6 moist) and chroma of 2 to 6. Texture is silt loam, gravelly silt loam, or clay loam.

Bonjea Series

The Bonjea series consists of shallow, well drained, moderately permeable soils on foothills. They formed in residuum and colluvium derived from granite and gneiss. Elevation is 6,000 to 7,200 feet. The mean annual precipitation is 15 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 3 to 60 percent.

These soils are loamy, mixed, superactive Lithic Argiborolls.

Typical pedon of Bonjea sandy loam, 18 percent slopes, in an area of Bonjea-Rock outcrop-Chugcreek

complex, 15 to 40 percent slopes, 1,500 feet south, 2,300 feet east of the northwest corner of sec. 10, T. 18 N., R. 71 W.

A—0 to 4 inches; brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; common fine and medium roots; 5 percent gravel; neutral; abrupt smooth boundary.
Bt1—4 to 10 inches; brown (10YR 4/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; continuous thin clay films on faces of peds; 5 percent gravel; neutral; clear smooth boundary.
Bt2—10 to 15 inches; yellowish brown (10YR 5/6) gravelly sandy clay loam, dark yellowish brown (10YR 4/6) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common medium roots; continuous moderately thick clay films on faces of peds; 20 percent gravel; neutral; abrupt broken boundary.
R—15 inches; hard granite.

The depth to bedrock ranges from 10 to 20 inches. The particle-size control section ranges from 20 to 30 percent clay with more than 35 percent fine or coarser sand and ranges from 10 to 35 percent rock fragments. Reaction is neutral or slightly alkaline throughout.

The Bt horizon has value of 4 or 5 dry (3 or 4 moist) and chroma of 3 to 6. Texture is dominantly sandy clay loam or gravelly sandy clay loam, but a thin layer of very gravelly sandy clay loam is above the bedrock in some pedons. The content of rock fragments ranges from 5 to 50 percent gravel, in individual horizons.

Boyle Series

The Boyle series consists of shallow, well drained, moderately permeable soils on foothills and mountain ridges. They formed in colluvium and residuum derived from granite. Elevation is 5,900 to 7,500 feet. The mean annual precipitation is 15 to 19 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 1 to 25 percent.

These soils are loamy-skeletal, mixed, superactive, shallow Aridic Argiborolls.

Typical pedon of Boyle gravelly sandy loam, 5 percent slopes, in an area of Boyle-Boyle, thin solum, gravelly loams, 3 to 6 percent slopes, 2,200 feet south, 500 feet west of the northeast corner of sec. 29, T. 20 N., R. 70 W.

A—0 to 7 inches; gravelly sandy loam, dark grayish brown (10YR 4/2) crushed, very dark grayish brown (10YR 3/2) crushed, moist; weak very fine granular structure; soft, friable, slightly sticky and slightly plastic; 18 percent gravel; many very fine, fine, and medium roots; neutral; clear smooth boundary.
Bt—7 to 15 inches; very gravelly sandy clay loam, yellowish brown (10YR 5/4) crushed, dark yellowish brown (10YR 4/4) crushed, moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; 50 percent gravel; many very fine, fine, and medium roots; few faint clay films on faces of peds; neutral; clear smooth boundary.
BC—15 to 18 inches; very gravelly loam, yellowish brown (10YR 5/4) crushed, dark yellowish brown (10YR 4/4) crushed, moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; 60 percent gravel; common fine and medium roots; neutral.
Cr—18 to 28 inches; weathered granite.

Gravel covers 0 to 20 percent of the surface. The depth to bedrock ranges from to 10 to 20 inches. The particle-size control section ranges from 20 to 30 percent clay.

The A horizon has hue of 7.5YR or 10YR and chroma of 2 or 3. The content of rock fragments ranges from 15 to 30 percent gravel. Texture is gravelly sandy loam or gravelly loam.

The Bt horizon has value of 3 or 4 moist and chroma of 3 or 4. The content of rock fragments ranges from 35 to 60 percent gravel.

The Boyle, thin solum, soil in map units 114 and 115 has a solum that is less than 10 inches thick. This difference does not significantly affect the use and management of the soil.

Breece Series

The Breece series consists of very deep, well drained, moderately rapidly permeabile soils on foothills and in drainageways. These soils formed in loamy alluvium derived from granite. Elevation is 6,500 to 7,500 feet. The mean annual precipitation is 15 to 19 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 90 to 100 days. Slope is 0 to 3 percent.

These soils are coarse-loamy, mixed, superactive Pachic Haploborolls.

Typical pedon of Breece sandy loam, 4 percent slopes, in an area of Ipson-Breece, dry-Evanston complex, 0 to 6 percent slopes, in Laramie County, Western Part, 1,600 feet east, 1,800 feet north of the southwest corner of sec. 25, T. 16 N., R. 67 W.

A1—0 to 5 inches; dark brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; many very fine roots; 10 percent gravel; slightly alkaline; clear smooth boundary.
A2—5 to 25 inches; dark brown (10YR 3/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine roots; 20 percent gravel; slightly alkaline; abrupt wavy boundary.
C—25 to 60 inches; yellowish brown (10YR 5/4) gravelly coarse sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; 25 percent gravel; slightly alkaline.

The mollic epipedon is 16 to 30 inches thick. The control section is 15 to 35 percent rock fragments. The rock fragments are dominantly gravel, but some pedons have 5 percent cobbles.

The A horizon has a neutral or slightly alkaline reaction.

Brown Series

The Brown series consists of shallow, well drained, moderately permeable soils on hills. They formed in alluvium and residuum derived from various sources. Elevation is 5,000 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 5 to 40 percent.

These soils are loamy-skeletal, mixed, superactive, mesic, shallow Aridic Argiustolls.

Typical pedon of Brown very cobbly sandy loam, 8 percent slopes, in an area of Brown-Featherlegs-Recluse complex, 5 to 40 percent slopes, 1,800 feet south, 1,400 feet west of the northeast corner of sec. 14, T. 28 N., R. 70 W.

A—0 to 4 inches; brown (10YR 4/3) very cobbly sandy loam, dark brown (10YR 3/3) moist; weak very fine subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; common fine and coarse roots; few fine continuous random irregular pores; 30 percent gravel and 25 percent cobbles; neutral; clear smooth boundary.
Bt—4 to 10 inches; brown (10YR 4/3) very gravelly sandy clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few coarse and common very fine and fine roots; common distinct oriented clay occurring as bridges holding mineral grains together; 50 percent gravel; neutral; gradual smooth boundary.
C—10 to 19 inches; yellowish brown (10YR 5/4) very gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; 50 percent gravel; slightly alkaline; clear wavy boundary.
Cr—19 to 29 inches; soft granite.

Gravel and cobbles cover 0 to 40 percent of the surface. The depth to bedrock ranges from 10 to 20 inches. The particle-size control section ranges from 20 to 30 percent clay, with more than 35 percent fine or coarser sand. Reaction is neutral or slightly alkaline throughout.

The A horizon has chroma of 2 or 3. The content of rock fragments ranges from 40 to 60 percent, with 20 to 30 percent cobbles and 20 to 30 percent gravel.

The Bt horizon has value of 4 or 5 dry. The content of rock fragments ranges from 45 to 60 percent. The content of gravel ranges from 35 to 50 percent, and the content of cobbles ranges from 0 to 10 percent.

The C horizon has value of 5 or 6 dry (3 to 5 moist) and chroma of 2 to 4 dry or moist. The content of rock fragments ranges from 45 to 60 percent. The content of gravel ranges from 35 to 50 percent, and the content of cobbles ranges from 0 to 10 percent.

Brownsto Series

The Brownsto series consists of very deep, well drained, moderately rapidly permeable soils on hills. They formed in alluvium and colluvium derived from various sources. Elevation is 5,500 to 7,000 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 10 to 45 percent.

These soils are loamy-skeletal, mixed, superactive, frigid Ustic Haplocalcids.

Typical pedon of Brownsto very gravelly sandy loam, 30 percent slopes, in an area of Rentsac-Brownsto-Ipson complex, 10 to 45 percent slopes, 2,530 feet north, 20 feet west of the southeast corner of sec. 29, T. 20 N., R. 68 W.

A—0 to 4 inches; very gravelly sandy loam, light brownish gray (10YR 6/2) crushed, grayish brown (10YR 5/2) crushed, moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; few fine continuous random irregular pores; 35 percent gravel and 10 percent cobbles; strongly effervescent; disseminated calcium carbonate; slightly alkaline; clear smooth boundary.

Bk—4 to 60 inches; very cobbly sandy loam, pale brown (10YR 6/3) crushed, brown (10YR 5/3) crushed, moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; 30 percent gravel and 20 percent cobbles; 32 percent calcium carbonate equivalent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; violently effervescent; moderately alkaline.

Gravel and cobbles cover 0 to 20 percent of the surface. The particle-size control section ranges 15 to 20 percent clay and more than 35 percent fine or coarser sand.

The A horizon has value of 4 to 6 dry (4 or 5 moist) and chroma of 2 or 3. Texture is very gravelly sandy loam or cobbly sandy loam. The content of rock fragments ranges from 25 to 45 percent. The content of cobbles ranges from 0 to 20 percent, and the content of gravel ranges from 10 to 35 percent.

The Bk horizon has hue of 7.5YR or 10YR, value of 5 to 7 dry (4 or 5 moist), and chroma of 2 to 4. The calcium carbonate equivalent ranges from 20 to 35 percent. The content of rock fragments ranges from 40 to 50 percent. The content of gravel ranges from 20 to 30 percent, and the content of cobbles ranges from 15 to 25 percent.

Byrnie Series

The Byrnie series consists of very shallow and shallow, well drained, moderately rapidly permeable soils on hills. They formed in alluvium and residuum from reddish sedimentary rocks. Elevation is 6,000 to 6,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 2 to 45 percent.

These soils are loamy, mixed, superactive, calcareous, frigid, shallow Ustic Torriorthents.

Typical pedon of Byrnie sandy loam, 4 percent slopes, in an area of Byrnie-Byrnie, thin solum-Rock outcrop complex, 5 to 45 percent slopes, 1,600 feet north, 1,600 feet west of the southeast corner of sec. 24, T. 20 N., R. 69 W.

A—0 to 3 inches; reddish brown (5YR 5/4) sandy loam, reddish brown (5YR 4/4) moist; weak medium granular structure; soft, very friable, nonplastic and nonsticky; many fine and very fine roots; common fine and very fine continuous pores; violently effervescent; 7 percent calcium carbonate equivalent; disseminated calcium carbonate; moderately alkaline; clear wavy boundary.

C—3 to 11 inches; yellowish red (5YR 5/6) sandy loam, yellowish red (5YR 4/6) moist; massive; soft, very friable, nonplastic and nonsticky; many fine and very fine roots; few fine and very fine continuous pores; violently effervescent; 20 percent calcium carbonate equivalent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Cr—11 to 21 inches; soft, calcareous, yellowish red sandstone.

The depth to paralithic contact ranges from 4 to 20 inches. The content of rock fragments ranges from 0 to 10 percent, and the content of clay ranges from 5 to 18 percent throughout the soil.

The A horizon has hue of 2.5YR or 5YR and chroma of 4 to 6.

Some pedons have a Bk horizon.

The C horizon has hue of 2.5YR or 5YR, value of 5 or 6 dry (4 or 5 moist), and chroma of 4 to 6. The calcium carbonate equivalent ranges from 5 to 20 percent.

The Byrnie soils in Platte County have more than 5 percent calcium carbonate in the C horizon. This difference does not significantly affect the use and management of the soil.

Cambria Series

The Cambria series consists of very deep, well drained, moderately permeable soils on nearly level and gently sloping hillslopes. They formed in alluvium derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are fine-loamy, mixed, superactive, mesic Ustic Haplargids.

Typical pedon of Cambria sandy loam, 3 percent slopes, in an area of Hiland-Cambria sandy loams, 0 to 6 percent slopes, 1,300 feet east, 1,500 feet north of southwest corner of section 7, T. 26 N., R. 67 W.

A—0 to 4 inches; grayish brown (10YR 5/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak

fine granular structure; loose, very friable, nonsticky and nonplastic; many fine and common coarse roots; neutral; clear smooth boundary.

AB—4 to 7 inches; dark grayish brown (10YR 4/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak fine prismatic structure parting to weak fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many fine and common coarse roots; few faint clay films on faces of peds; slightly alkaline; clear wavy boundary.

Bt—7 to 10 inches; dark grayish brown (10YR 4/2) sandy clay loam, dark grayish brown (10YR 4/2) moist; weak fine prismatic structure parting to moderate fine subangular blocky; slightly hard, friable, sticky and plastic; many fine and common coarse roots; common distinct clay films on faces of peds; slightly alkaline; clear wavy boundary.

Bk1—10 to 13 inches; light brownish gray (10YR 6/2) sandy clay loam, grayish brown (10YR 5/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and common coarse roots; few faint clay films on faces of peds; violently effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

Bk2—13 to 29 inches; light brownish gray (10YR 6/2) loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine and common coarse roots; violently effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

Bk3—29 to 60 inches; light gray (10YR 7/2) loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine and few coarse roots; violently effervescent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section ranges from 20 to 30 percent clay, with 15 to 50 percent fine or coarser sand. Gravel covers 0 to 10 percent of the surface. The depth to the base of the argillic horizon is 10 inches or less.

The A horizon has chroma of 2 or 3. Reaction is neutral to moderately alkaline.

The Bt horizon has value of 4 to 6 dry (4 or 5 moist) and chroma of 2 or 3. Texture is clay loam, sandy clay loam, or loam. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 6 or 7 dry (5 or 6 moist) and chroma 2 or 3. Texture is sandy clay loam, fine sandy loam, or loam. The calcium carbonate equivalent is 5 to 15 percent. Reaction is moderately alkaline or strongly alkaline.

Cascajo Series

The Cascajo series consists of very deep, excessively drained, moderately rapidly permeable soils on hills. They formed in alluvium derived from various sources. Elevation is 4,500 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 6 to 40 percent.

These soils are sandy-skeletal, mixed, mesic Ustic Haplocalcids.

Typical pedon of Cascajo gravelly sandy loam, 33 percent slopes, in an area of Cascajo-Taluce-Rock outcrop complex, 6 to 40 percent slopes, 1,000 feet south, 2,000 feet east of the northwest corner of sec. 31, T. 26 N., R. 65 W.

A—0 to 4 inches; brown (10YR 5/3) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; few very fine and fine and common medium roots; 20 percent gravel; violently effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

AB—4 to 9 inches; pale brown (10YR 6/3) gravelly sandy loam, brown and dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, nonsticky and nonplastic; few very fine and fine and common medium roots; 20 percent gravel; violently effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

Bk1—9 to 19 inches; light gray (10YR 7/2) very gravelly loamy sand, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; hard, friable, nonsticky and nonplastic; common very fine and fine and many medium roots; 50 percent gravel; violently effervescent; 12 percent calcium carbonate equivalent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; moderately alkaline; gradual wavy boundary.

Bk2—19 to 30 inches; light gray (10YR 7/2) very gravelly loamy sand, pale brown (10YR 6/3) moist; massive; hard, friable, nonsticky and nonplastic; 45 percent gravel; violently effervescent; 5 percent calcium carbonate equivalent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; moderately alkaline; gradual wavy boundary.

Bk3—30 to 60 inches; light gray (10YR 7/2) very gravelly loamy sand, pale brown (10YR 6/3) moist; massive; hard, friable, nonsticky and nonplastic;

43 percent gravel; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; moderately alkaline.

Gravel and cobbles cover 0 to 35 percent of the surface. The particle-size control section ranges from 2 to 10 percent clay and 35 to 60 percent rock fragments.

The A horizon has value of 5 or 6 dry (3 or 4 moist) and chroma of 2 or 3. The content of rock fragments ranges from 15 to 35 percent. The content of gravel ranges from 15 to 35 percent, and the content of cobbles ranges from 0 to 5 percent.

The Bk horizon has value of 7 or 8 dry and chroma of 2 or 3. Texture is very gravelly loamy sand, very gravelly sand, extremely cobbly sand, or very cobbly loamy sand. The content of rock fragments ranges from 35 to 70 percent. The content of gravel ranges from 25 to 50 percent, and the content of cobbles ranges from 0 to 45 percent. The calcium carbonate equivalent ranges from 10 to 15 percent in the upper part of the Bk horizon and 5 to 10 percent in the lower part.

Cathedral Series

The Cathedral series consists of shallow, well drained, moderately permeable to rapidly permeable soils on foothills and mountaintops. They formed in residuum and colluvium derived from granite. Elevation is 5,400 to 7,500 feet. The mean annual precipitation is 15 to 18 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 6 to 40 percent.

These soils are loamy-skeletal, mixed, superactive Lithic Haploborolls.

Typical pedon of Cathedral gravelly sandy loam, 15 percent slopes, in an area of Cathedral-Spinekop-Rock outcrop complex, 0 to 40 percent slopes, 1,780 feet east, 10 feet south of the northwest corner of sec. 29, T. 21 N., R. 70 W.

A—0 to 3 inches; brown (10YR 4/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; loose, friable, nonsticky and nonplastic; 25 percent angular granitic gravel and cobbles; moderately acid; clear smooth boundary.

Bw—3 to 9 inches; brown (10YR 4/3) very gravelly coarse sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; 40 percent angular granitic gravel and cobbles; moderately acid; clear wavy boundary.

C—9 to 14 inches; brown (10YR 5/3) very gravelly coarse sandy loam, dark brown (10YR 4/3) moist; massive; loose, friable, nonsticky and nonplastic; 60 percent angular granitic gravel and cobbles; moderately acid; abrupt wavy boundary.

R—14 inches; hard granite.

Granitic gravel, cobbles, stones, and boulders cover 35 to 70 percent of the surface. The depth to bedrock ranges from 10 to 20 inches. The particle-size control section ranges from 5 to 18 percent clay and 35 to 70 percent rock fragments. Reaction is moderately acid to slightly alkaline throughout.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Texture is gravelly sandy loam, very gravelly sandy loam, very gravelly coarse sandy loam, gravelly loam, or very stony coarse sandy loam. The content of rock fragments ranges from 25 to 60 percent. The content of gravel ranges from 20 to 40 percent. The content of cobbles ranges from 0 to 15 percent. The content of stones ranges from 0 to 35 percent.

The Bw horizon has value of 4 or 5 dry and chroma of 2 or 3. The content of rock fragments ranges from 40 to 70 percent. The content of gravel ranges from 40 to 70 percent, and the content of cobbles ranges from 0 to 25 percent. Some pedons may have a Bw horizon.

The C horizon, if it occurs, has value of 4 or 5 dry (3 or 4 moist) and chroma of 2 or 3. Texture is very gravelly coarse sandy loam, extremely gravelly sandy loam, very gravelly sandy loam, or extremely cobbly sandy loam. The content of rock fragments ranges from 40 to 70 percent. The content of gravel ranges from 40 to 70 percent, and the content of cobbles ranges from 0 to 25 percent.

Cedak Series

The Cedak series consists of moderately deep, well drained, moderately permeable soils on hills. They formed in residuum and alluvium derived from calcareous sandstone. Elevation is 4,500 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 10 percent.

These soils are fine-loamy, mixed, superactive, mesic Aridic Argiustolls.

Typical pedon of Cedak very fine sandy loam, on a slope of 1 percent, in an area of Cedak-Recluse very fine sandy loams, 0 to 6 percent slopes, 2,100 feet west, 1,400 feet south of the northeast corner of sec. 9, T. 20 N., R. 65 W.

Ap1—0 to 3 inches; brown (10YR 5/3) very fine sandy loam, very dark grayish brown (10YR 3/2) moist;

moderate very fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine roots; many very fine continuous interstitial pores; moderately alkaline; abrupt smooth boundary.

Ap2—3 to 9 inches; brown (10YR 4/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine and few fine roots; many very fine and few fine continuous interstitial pores; moderately alkaline; abrupt smooth boundary.

Bt1—9 to 15 inches; yellowish brown (10YR 5/4) loam, dark brown (10YR 3/3) moist; moderate medium and coarse prismatic structure parting to moderate fine and medium subangular blocky; very hard, friable, slightly sticky and plastic; common very fine and fine roots; common very fine and few fine continuous interstitial pores; common distinct clay films on faces of peds; moderately alkaline; clear smooth boundary.

Bt2—15 to 19 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse prismatic structure parting to moderate fine and medium subangular blocky; very hard, friable, slightly sticky and plastic; common very fine and few fine roots; common very fine and few fine continuous interstitial pores; common distinct clay films on faces of peds; moderately alkaline; clear smooth boundary.

Bk1—19 to 30 inches; pale brown (10YR 6/3) loam, yellowish brown (10YR 5/4) moist; weak fine and medium subangular blocky structure; very hard, friable, slightly sticky and plastic; common very fine and few fine roots; common very fine and few fine continuous interstitial pores; violently effervescent; disseminated calcium carbonate; 16 percent calcium carbonate equivalent; strongly alkaline; gradual wavy boundary.

Bk2—30 to 37 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; many very fine continuous interstitial pores; violently effervescent; disseminated calcium carbonate; 7 percent calcium carbonate equivalent; moderately alkaline; gradual wavy boundary.

Cr—37 to 47 inches; weakly consolidated, calcareous sandstone.

The depth to bedrock ranges from 20 to 40 inches. The mollic epipedon is 7 to 15 inches thick. The particle-size control section ranges from 18 to 30 percent clay and is 15 to 35 percent fine or coarser sand.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Texture is fine sandy loam, very fine sandy loam, or loam. Reaction is neutral to moderately alkaline.

The Bt horizon has value of 4 to 6 dry (3 or 4 moist) and chroma of 2 to 4. Texture is clay loam or loam. Reaction is neutral to moderately alkaline.

The Bk horizon has value of 6 or 7 dry (4 or 5 moist) and chroma of 3 or 4. Texture is very fine sandy loam, fine sandy loam, or loam. The calcium carbonate equivalent ranges from 5 to 20 percent. The content of rock fragments ranges from 0 to 15 percent gravel. Reaction is moderately alkaline or strongly alkaline.

Chaperton Series

The Chaperton series consists of moderately deep, well drained, moderately permeable soils on hills. They formed in residuum and alluvium derived from shale. Elevation is 5,600 to 7,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The average frost-free season is 85 to 110 days. Slope is 8 to 20 percent.

These soils are fine-loamy, mixed, superactive, frigid Ustic Haplocambids.

Typical pedon of Chaperton loam, 20 percent slopes, in an area of Chaperton, moderately saline-Blazon complex, 8 to 20 percent slopes, 800 west, 50 feet south of the northeast corner of sec. 26, T. 21 N., R. 75 W.

A—0 to 4 inches; yellowish brown (10YR 5/4) loam, dark brown (10YR 4/3) moist; weak fine and medium granular structure; soft, friable, sticky and plastic; many fine and few medium roots; 20 percent gravel and 5 percent cobbles on the surface: slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bw—4 to 16 inches; yellowish brown (10YR 5/4) loam, dark brown (10YR 4/3) moist; weak medium prismatic structure parting to weak fine and medium subangular blocky; slightly hard, friable, sticky and plastic; common fine and few medium roots; few moderately thick clay films on faces of peds; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bk—16 to 20 inches; yellowish brown (10YR 5/4) loam, yellowish brown (10YR 5/4) moist; weak medium and coarse prismatic structure parting to weak fine and medium subangular blocky; hard,

friable, sticky and plastic; common fine and few medium roots to a depth of 18 inches, few fine and medium roots below; strongly effervescent; disseminated calcium carbonate; 10 percent calcium carbonate equivalent; moderately alkaline; gradual wavy boundary.

C—20 to 35 inches; yellowish brown (10YR 5/4) loam, light olive brown (2.5Y 5/4) moist; massive; hard, friable, sticky and plastic; few fine and medium roots to a depth of 30 inches; strongly effervescent; disseminated calcium carbonate; 8 percent calcium carbonate equivalent; strongly alkaline; gradual wavy boundary.

Cr—35 to 45 inches; soft shale.

Gravel covers 0 to 20 percent of the surface, and cobbles cover 0 to 5 percent of the surface. The depth to bedrock ranges from 20 to 40 inches. The particle-size control section ranges from 18 to 30 percent clay, with 15 to 35 percent fine or coarser sand and less than 10 percent rock fragments.

The A horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 3 or 4. Texture is clay loam or loam.

The Bw horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 2 to 4. Texture is loam or clay loam.

The Bk and C horizons have hue of 2.5Y or 10YR. Texture is loam or clay loam. The calcium carbonate equivalent ranges from 4 to 14 percent.

Chugcity Series

The Chugcity series consists of moderately deep, well drained, moderately rapidly permeable soils on hills and terraces. They formed in residuum and eolian material derived from sandstone and siltstone. Elevation is 4,300 to 5,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are coarse-loamy, mixed, superactive, mesic Ustic Haplocalcids.

Typical pedon of Chugcity fine sandy loam, 2 percent slopes, in an area of Snilloc-Chugcity complex, 0 to 6 percent slopes, 200 feet south, 100 feet west of the northeast corner of sec. 21, T. 24 N., R. 66 W.

Ap—0 to 7 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure parting to weak very fine subangular blocky; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine and few fine continuous random irregularly shaped pores; 5 percent calcium carbonate equivalent; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

Bk1—7 to 21 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; weak medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, firm, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine continuous random irregularly shaped pores; 13 percent calcium carbonate equivalent; violently effervescent; disseminated calcium carbonate and a few fine irregularly shaped soft masses and threads of calcium carbonate; moderately alkaline; gradual wavy boundary.

Bk2—21 to 28 inches; light yellowish brown (10YR 6/4) loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine continuous random irregularly shaped pores; 12 percent calcium carbonate equivalent; violently effervescent; few fine irregularly shaped soft masses of calcium carbonate; moderately alkaline; clear wavy boundary.

Bk3—28 to 35 inches; light yellowish brown (10YR 6/4) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; 8 percent calcium carbonate equivalent; violently effervescent; common fine irregularly shaped soft masses of calcium carbonate; moderately alkaline; abrupt smooth boundary.

Cr—35 to 45 inches; weakly consolidated siltstone.

The depth to bedrock ranges from 20 to 40 inches. The particle-size control section ranges from 10 to 18 percent clay, with 15 to 35 percent fine or coarser sand and 0 to 15 percent rock fragments. The depth to the calcic horizon is typically less than 20 inches but ranges to 30 inches.

The A horizon has hue of 7.5YR or 10YR, value of 5 or 6 dry (3 or 4 moist), and chroma of 2 or 3. Texture is fine sandy loam, very fine sandy loam, or loam. The content of gravel ranges from 0 to 15 percent.

Some pedons have a Bw horizon. The range in characteristics of this horizon is similar to that of the A horizon.

The Bk horizon has value of 6 to 8 dry (4 to 6 moist) and chroma of 2 to 4. Texture is loam, silt loam, fine sandy loam, or very fine sandy loam. The calcium carbonate equivalent ranges from 8 to 30 percent. The content of gravel ranges from 0 to 15 percent. Reaction is moderately alkaline or strongly alkaline.

Chugcreek Series

The Chugcreek series consists of moderately deep, well drained, moderately permeable soils on foothills. They formed in colluvium and alluvium derived from granite and gneiss. Elevation is 6,000 to 7,000 feet. The mean annual precipitation is 15 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 5 to 40 percent.

These soils are fine-loamy, mixed, superactive Pachic Argiborolls.

Typical pedon of Chugcreek sandy loam, 8 percent slopes, in an area of Bonjea-Chugcreek-Rock outcrop complex, 3 to 15 percent slopes, 2,100 feet north, 200 feet east of the southwest corner of sec. 11, T. 18 N., R. 71 W.

A—0 to 4 inches; brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; 10 percent gravel; neutral; abrupt wavy boundary.

Bt1—4 to 19 inches; brown (10YR 4/3) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to strong coarse subangular blocky; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; few faint clay films on faces of peds; 5 percent gravel; neutral; gradual wavy boundary.

Bt2—19 to 29 inches; dark yellowish brown (10YR 4/4) sandy clay loam, dark brown (10YR 3/3) moist; strong coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few medium roots; few distinct clay films on faces of peds; 10 percent gravel; slightly alkaline; gradual wavy boundary.

BC—29 to 38 inches; yellowish brown (10YR 5/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; 20 percent gravel; slightly alkaline; abrupt broken boundary.

R—38 inches; hard granite.

The depth to bedrock ranges from 20 to 40 inches. The thickness of the mollic epipedon ranges from 16 to 34 inches. The depth to the base of the argillic horizon is 19 to 34 inches.

The A horizon is 0 to 10 percent gravel.

The Bt horizon has value of 3 to 5 dry (3 or 4 moist) and chroma of 2 to 6. Texture is sandy clay loam, clay loam, or sandy loam. This horizon ranges from 18 to 35 percent clay and 35 to 55 percent fine or coarser sand. The content of rock fragments ranges from 0 to 10 percent gravel.

The BC or C horizon, if it occurs, has value of 4 to 6 dry (3 to 5 moist) and chroma of 3 or 4. Texture is sandy clay loam, gravelly sandy clay loam, clay loam, or gravelly clay loam. The content of rock fragments ranges from 0 to 20 percent gravel.

Claprych Series

The Claprych series consists of very deep, well drained, moderately permeable or moderately rapidly permeable soils on benches, terraces, and hills. They formed in alluvium and colluvium derived from various sources. Elevation is 4,500 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The average frost-free season is 110 to 130 days. Slope is 0 to 20 percent.

These soils are loamy-skeletal, mixed, superactive, mesic Ustic Haplocalcids.

Typical pedon of Claprych sandy clay loam, on a slope of 1 percent, in an area of Claprych-Selpats sandy clay loams, 0 to 3 percent slopes, 1,000 feet west, 2,400 feet north of the southeast corner of sec. 9, T. 24 N., R. 68 W.

Ap1—0 to 4 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine and medium granular; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

Ap2—4 to 8 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; weak coarse subangular blocky structure parting to weak very fine and fine subangular blocky; slightly hard, very friable, slightly sticky and nonplastic; common very fine and few fine roots; strongly effervescent; disseminated calcium carbonate; 5 percent gravel; moderately alkaline; abrupt smooth boundary.

Bk1—8 to 17 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure parting to weak very fine and fine subangular blocky; hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine discontinuous random irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; 5 percent calcium carbonate

equivalent; 10 percent gravel; moderately alkaline; clear wavy boundary.

Bk2—17 to 30 inches; very pale brown (10YR 8/3) very gravelly fine sandy loam, very pale brown (10YR 7/3) moist; massive; hard, very friable, slightly sticky and slightly plastic; few very fine roots; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 22 percent calcium carbonate equivalent; 40 percent gravel and 10 percent cobbles; moderately alkaline; gradual wavy boundary.

Bk3—30 to 60 inches; white (10YR 8/2) extremely gravelly sandy loam, pale brown (10YR 6/3) moist; massive; hard, loose, nonsticky and nonplastic; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 10 percent calcium carbonate equivalent; 45 percent gravel and 20 percent cobbles; moderately alkaline.

Gravel and cobbles cover 0 to 50 percent of the surface. The particle-size control section ranges 13 to 16 percent clay, with more than 15 percent fine or coarser sand and 35 to 55 percent rock fragments.

The A horizon has value of 4 or 5 dry (3 or 4 moist) and chroma of 2 to 4. Texture is sandy clay loam, gravelly fine sandy loam, very gravelly fine sandy loam, or very gravelly sandy loam.

The upper part of the Bk horizon has value of 5 or 6 dry (4 to 6 moist). Texture is sandy clay loam or gravelly fine sandy loam. The calcium carbonate equivalent ranges from 1 to 10 percent. The content of rock fragments ranges from 0 to 25 percent. The content of gravel ranges from 0 to 25 percent, and the content of cobbles ranges from 0 to 10 percent. Reaction is slightly alkaline or moderately alkaline.

The lower part of the Bk horizon has value of 6 to 8 dry (5 to 7 moist) and chroma of 2 to 4. Texture is very gravelly fine sandy loam, extremely gravelly sandy loam, very gravelly sandy loam, very cobbly sandy loam, or very cobbly loamy sand. The calcium carbonate equivalent ranges from 10 to 25 percent. The content of rock fragments ranges from 40 to 65 percent. The content of gravel ranges from 40 to 45 percent, and the content of cobbles ranges from 0 to 25 percent.

Clarkelen Series

The Clarkelen series consists of very deep, well drained, moderately rapidly permeable soils on terraces and flood plains. They formed in alluvium derived from various sources. Elevation is 4,500 to 5,600 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents.

Typical pedon of Clarkelen very fine sandy loam (fig. 13), 2 percent slopes, in an area of Clarkelen-Quarterback very fine sandy loams, 0 to 3 percent slopes, 1,900 feet east, 2,250 feet north of the southwest corner of sec. 19, T. 29 N., R. 68 W.

A—0 to 2 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; weak medium platy structure parting to weak fine granular; hard, very friable, nonsticky and slightly plastic; many very fine and few fine and medium roots; common very fine continuous random irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

CA—2 to 8 inches; pale brown (10YR 6/3) loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure parting to weak fine granular; slightly hard, friable, nonsticky and slightly plastic; many very fine and few fine and medium roots; common very fine continuous vertical irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

C1—8 to 23 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; many thin horizontal bedding planes; slightly hard, very friable, nonsticky and slightly plastic; many very fine and few fine and medium roots; common very fine continuous random irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

C2—23 to 42 inches; very pale brown (10YR 7/3) gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and few fine continuous random irregularly shaped pores; 15 percent gravel and 5 percent cobbles; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear wavy boundary.

C3—42 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine continuous random irregularly shaped pores; violently effervescent; disseminated calcium carbonate; moderately alkaline.

Figure 13.—Profile of Clarkelen very fine sandy loam.

The particle-size control section ranges from 8 to 17 percent clay, with more than 35 percent fine or coarser sand and 0 to 20 percent rock fragments.

The A horizon has value of 5 or 6 dry and chroma of 3 or 4. Texture is very fine sandy loam, loam, or fine sandy loam.

The C horizon has hue of 7.5YR or 10YR, value of 6 or 7 dry (4 or 5 moist), and chroma of 3 or 4. Texture is loam, sandy loam, gravelly sandy loam, very fine sandy loam, or fine sandy loam, but this horizon is stratified and highly variable. The content of rock fragments ranges from 0 to 20 percent. The content of gravel ranges from 0 to 20 percent, and the content of cobbles ranges from 0 to 5 percent. Reaction is slightly alkaline or moderately alkaline. Thin layers of very gravelly textures and coarse sand are below a depth of 40 inches.

The Clarkelen soil in map unit 134 has a water table resulting from irrigation between the depths of 2.5 to 6.0 feet from April through October. Because the representative value for the depth to the water table is 4.5 feet, however, no change in taxonomic classification is warranted. This difference does not significantly affect the use and management of the soil.

Coaliams Series

The Coaliams series consists of very deep, moderately well drained, moderately permeable soils on flood plains and terraces. They formed in alluvium derived from various sources. Elevation is 4,300 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are fine-loamy, mixed, superactive, mesic Torrifluventic Haplustolls.

Typical pedon of Coaliams fine sandy loam, on a slope of 1 percent, in an area of Coaliams-Haverdad complex, 0 to 3 percent slopes, 1,700 feet west, 1,300 feet north of the southeast corner of sec. 5, T. 21 N., R. 66 W.

A—0 to 8 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots throughout; common very fine and fine and few medium interstitial and tubular pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

Bw1—8 to 17 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and very fine and few medium roots throughout; few very fine and fine interstitial and tubular pores; strongly effervescent; disseminated

calcium carbonate; moderately alkaline; abrupt smooth boundary.

Bw2—17 to 23 inches; light brownish gray (10YR 6/2) and dark gray (10YR 4/1) loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots throughout; few very fine and fine interstitial and tubular pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

Bk—23 to 60 inches; grayish brown (10YR 5/2) loam stratified with silt loam and loamy fine sand, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots throughout; few very fine interstitial and tubular pores; strongly effervescent; disseminated calcium carbonate and few very fine seams and soft masses of calcium carbonate; 4 percent calcium carbonate equivalent; moderately alkaline.

The thickness of the mollic epipedon ranges from 7 to 17 inches. The depth to the seasonal high water table ranges from 3.5 to 6.0 feet from May to October. The particle-size control section ranges 18 to 35 percent clay and 0 to 15 percent rock fragments above a depth of 40 inches.

The A horizon has value 3 to 5 dry (2 or 3 moist) and chroma of 2 or 3. Reaction is slightly alkaline or moderately alkaline.

The Bw and Bk horizons have value of 4 to 7 dry (3 to 6 moist) and chroma of 1 to 3. Texture is commonly loam, but the horizon is stratified with sandy loam, fine sandy loam, loamy fine sand, silt loam, and clay loam. The calcium carbonate equivalent ranges from 4 to 15 percent. Reaction ranges from slightly alkaline to strongly alkaline.

Coocreek Series

The Coocreek series consists of very deep, well drained, moderately permeable soils on hills. They formed in alluvium derived from reddish sedimentary rock. Elevation is 6,000 to 6,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 0 to 5 percent.

These soils are fine-loamy, mixed, superactive, frigid Aridic Ustochrepts.

Typical pedon of Coocreek loam, 6 percent slopes, in an area of Byrnie-Coocreek-Byrnie, thin solum complex, 0 to 15 percent slopes, 2,000 feet west, 100 feet north of the southeast corner of sec. 25, T. 20 N., R. 69 W.

A—0 to 5 inches; reddish brown (5YR 4/4) loam, dark reddish brown (5YR 3/4) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine and common medium roots; few very fine and fine continuous random irregular pores; 2 percent gravel; strongly effervescent; disseminated calcium carbonate; 5 percent calcium carbonate equivalent; slightly alkaline; clear smooth boundary.

Bw—5 to 12 inches; yellowish red (5YR 5/6) loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common very fine and fine continuous random irregular pores; 8 percent gravel; strongly effervescent; disseminated calcium carbonate; 8 percent calcium carbonate equivalent; slightly alkaline; gradual wavy boundary.

Bk—12 to 60 inches; yellowish red (5YR 5/6) loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine continuous random irregular pores; 7 percent gravel; violently effervescent; disseminated calcium carbonate; 8 percent calcium carbonate equivalent; moderately alkaline.

The particle-size control section ranges from 18 to 25 percent clay, with 35 to 45 percent fine or coarser sand. Reaction is slightly alkaline or moderately alkaline throughout.

The A horizon has value of 3 or 4 moist. The content of rock fragments ranges from 0 to 5 percent gravel.

The Bw horizon has value of 3 or 4 moist and chroma of 4 to 6. The calcium carbonate equivalent ranges from 5 to 10 percent. The content of rock fragments ranges from 0 to 10 percent gravel.

The Bk horizon has value of 4 or 5 moist and chroma of 4 to 6. The calcium carbonate equivalent ranges from 5 to 15 percent. The content of rock fragments ranges from 0 to 10 percent gravel.

Cowestglen Series

The Cowestglen series consists of very deep, well drained, moderately rapidly permeable soils on flood plains. These soils formed in stratified loamy alluvium derived from various sources. Elevation ranges from

6,500 to 7,500 feet. The mean annual precipitation is 15 to 17 inches, the mean annual air temperature is 39 to 45 degrees F, and the average frost-free period is 90 to 100 days. Slope is 0 to 3 percent.

These soils are coarse-loamy, mixed, superactive, calcareous, frigid Ustic Torrifluvents.

Typical pedon of Cowestglen fine sandy loam, 0 to 3 percent slopes, in Laramie County, Western Part, 600 feet east, 100 feet south of the northwest corner of sec. 4, T. 19 N., R. 68 W.

A—0 to 7 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; moderate fine platy structure; soft, friable, nonsticky and nonplastic; many fine and very fine roots; slightly effervescent; disseminated calcium carbonate; slightly alkaline; abrupt wavy boundary.

C1—7 to 54 inches; brown (10YR 5/3) coarse sandy loam stratified with thin lenses of silty clay loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

C2—54 to 60 inches; dark grayish brown (10YR 4/2) sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; strongly effervescent; disseminated calcium carbonate; moderately alkaline.

The control section is 0 to 15 percent gravel and 12 to 18 percent clay. Reaction is slightly alkaline or moderately alkaline throughout.

The C horizon is commonly sandy loam or coarse sandy loam, but in some pedons this horizon has a few thin strata of loam, sandy clay loam, or silty clay loam.

The Cowestglen soils in Platte County have a soil moisture control section that is affected by a significant precipitation peak from April through July.

Cragola Series

The Cragola series consists of shallow, well drained, moderately rapidly permeable soils on hills. They formed in alluvium derived from calcareous sandstone. Elevation is 4,900 to 5,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 10 to 30 percent.

These soils are loamy-skeletal, mixed, active, calcareous, mesic, shallow Ustic Torriorthents.

Typical pedon of Cragola very gravelly sandy loam, 10 percent slopes, in an area of Aberone-Cragola complex, 10 to 30 percent slopes, 500 feet west, 2,100 feet south of the northeast corner of sec. 1, T. 22 N., R. 70 W.

A—0 to 3 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; loose, very friable, nonsticky and nonplastic; strongly effervescent; disseminated calcium carbonate; 40 percent gravel, 5 percent cobbles; moderately alkaline; clear smooth boundary.

C1—3 to 5 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; single grained; loose, nonsticky and nonplastic; strongly effervescent; disseminated calcium carbonate; 50 percent gravel; moderately alkaline; clear smooth boundary.

C2—5 to 18 inches; very pale brown (10YR 7/3) very gravelly sandy loam, pale brown (10YR 6/3) moist; single grained; loose, nonsticky and nonplastic; violently effervescent; disseminated calcium carbonate and pendants and coatings of calcium carbonate on rock fragments; 50 percent gravel; moderately alkaline; clear wavy boundary.

Cr—18 to 28 inches; weakly consolidated, calcareous sandstone.

The depth to bedrock ranges from 10 to 20 inches. The particle-size control section ranges from 10 to 18 percent clay, with 25 to 35 percent fine or coarser sand and 40 to 60 percent rock fragments.

The A horizon has value of 5 or 6 dry (3 or 4 moist). The content of rock fragments ranges from 40 to 60 percent. The content of gravel ranges from 35 to 50 percent, and the content of cobbles ranges from 0 to 10 percent.

The C horizon has value of 6 or 7 dry (4 to 6 moist) and chroma of 3 or 4. The content of rock fragments ranges from 40 to 60 percent. The content of gravel ranges from 35 to 50 percent, and the content of cobbles ranges from 0 to 10 percent. The calcium carbonate equivalent ranges from 1 to 6 percent.

Creighton Series

The Creighton series consists of very deep, well drained, moderately rapidly permeable soils on hills and alluvial fans. They formed in alluvium derived from various sources. Elevation is 4,700 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are coarse-loamy, mixed, superactive, mesic Aridic Haplustolls.

Typical pedon of Creighton very fine sandy loam, 2 percent slopes, in an area of Creighton very fine sandy loam, 0 to 6 percent slopes, 2,550 feet west, 1,050 feet north of the southeast corner of sec. 4, T. 30 N., R. 67 W.

Ap—0 to 10 inches; grayish brown (10YR 5/2) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, firm, slightly sticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine and few medium discontinuous vertical pores; slightly alkaline; clear smooth boundary.

Bw—10 to 20 inches; grayish brown (10YR 5/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate coarse prismatic structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine and few medium discontinuous vertical pores; moderately alkaline; gradual wavy boundary.

Bk1—20 to 32 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; moderate coarse prismatic structure; soft, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine and few medium discontinuous vertical pores; strongly effervescent; 5 percent calcium carbonate equivalent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

Bk2—32 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; strongly effervescent; 6 percent calcium carbonate equivalent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section has 5 to 15 percent clay, with 15 to 20 percent fine or coarser sand.

Reaction in the Bw horizon is slightly alkaline or moderately alkaline.

The Bk horizon has value of 6 or 7 dry (4 or 5 moist) and chroma of 3 or 4. The calcium carbonate equivalent ranges from 5 to 10 percent.

Curabith Series

The Curabith series consists of very deep, well drained, moderately rapidly permeable soils on hills. They formed in alluvium derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 15 percent.

These soils are loamy-skeletal, mixed, superactive, mesic Aridic Calciustolls.

Typical pedon of Curabith fine sandy loam, on a slope of 1 percent, in an area of Featherlegs-Curabith fine sandy loams, 0 to 3 percent slopes, 400 feet east, 700 feet north of the southwest corner of sec. 32, T. 24 N., R. 68 W.

Ap—0 to 12 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; many very fine continuous irregularly shaped pores throughout; strongly effervescent; disseminated calcium carbonate; slightly alkaline; abrupt smooth boundary.

Bk1—12 to 30 inches; white (10YR 8/2) very cobbly sandy loam, very pale brown (10YR 7/3) moist; massive; hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine and few fine continuous irregularly shaped pores throughout; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 32 percent calcium carbonate equivalent; 25 percent gravel and 15 percent cobbles; moderately alkaline; clear wavy boundary.

Bk2—30 to 60 inches; light yellowish brown (10YR 6/4) very cobbly loamy sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, loose, nonsticky and nonplastic; common very fine and fine roots; common fine and few medium continuous and constricted irregularly shaped pores throughout; violently effervescent but some small noneffervescent areas; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 5 percent calcium carbonate equivalent; 25 percent gravel and 25 percent cobbles; moderately alkaline.

Gravel and cobbles cover 0 to 40 percent of the surface. The particle-size control section ranges from 9 to 18 percent clay.

The A horizon has chroma of 2 or 3. Texture is fine sandy loam, loam, or very cobbly sandy loam. The content of rock fragments ranges from 0 to 40 percent. The content of gravel ranges from 0 to 15 percent, and the content of cobbles ranges from 0 to 25 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 8 dry (4 to 7 moist)

and chroma of 2 to 6. Texture is commonly very cobbly sandy loam or very gravelly sandy loam, but in some pedons below a depth of 30 inches it is very cobbly loamy sand, cobbly sandy loam, or very gravelly loamy sand. The calcium carbonate equivalent ranges from 5 to 35 percent. The content of rock fragments ranges from 35 to 60 percent. The content of gravel ranges from 10 to 50 percent, and the content of cobbles ranges from 10 to 25 percent. Reaction is moderately alkaline or strongly alkaline.

Cushool Series

The Cushool series consists of moderately deep, well drained. moderately permeable soils on pediments. They formed in alluvium and residuum derived from sedimentary rocks. Elevation is 6,200 to 7,200 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 2 to 10 percent.

These soils are fine-loamy, mixed, superactive, frigid Ustic Haplargids.

Typical pedon of Cushool sandy loam, 3 percent slopes, in an area of Cushool-Cutback complex, 2 to 10 percent slopes, 200 feet north, 1,400 feet west of the southeast corner of sec. 12, T. 24 N., R. 75 W.

A—0 to 3 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; loose, very friable, nonsticky and nonplastic; few fine and medium roots; few fine and medium continuous irregular pores; neutral; abrupt smooth boundary.

Bt—3 to 16 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; moderate fine prismatic structure parting to moderate fine subangular blocky; very hard, firm, sticky and plastic; many distinct clay films on faces of peds and bridging sand grains; 10 percent gravel; slightly alkaline; gradual smooth boundary.

Bk—16 to 32 inches; very pale brown (10YR 7/3) gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; strongly effervescent; calcium carbonate along vertical cracks; 10 percent gravel; moderately alkaline; gradual smooth boundary.

Cr—32 to 42 inches; soft, calcareous sandstone.

The depth to secondary calcium carbonates ranges from 11 to 16 inches. The depth to bedrock ranges from 20 to 40 inches.

The A horizon has value of 5 or 6 dry. The content of gravel ranges from 0 to 10 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has chroma of 3 or 4. It has 22 to 30 percent clay, with 35 to 55 percent fine or coarser sand and 0 to 10 percent gravel. Reaction is neutral to moderately alkaline.

The Bk horizon has value of 4 to 6 moist and chroma of 3 or 4. Reaction is moderately alkaline or strongly alkaline. The content of gravel ranges from 15 to 30 percent. The calcium carbonate equivalent is 5 to 10 percent.

Cutback Series

The Cutback series consists of moderately deep, well drained, moderately permeable soils on pediments. They formed in alluvium derived from soft sandstone. Elevation is 6,200 to 7,200 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 2 to 10 percent.

These soils are fine-loamy, mixed, superactive, frigid Ustic Calciargids.

Typical pedon of Cutback fine sandy loam, 2 percent slopes, in an area of Cushool-Cutback complex, 2 to 10 percent slopes, 100 feet north, 1,200 feet west of the southeast corner of sec. 12, T. 24 N., R. 75 W.

A—0 to 1 inch; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine vesicular pores; 10 percent gravel; moderately alkaline; abrupt wavy boundary.

Bt—1 to 7 inches; yellowish brown (10YR 5/4) sandy clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; few faint clay films on faces of peds; 5 percent gravel; slightly alkaline; clear wavy boundary.

Btk—7 to 17 inches; very pale brown (10YR 7/3) clay loam, pale brown (10YR 6/3) moist; weak medium prismatic structure parting to weak medium subangular blocky; hard, friable, sticky and plastic; few faint clay films on faces of peds; 10 percent gravel; violently effervescent; common medium seams and soft masses of calcium carbonate; strongly alkaline; clear wavy boundary.

2Bk1—17 to 25 inches; yellowish brown (10YR 5/4) extremely gravelly sandy clay loam, dark yellowish

brown (10YR 4/4) moist; massive; hard, friable, sticky and plastic; 80 percent gravel; violently effervescent; common medium soft masses and seams of calcium carbonate; strongly alkaline; clear wavy boundary.

2Bk2—25 to 31 inches; light olive brown (2.5Y 5/4) very gravelly sandy loam, olive brown (2.5Y 4/4) moist; massive; hard, friable, slightly sticky and slightly plastic; 50 percent gravel; strongly effervescent; few fine and medium soft masses and seams of calcium carbonate; strongly alkaline; abrupt wavy boundary.

3Cr—31 inches; soft, calcareous sandstone.

The depth to the base of the argillic horizon and to the 2Bk horizon ranges from 10 to 17 inches. The depth to bedrock ranges from 20 to 40 inches.

Reaction in the Bt horizon is slightly alkaline or moderately alkaline. This horizon has texture of loam, sandy clay loam, or clay loam.

The 2Bk horizon has a fine earth texture of sandy clay loam, sandy loam, or loamy sand. It is 45 to 70 percent rock fragments. Reaction in this horizon is moderately alkaline or strongly alkaline. The calcium carbonate equivalent is 15 to 30 percent.

Dalecreek Series

The Dalecreek series consists of very deep, moderately well drained, moderately permeable soils on flood plains and terraces. They formed in alluvium derived from granite. Elevation is 6,000 to 7,200 feet. The mean annual precipitation is 15 to 19 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 0 to 9 percent.

These soils are fine-loamy, mixed, superactive Aquic Cumulic Haploborolls.

Typical pedon of Dalecreek sandy loam, 2 percent slopes, in an area of Dalecreek-Kovich complex, 0 to 9 percent slopes, 2,000 feet north, 2,000 feet west of the southeast corner of sec. 20, T. 20 N., R. 69 W.

A—0 to 8 inches; dark brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; common very fine and few fine roots; neutral; clear smooth boundary.

Bw1—8 to 19 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and few fine roots; neutral; clear smooth boundary.

Bw2—19 to 28 inches; very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; 13 percent gravel; slightly effervescent; disseminated calcium carbonate; slightly alkaline; gradual wavy boundary.

Cg—28 to 60 inches; brown (10YR 4/3) sandy clay loam stratified with thin lenses of loamy coarse sand, dark brown (10YR 3/3) moist; few fine faint reddish brown (2.5YR 4/4) and few fine faint dark grayish brown (2.5YR 4/2) redoximorphic concentrations; massive; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; 13 percent gravel; violently effervescent; 8 percent calcium carbonate equivalent; disseminated calcium carbonate; slightly alkaline.

The particle-size control section ranges from 18 to 22 percent clay. The content of gravel ranges from 0 to 15 percent throughout the profile. The mollic epipedon is 24 or more inches thick. Reaction is neutral to moderately alkaline throughout the soil. The depth to the seasonal high water table is 2.5 to 4.0 feet from April to July.

The A horizon has chroma of 2 or 3.

The Bw horizon has value of 3 or 4 dry (2 or 3 moist) and chroma of 2 or 3. Texture is loam or sandy clay loam.

The texture of the Cg horizon is highly variable. It is dominantly loam, but the range includes stratified sandy clay loam to loamy coarse sand.

Deight Series

The Deight series consists of very deep, well drained, moderately rapidly permeable soils on hills and terraces. They formed in alluvium derived from sandstone. Elevation is 4,300 to 5,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are coarse-silty, mixed, superactive, mesic Aridic Argiustolls.

Typical pedon of Deight very fine sandy loam, 2 percent slopes, in an area of Deight-Thirtynine-Glendo very fine sandy loams, 0 to 6 percent slopes, 2,200 feet south, 1,800 feet west of the northeast corner of sec. 21, T. 25 N., R. 65 W.

Ap1—0 to 2 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable,

slightly sticky and slightly plastic; common very fine and few fine roots; neutral; abrupt smooth boundary.

Ap2—2 to 8 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; slightly alkaline; abrupt smooth boundary.

Bt—8 to 16 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium, coarse, and very coarse prismatic structure; hard, friable, slightly sticky and slightly plastic; common distinct clay films on faces of peds; common very fine and few fine roots; slightly alkaline; gradual smooth boundary.

Bk—16 to 30 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 5/3) moist; weak coarse prismatic structure parting to weak medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; violently effervescent; disseminated calcium carbonate and common medium irregularly shaped soft masses of calcium carbonate: 16 percent calcium carbonate equivalent; moderately alkaline; gradual smooth boundary.

C—30 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; violently effervescent; disseminated calcium carbonate; 9 percent calcium carbonate equivalent; moderately alkaline.

The particle-size control section ranges from 12 to 18 percent clay, with less than 15 percent fine or coarser sand. The thickness of the mollic epipedon ranges from 7 to 16 inches. The depth to the base of the argillic horizon ranges from 11 to 20 inches. The depth to continuous accumulations of calcium carbonate ranges from 7 to 20 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Texture is very fine sandy loam or silt loam.

The Bt horizon has value of 3 to 5 moist and chroma of 2 to 4.

The Bk horizon has value of 6 or 7 dry (5 or 6 moist) and chroma of 2 or 3. The calcium carbonate equivalent is 10 to 20 percent. Some pedons have a Btk horizon. This horizon has basic properties that are similar to those of the Bk horizon.

The C horizon, if present, has value of 6 or 7 dry (5 or 6 moist) and chroma of 2 to 4.

Diamondville Series

The Diamondville series consists of moderately deep, well drained, moderately permeable soils on hills. They formed in alluvium and residuum derived from calcareous shale and interbedded sandstone. Elevation is 5,800 to 7,200 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 6 to 15 percent.

These soils are fine-loamy, mixed, active, frigid Ustic Haplargids.

Typical pedon of Diamondville fine sandy loam, 6 percent slopes, in an area of Diamondville-Cushool complex, 3 to 15 percent slopes, 2,100 feet west, 2,500 feet north of the southeast corner of sec. 11, T. 16 N., R. 74 W.

A—0 to 3 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate medium and weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; slightly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

AB—3 to 6 inches; pale brown (10YR 6/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common fine and medium roots; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bt—6 to 18 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; weak coarse prismatic structure parting to strong medium subangular blocky; hard, firm, sticky and slightly plastic; common fine and medium roots; few fine faint clay films on faces of peds; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bk1—18 to 22 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; hard, friable, sticky and slightly plastic; few fine and medium roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

Bk2—22 to 35 inches; very pale brown (10YR 8/3) fine sandy loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, slightly sticky and nonplastic; violently effervescent; disseminated calcium carbonate; strongly alkaline; gradual wavy boundary.

Cr—35 to 45 inches; soft, interbedded sandstone and shale.

The particle-size control section ranges from 18 to 35 percent clay, with 15 to 35 percent fine or coarser sand. The depth to bedrock ranges from 20 to 40 inches.

The A horizon has value of 5 or 6 dry (3 or 4 moist). The content of gravel ranges from 0 to 5 percent. Reaction is slightly alkaline or moderately alkaline.

The Bt horizon has texture of clay loam or loam. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 7 or 8 dry (5 or 6 moist) and chroma of 3 or 4. Texture is fine sandy loam, very fine sandy loam, or loam. The calcium carbonate equivalent is 5 to 14 percent. The content of gravel ranges from 0 to 15 percent. Reaction is moderately alkaline or strongly alkaline.

Diamonkit Series

The Diamonkit series consists of moderately deep, well drained, moderately permeable soils on hills. They formed in residuum and alluvium derived from soft sandstone and shale. Elevation is 5,600 to 6,000 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 3 to 15 percent.

These soils are fine-loamy, mixed, superactive, frigid Ustic Argigypsids.

Typical pedon of Diamonkit sandy loam, 4 percent slopes, in an area of Diamonkit-Stylite sandy loams, 3 to 15 percent slopes, in Albany County, 1,250 feet south, 725 feet east of the northwest corner of sec. 12, T. 16 N., R. 74 W.

A—0 to 1 inch; light yellowish brown (10YR 6/4) sandy loam, brown (10YR 4/3) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many fine roots; slightly alkaline; abrupt smooth boundary.

Bt—1 to 3 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak thin platy structure parting to weak fine granular; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; few very fine pores; few faint clay films on faces of peds; moderately alkaline; clear smooth boundary.

Btk—3 to 11 inches; light yellowish brown (10YR 6/4) sandy clay loam, yellowish brown (10YR 5/4) moist; strong medium and coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; common fine pores; many distinct clay films on faces of peds; violently effervescent; disseminated calcium carbonate and common medium threads and soft masses of calcium carbonate; 10 percent calcium carbonate equivalent; moderately alkaline; gradual smooth boundary.

Bky1—11 to 19 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few fine roots; common very fine pores; few faint clay films on faces of peds; violently effervescent; disseminated calcium carbonate and common medium threads and soft masses of calcium carbonate; 7 percent calcium carbonate equivalent; common soft masses of gypsum; electrical conductivity of 0.4 millimho per centimeter; moderately alkaline; gradual wavy boundary.

2Bky2—19 to 33 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, firm, sticky and plastic; few fine roots; few very fine pores; strongly effervescent; disseminated calcium carbonate and few fine threads of calcium carbonate; 7 percent calcium carbonate equivalent; common medium threads and soft masses of gypsum; electrical conductivity of 4.6 millimhos per centimeter; moderately alkaline; gradual wavy boundary.

2Cr—33 inches; weakly consolidated, interbedded sandstone and shale.

The depth to horizons having an accumulation of gypsum and the depth to the base of the argillic horizon range from 11 to 22 inches. The depth to paralithic contact ranges from 20 to 40 inches.

Reaction in the A horizon is slightly alkaline or moderately alkaline.

The Bt horizon has texture of loam or sandy clay loam. Reaction is moderately alkaline or strongly alkaline.

The Bky horizon has texture of loam or clay loam. It has hue of 10YR or 2.5Y. Reaction is moderately alkaline or strongly alkaline. The content of gypsum is 5 to 15 percent.

Embry Series

The Embry series consists of very deep, well drained, moderately rapidly permeable soils on hills. They formed in noncalcareous loamy alluvium derived from sandstone. Elevation is 4,300 to 6,000 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F.

The frost-free season is 110 to 130 days. Slope is 2 to 10 percent.

These soils are coarse-loamy, mixed, superactive, nonacid, mesic Ustic Torriorthents.

Typical pedon of Embry loamy fine sand, 3 percent slopes, in an area of Embry loamy fine sand, 0 to 10 percent slopes, in Laramie County, Western Part, 200 feet south, 200 feet west of the northeast corner of sec. 1, T. 19 N., R. 66 W.

A—0 to 10 inches; yellowish brown (10YR 5/4) loamy fine sand, dark yellowish brown (10YR 4/4) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; slightly alkaline; clear smooth boundary.

C1—10 to 27 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, friable, nonsticky and nonplastic; slightly alkaline; clear smooth boundary.

C2—27 to 60 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, friable, nonsticky and nonplastic; slightly alkaline.

This soil is slightly calcareous in the subsoil below a depth of 40 inches. The content of gravel in the particle-size control section ranges from 0 to 15 percent. Reaction is slightly acid to slightly alkaline throughout. The content of clay in the particle-size control section is 5 to 18 percent.

The C horizon has value of 4 or 5 moist. Texture is sandy loam or fine sandy loam.

Evanston Series

The Evanston series consists of very deep, well drained, moderately permeable or moderately slowly permeable soils on hills, alluvial fans, and terraces. They formed in alluvium derived from various sources. Elevation is 5,500 to 7,500 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 0 to 35 percent.

These soils are fine-loamy, mixed, superactive Aridic Argiborolls.

Typical pedon of Evanston loam, 8 percent slopes, in an area of Evanston-Ipson complex, 0 to 20 percent slopes, 1,000 feet north, 1,000 feet west of the southeast corner of sec. 18, T. 20 N., R. 69 W.

A—0 to 7 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; medium very fine subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; neutral; clear smooth boundary.

Bt—7 to 18 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; hard, firm, sticky and plastic; common very fine and few fine roots; many prominent clay films on faces of peds; neutral; clear smooth boundary.

Bk1—18 to 33 inches; light yellowish brown (10YR 6/4) gravelly loam, yellowish brown (10YR 5/4) moist; massive; loose, very friable, slightly sticky and slightly plastic; few very fine roots; 18 percent gravel; strongly effervescent; 10 percent calcium carbonate equivalent; disseminated calcium carbonate; slightly alkaline; gradual wavy boundary.

Bk2—33 to 60 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; massive; loose, very friable, slightly sticky and slightly plastic; few very fine roots; 8 percent gravel; 15 percent calcium carbonate equivalent; disseminated calcium carbonate; strongly effervescent; slightly alkaline.

Gravel and cobbles cover 0 to 10 percent of the surface. The particle-size control section ranges from 24 to 30 percent clay, with 15 to 35 percent fine or coarser sand.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Reaction is neutral or slightly alkaline. Texture is loam or gravelly sandy loam.

The Bt horizon has value of 4 or 5 dry (3 or 4 moist) and chroma of 3 or 4. Texture is loam, clay loam, or gravelly clay loam. Reaction is neutral or slightly alkaline.

The Bk horizon has value of 6 or 7 dry (5 or 6 moist) and chroma of 3 or 4. Texture is gravelly loam, loam, sandy clay loam, gravelly sandy clay loam, or gravelly sandy loam. The calcium carbonate equivalent ranges from 5 to 15 percent. The content of rock fragments ranges from 0 to 20 percent.

Featherlegs Series

The Featherlegs series consists of very deep, well drained, moderately permeable soils on terraces, hills, and alluvial fans. They formed in residuum, alluvium, and eolian materials derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 40 percent.

These soils are fine-loamy, mixed, superactive, mesic Aridic Argiustolls.

Typical pedon of Featherlegs gravelly fine sandy loam, 2 percent slopes, in an area of Greenhope-Featherlegs complex, 0 to 6 percent slopes, 2,280 feet south, 250 feet east of the northwest corner of sec. 1, T. 20 N., R. 67 W.

Ap—0 to 7 inches; brown (10YR 4/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine and few fine continuous irregular pores throughout; 15 percent gravel; slightly alkaline; abrupt smooth boundary.

Bt—7 to 13 inches; brown (10YR 4/3) gravelly sandy clay loam, dark grayish brown (10YR 4/2) moist; weak very coarse and coarse prismatic structure parting to moderate fine and medium subangular blocky; hard, friable, sticky and plastic; common very fine and fine roots; many very fine and few fine continuous irregular pores throughout; common fine distinct clay films on faces of peds; 15 percent gravel; moderately alkaline; clear smooth boundary.

Bk1—13 to 17 inches; brown (10YR 5/3) gravelly sandy loam, brown (10YR 4/3) moist; weak very coarse and coarse prismatic structure; slightly hard, firm, sticky and slightly plastic; few very fine and fine and medium roots; common very fine and few fine continuous irregular pores throughout; 10 percent gravel; disseminated calcium carbonate; 7 percent calcium carbonate equivalent; violently effervescent; moderately alkaline; gradual wavy boundary.

2Bk2—17 to 60 inches; brown (10YR 5/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine and medium roots; common very fine and few fine continuous irregular pores throughout; 50 percent gravel; disseminated calcium carbonate and pendants of calcium on rock fragments; 7 percent calcium carbonate equivalent; violently effervescent; moderately alkaline.

Gravel and cobbles cover 0 to 20 percent of the surface. The particle-size control section ranges from 20 to 32 percent clay, 15 to 35 percent fine or coarser sand, and 0 to 30 percent rock fragments. The depth to contrasting material ranges from 15 to 35 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Texture is fine sandy loam, gravelly fine sandy loam, or loam. The content of rock fragments ranges from 0 to 30 percent. Reaction is neutral to moderately alkaline.

The Bt horizon has value of 4 to 6 dry (3 to 5 moist) and chroma 2 to 4. Texture is sandy clay loam, gravelly sandy clay loam, clay loam, or loam. The content of rock fragments ranges from 0 to 30 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon, if it occurs, has value of 5 to 8 dry (4 to 7 moist) and chroma of 2 to 4. Texture is loam, gravelly sandy loam, sandy loam, or sandy clay loam. The content of rock fragments ranges from 0 to 30 percent. The calcium carbonate equivalent ranges from 7 to 40 percent. Reaction is slightly alkaline or strongly alkaline. Some pedons do not have a Bk horizon.

The 2Bk horizon has value of 5 to 8 dry (4 to 7 moist) and chroma of 2 to 4. Texture is very gravelly sandy loam, very gravelly loam, very gravelly loamy sand, very cobbly sandy loam, or very cobbly loamy sand. The content of rock fragments ranges from 35 to 60 percent. The calcium carbonate equivalent ranges from 5 to 40 percent. Reaction is moderately alkaline or strongly alkaline.

The Featherlegs soil in map unit 149 has a water table resulting from irrigation between the depths of 2 to 6 feet from April through October. Because the representative value for the depth to the water table is 4 feet, however, no change in taxonomic classification is warranted. This difference does not significantly affect the use and management of the soil.

Fluvaquentic Endoaquolls

Fluvaquentic Endoaquolls consists of very deep, poorly drained, moderately permeable and moderately rapidly permeable soils on flood plains and terraces. They formed in alluvium derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are Fluvaquentic Endoaquolls.

A typical pedon of Fluvaquentic Endoaquolls loam, 2 percent slopes, in an area of Fluvaquentic Endoaquolls-Whetsoon complex, 0 to 3 percent slopes, 1,300 feet east, 2,400 feet north of the southwest corner of sec. 15, T. 23 N., R. 68 W.

A—0 to 7 inches; grayish brown (10YR 5/2) loam, very dark gray (10YR 3/1) moist; moderate fine and medium granular structure; very hard, very friable, slightly sticky and plastic; common very fine and few fine roots; many very fine and few fine continuous irregular pores; slightly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

ACg—7 to 16 inches; brown (10YR 5/3) clay loam, dark gray (10YR 4/1) moist; common fine distinct reddish yellow (7.5YR 6/8) redoximorphic concentrations; weak fine and medium subangular blocky structure; very hard, friable, slightly sticky and plastic; common very fine and few fine roots; many very fine and few fine continuous irregular pores; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Cg1—16 to 28 inches; brown (10YR 5/3) sandy clay loam, dark grayish brown (10YR 4/2) moist; few fine distinct reddish yellow (7.5YR 6/8) redoximorphic concentrations; massive; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and few fine continuous irregular pores; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Cg2—28 to 36 inches; grayish brown (10YR 5/2) sandy clay loam, dark grayish brown (10YR 4/2) moist; few fine distinct reddish yellow (7.5YR 6/8) redoximorphic concentrations; massive; hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine and few fine continuous irregular pores; slightly effervescent; disseminated calcium carbonate; moderately alkaline; gradual smooth boundary.

Cg3—36 to 44 inches; very pale brown (10YR 7/3) fine sandy loam, light gray (10YR 7/2) moist; few fine distinct reddish yellow (7.5YR 7/8) redoximorphic concentrations; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and few fine irregular pores; slightly effervescent; disseminated calcium carbonate; moderately alkaline; gradual smooth boundary.

Cg4—44 to 60 inches; pale brown (10YR 6/3) sandy clay loam, grayish brown (10YR 5/2) moist; few fine distinct reddish yellow (7.5YR 7/8) redoximorphic concentrations; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and few fine irregular pores; less than 15 percent gravel; slightly effervescent; disseminated calcium carbonate; moderately alkaline.

The depth to the seasonal high water table ranges from 0.5 foot to 1.5 feet from April through October. The particle-size control section commonly ranges from 15 to 30 percent clay and 0 to 15 percent rock fragments. Colors and textures are highly variable throughout the profile.

The A horizon commonly has texture of loam, fine sandy loam, or clay loam. Reaction is slightly alkaline or moderately alkaline.

The Cg horizon commonly has texture of sandy clay loam, loam, sandy loam, clay loam, or fine sandy loam. The calcium carbonate equivalent ranges from 0 to 5 percent. The content of gravel ranges from 0 to 15 percent. Reaction is slightly alkaline or moderately alkaline.

Forelle Series

The Forelle series consists of very deep, well drained, moderately permeable soils on hills, alluvial fans, and in swales. They formed in alluvium derived from various sources. Elevation is 5,800 to 7,200 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 0 to 8 percent.

These soils are fine-loamy, mixed, superactive, frigid Ustic Haplargids.

Typical pedon of Forelle loam, 4 percent slopes, in an area of Forelle loam, 0 to 6 percent slopes, 250 feet west, 1,250 feet north of the southeast corner of sec. 29, T. 21 N., R. 70 W.

A—0 to 4 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; weak fine granular structure; loose, friable, nonsticky and nonplastic; many fine, medium, and coarse roots; neutral; clear smooth boundary.

Bt—4 to 25 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; weak fine prismatic structure parting to weak subangular blocky; hard, firm, slightly sticky and slightly plastic; many fine and few medium and coarse roots; few fine faint clay films on faces of peds; strongly effervescent; disseminated calcium carbonate; slightly alkaline; clear smooth boundary.

Bk—25 to 60 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few fine and medium and coarse roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline.

A few large stones are on the surface. The particle-size control section ranges from 22 to 32 percent clay and 0 to 15 percent rock fragments.

The A horizon has value of 5 or 6 dry (3 or 4 moist) and chroma of 2 or 3. Texture is loam or fine sandy loam.

The Bt horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 2 to 4. Texture is loam, sandy clay loam, or clay loam.

The Bk horizon has value of 6 or 7 dry (4 or 5 moist) and chroma of 2 or 3. Texture is loam or sandy clay loam. The calcium carbonate equivalent ranges from 4 to 14 percent.

The C horizon, if it occurs, has hue of 10YR, value of 5 to 7 dry (4 to 6 moist), and chroma of 2 or 3. Texture is loam or sandy clay loam. Reaction is moderately alkaline or strongly alkaline.

Forkwood Series

The Forkwood series consists of very deep, well drained, moderately permeable soils on terraces and fans. They formed in alluvium derived from various sources. Elevation is 4,500 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are fine-loamy, mixed, superactive, mesic Ustic Haplargids.

Typical pedon of Forkwood loam, 2 percent slopes, in an area of Selpats-Forkwood loams, 0 to 3 percent slopes, 2,100 feet west, 950 feet north of the southeast corner of sec. 34, T. 20 N., R. 67 W.

Ap—0 to 8 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; moderate fine and medium granular structure; slightly hard, very friable, slightly sticky and plastic; common very fine and few fine roots; common very fine and few fine continuous irregularly shaped pores; moderately alkaline; abrupt smooth boundary.

Bt—8 to 19 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; hard, firm, slightly sticky and plastic; common very fine and few fine roots; common very fine and few fine continuous irregularly shaped pores; many distinct clay films on faces of peds; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bk1—19 to 36 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, slightly sticky and plastic; few very fine and fine roots; common very fine and few fine continuous irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; strongly alkaline; gradual smooth boundary.

Bk2—36 to 60 inches; light gray (10YR 7/2) fine sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few very fine and fine roots; common very fine and few fine continuous irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; strongly alkaline.

The particle-size control section ranges from 20 to 30 percent clay, with 15 to 35 percent fine or coarser sand and less than 5 percent rock fragments.

The A horizon has value of 4 or 5 dry (3 or 4 moist). Texture is loam or fine sandy loam. Reaction is slightly alkaline or moderately alkaline.

The Bt horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 2 to 4. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 7 dry (5 or 6 moist) and chroma of 2 to 4. Texture is fine sandy loam, very fine sandy loam, or loam. The calcium carbonate equivalent ranges from 1 to 5 percent. Reaction is moderately alkaline or strongly alkaline.

The C horizon, if it occurs, has hue of 2.5Y or 10YR, value of 6 or 7 dry (4 or 5 moist), and chroma of 3 or 4. Texture is loam. Reaction is moderately alkaline.

The Forkwood soil in map unit 134 has a water table resulting from irrigation between the depths of 2.5 to 6.0 feet from April through October. Because the representative value for the depth to the water table is 4.25 feet, however, no change in taxonomic classification is warranted. This difference does not significantly affect the use and management of the soil.

Glendo Series

The Glendo series consists of very deep, well drained, moderately permeable soils on alluvial fans, terraces, and hills. They formed in alluvium derived from siltstone and sandstone. Elevation is 4,300 to 5,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are coarse-silty, mixed, superactive, mesic Aridic Ustochrepts.

Typical pedon of Glendo silt loam, 2 percent slopes, in an area of Glendo silt loam, 0 to 6 percent slopes, 1,850 feet east, 20 feet south of the northwest corner of sec. 19, T. 29 N., R. 68 W.

A—0 to 3 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; weak coarse platy structure parting to weak fine and

very fine platy; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and few fine continuous irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

Bw1—3 to 8 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; weak coarse prismatic structure parting to weak moderate and coarse subangular blocky; hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and few fine continuous irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bw2—8 to 14 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to weak moderate and coarse subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and few fine continuous irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear wavy boundary.

C1—14 to 27 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine continuous irregularly shaped pores; violently effervescent; disseminated calcium carbonate; 10 percent siltstone gravel; strongly alkaline; gradual wavy boundary.

C2—27 to 60 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; very hard, very friable, slightly sticky and slightly plastic; few very fine and fine continuous irregularly shaped pores; violently effervescent; disseminated calcium carbonate; strongly alkaline.

The particle-size control section ranges from 5 to 18 percent clay and less than 15 percent fine or coarser sand. The calcium carbonate equivalent ranges from 2 to 10 percent throughout.

The A horizon has value of 5 to 7 dry (3 to 5 moist) and chroma of 2 to 4. Texture is silt loam or very fine sandy loam. Reaction is slightly alkaline or moderately alkaline.

The Bw horizon, or the Bk horizon if it occurs, has value of 5 to 7 dry (3 to 5 moist) and chroma of 2 to 4. Texture is silt loam, very fine sandy loam, or loam. Reaction is moderately alkaline or strongly alkaline.

The C horizon has hue of 2.5Y or 10YR, value of 5 to 7 dry, and chroma of 2 to 4. Texture is loam, very fine sandy loam, or silt loam. Reaction is moderately alkaline or strongly alkaline.

Graystone Series

The Graystone series consists of very deep, well drained, moderately rapidly permeable soils on terraces, hillslopes, and alluvial fans. They formed in alluvium and eolian deposits derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 10 percent.

These soils are coarse-loamy, mixed, superactive, mesic Aridic Calciustolls.

Typical pedon of Graystone very fine sandy loam, 2 percent slopes, in an area of Recluse-Graystone very fine sandy loams, 0 to 6 percent slopes, 2,530 feet south, 350 feet east of the northwest corner of sec. 24, T. 21 N., R. 66 W.

Ap—0 to 9 inches; brown (10YR 4/3) very fine sandy loam, dark brown (10YR 3/3) moist; strong medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

Bk1—9 to 16 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; strong fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and few fine roots; violently effervescent; disseminated calcium carbonate and few distinct soft masses, seams, and streaks of calcium carbonate; 20 percent calcium carbonate equivalent; moderately alkaline; gradual smooth boundary.

Bk2—16 to 44 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine and few fine roots; violently effervescent; disseminated calcium carbonate and few distinct soft masses, seams, and streaks of calcium carbonate; 9 percent calcium carbonate equivalent; strongly alkaline; gradual wavy boundary.

C—44 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; violently effervescent; disseminated calcium carbonate; strongly alkaline.

Gravel covers 0 to 10 percent of the surface. The particle-size control section is ranges from 6 to 18 percent clay, with 15 to 35 percent fine or coarser sand and 0 to 15 percent rock fragments. The depth to the calcic horizon ranges from 8 to 20 inches. The thickness of the mollic epipedon is 7 to 10 inches.

The A horizon has value of 4 or 5 dry and chroma 2 or 3. Texture is very fine sandy loam or fine sandy loam. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 8 dry (4 to 6 moist) and chroma of 2 to 4. Texture is loam, very fine sandy loam, fine sandy loam, or sandy loam. The calcium carbonate equivalent ranges from 10 to 25 percent in the diagnostic calcic horizon. Reaction is slightly alkaline to strongly alkaline.

The C horizon, if it occurs, has hue of 10YR or 2.5YR, value of 5 or 6 moist, and chroma of 2 to 4. Texture is very fine sandy loam, sandy loam, or fine sandy loam. The calcium carbonate equivalent ranges from 5 to 20 percent. Reaction is slightly alkaline to strongly alkaline.

Greenhope Series

The Greenhope series consists of very deep, well drained, moderately rapidly permeable soils on terraces, alluvial fans, and hills. They formed in alluvium derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 15 percent.

These soils are coarse-loamy, mixed, superactive, mesic Aridic Calciustolls.

Typical pedon of Greenhope fine sandy loam, on a slope of 1 percent, in an area of Greenhope-Featherlegs complex, 0 to 6 percent slopes, 1,000 feet west, 950 feet south of the northeast corner of sec. 32, T. 24 N., R. 68 W.

Ap—0 to 9 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine continuous irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt wavy boundary.

Bk1—9 to 16 inches; very pale brown (10YR 7/3) fine sandy loam, pale brown (10YR 6/3) moist; massive; hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine continuous irregularly shaped pores; violently effervescent; disseminated calcium carbonate and few distinct soft masses and seams of calcium carbonate; 16 percent calcium carbonate equivalent; 10 percent gravel; moderately alkaline; clear wavy boundary.

Bk2—16 to 25 inches; white (10YR 8/2) gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and few fine continuous irregularly shaped pores; violently effervescent; disseminated calcium carbonate and few distinct soft masses, seams, and pendants of calcium carbonate on rock fragments; 25 percent calcium carbonate equivalent; 15 percent gravel and 5 percent cobbles; moderately alkaline; gradual wavy boundary.

2Bk3—25 to 60 inches; white (10YR 8/2) very cobbly sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and few fine continuous irregularly shaped pores; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 23 percent calcium carbonate equivalent; 25 percent gravel and 15 percent cobbles; moderately alkaline.

The thickness of the mollic epipedon is 7 to 10 inches. The depth to the calcic horizon is 7 to 25 inches. The particle-size control section ranges from 8 to 18 percent clay, with more than 35 percent fine or coarser sand and 15 to 35 percent rock fragments. Gravel and cobbles cover 0 to 15 percent of the surface.

The A horizon has value of 3 to 5 dry and chroma of 2 or 3. Reaction is slightly alkaline or moderately alkaline. The content of rock fragments ranges from 0 to 15 percent.

The Bk horizon has value of 5 to 8 dry (4 to 7 moist) and chroma of 2 to 4. Texture is gravelly sandy loam, fine sandy loam, loam, very fine sandy loam, gravelly fine sandy loam, or sandy loam. The calcium carbonate equivalent ranges from 10 to 40 percent. The content of rock fragments ranges from 5 to 35 percent. Reaction is moderately alkaline or strongly alkaline.

The 2Bk horizon has value of 6 to 8 dry (5 to 7 moist) and chroma of 2 to 4. Texture is very gravelly sandy loam, very gravelly loamy sand, very gravelly fine sandy loam, or very cobbly sandy loam. The calcium carbonate equivalent ranges from 5 to 35 percent. The content of rock fragments ranges from 35 to 50 percent. Reaction is moderately alkaline or strongly alkaline.

Some pedons have a gravelly fine sandy loam 2C horizon below the 2Bk horizon.

Haverdad Series

The Haverdad series consists of very deep, well drained, moderately permeable soils on terraces and flood plains. They formed in alluvium derived from various sources. Elevation is 4,300 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents.

Typical pedon of Haverdad loam, on a slope of 1 percent, in an area of Coaliams-Haverdad complex, 0 to 3 percent slopes, 975 feet east, 800 feet north of the southwest corner of sec. 16, T. 21 N., R. 66 W.

A—0 to 2 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine and fine continuous irregularly shaped pores; 5 percent gravel; strongly effervescent; disseminated calcium carbonate; slightly alkaline; abrupt wavy boundary.

AC—2 to 5 inches; pale brown (10YR 6/3) loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine and fine continuous irregularly shaped pores; 5 percent gravel; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt wavy boundary.

C—5 to 60 inches; pale brown (10YR 6/3) loam stratified with silt loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine and fine continuous irregularly shaped pores; 5 percent gravel; strongly effervescent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section ranges from 20 to 30 percent clay and 0 to 15 percent rock fragments.

The A horizon has value of 3 or 4 moist and chroma of 2 or 3. The content of rock fragments ranges from 0 to 10 percent gravel. Reaction is slightly alkaline or moderately alkaline.

The C horizon has value of 5 to 7 dry (4 or 5 moist) and chroma of 2 to 4. Texture is variable but is dominantly loam with 20 to 27 percent clay. The content of rock fragments ranges from 0 to 15 percent. The calcium carbonate equivalent ranges from 1 to 10 percent. Reaction is slightly alkaline or moderately alkaline.

Some pedons have an Ab horizon. This horizon has characteristics similar to those of the A horizon.

Hiland Series

The Hiland series consists of very deep, well drained, moderately permeable soils on terraces, fans, and hillslopes. They formed in alluvium and eolian material derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are fine-loamy, mixed, active, mesic Ustic Calciargids.

Typical pedon of Hiland sandy loam, on a slope of 1 percent, in an area of Hiland-Cambria sandy loams, 0 to 6 percent slopes, 1,300 feet east, 2,600 feet north of the southwest corner of sec. 7, T. 26 N., R. 67 W.

A—0 to 6 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; loose, very friable, nonsticky and nonplastic; many fine and coarse roots; neutral; clear smooth boundary.

AB—6 to 10 inches; grayish brown (10YR 5/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, very friable, nonsticky and nonplastic; many fine and coarse roots; neutral; clear smooth boundary.

Bt1—10 to 12 inches; grayish brown (10YR 5/2) sandy clay loam, dark grayish brown (10YR 4/2) moist; weak fine prismatic structure parting to weak fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many fine and coarse roots; few faint clay films on faces of peds; slightly alkaline; gradual wavy boundary.

Bt2—12 to 15 inches; grayish brown (10YR 5/2) sandy clay loam, dark grayish brown (10YR 4/2) moist; weak fine prismatic structure parting to moderate fine subangular blocky; hard, firm, slightly sticky and slightly plastic; few fine and coarse roots; common distinct clay films on faces of peds; moderately alkaline; clear wavy boundary.

Bk1—15 to 20 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few fine and

coarse roots; 12 percent calcium carbonate equivalent; strongly effervescent; disseminated calcium carbonate and few distinct soft masses, seams, and streaks of calcium carbonate; moderately alkaline; gradual wavy boundary.

Bk2—20 to 30 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine and coarse roots; violently effervescent; disseminated calcium carbonate and common distinct irregular soft masses of calcium carbonate; 12 percent calcium carbonate equivalent; moderately alkaline; gradual wavy boundary.

C—30 to 60 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few coarse roots to a depth of 45 inches and very few coarse roots below this depth; violently effervescent; disseminated calcium carbonate and common distinct irregular soft masses and few fine filaments of calcium carbonate; 8 percent calcium carbonate equivalent; moderately alkaline.

Sandstone gravel and cobbles cover 0 to 10 percent of the surface. The particle-size control section is 20 to 35 percent clay. The depth to the base of the Bt or Btk horizon ranges from 15 to 26 inches. The depth to horizons of calcium carbonate accumulation ranges from 14 to 20 inches.

The A horizon has chroma of 2 or 3. Texture is sandy loam or fine sandy loam. The content of gravel ranges from 0 to 5 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 2 to 4. The content of gravel ranges from 0 to 5 percent. Reaction is neutral to moderately alkaline.

The Bk horizon has value of 6 or 7 dry and chroma of 2 to 4. The calcium carbonate equivalent ranges from 5 to 15 percent. The content of rock fragments ranges from 0 to 10 percent.

The C horizon has value 6 or 7 dry. The calcium carbonate equivalent ranges from 0 to 8 percent. Total rock fragments range from 0 to 15 percent.

Ipson Series

The Ipson series consists of very deep, well drained, moderately permeable soils on hills, fans, and terraces. They formed in alluvium and colluvium derived from various sources. Elevation is 5,500 to 7,500 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 0 to 45 percent.

These soils are loamy-skeletal, mixed, superactive Aridic Argiborolls.

Typical pedon of Ipson very cobbly loam, 16 percent slopes, in an area of Evanston-Ipson-Brownsto complex, 15 to 45 percent slopes, 2,150 feet south, 2,000 feet east of the northwest corner of sec. 23, T. 20 N., R. 69 W.

A—0 to 4 inches; brown (10YR 4/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium granular structure; loose, friable, slightly sticky and slightly plastic; common very fine and few fine roots; 30 percent gravel and 20 percent cobbles; neutral; clear smooth boundary.

Bt—4 to 11 inches; brown (10YR 4/3) very cobbly sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common prominent clay films on faces of peds; 30 percent gravel and 20 percent cobbles; strongly effervescent; disseminated calcium carbonate and pendants and coatings of calcium carbonate on rock fragments; 6 percent calcium carbonate equivalent; slightly alkaline; clear smooth boundary.

Bk—11 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; weak medium granular structure; loose, friable, slightly sticky and slightly plastic; few very fine roots; 35 percent gravel and 15 percent cobbles; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 20 percent calcium carbonate equivalent; moderately alkaline.

Gravel and cobbles cover 0 to 20 percent of the surface. The particle-size control section ranges from 20 to 30 percent clay, with 15 to 35 percent fine or coarser sand and 40 to 50 percent rock fragments.

The A horizon has chroma of 2 or 3. Texture is very cobbly loam or gravelly loam. The content of rock fragments ranges from 15 to 50 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has value of 4 or 5 dry (3 or 4 moist). Texture is very gravelly sandy clay loam or very cobbly sandy clay loam. The content of rock fragments ranges from 40 to 50 percent. The calcium carbonate equivalent ranges from 5 to 20 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 or 6 dry (4 or 5 moist). The calcium carbonate equivalent ranges from 5 to 30 percent. The content of rock fragments ranges

from 35 to 50 percent. Reaction is moderately alkaline or strongly alkaline.

The Ipson soils in Platte County have a soil moisture control section that is affected by a significant precipitation peak from April through July.

Jayem Series

The Jayem series consists of very deep, well drained, moderately rapidly permeable soils on hillslopes. They formed in alluvium derived from sandstone. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are coarse-loamy, mixed, superactive, mesic Aridic Haplustolls.

Typical pedon of Jayem fine sandy loam, 4 percent slopes, in an area of Julesburg-Jayem-Phiferson fine sandy loams, 0 to 6 percent slopes, 75 feet west, 1,025 feet south of the northeast corner of sec. 9, T. 21 N., R. 65 W.

Ap—0 to 7 inches; dark brown (10YR 4/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to weak medium granular; hard, very friable, nonsticky and nonplastic; many very fine roots; neutral; abrupt smooth boundary.

AB—7 to 12 inches; brown (10YR 4/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse prismatic structure parting to weak fine subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine continuous random irregular pores; neutral; gradual wavy boundary.

Bw—12 to 26 inches; brown (10YR 4/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; coarse subangular blocky structure parting to weak fine subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common continuous random irregular pores; slightly alkaline; clear smooth boundary.

C1—26 to 38 inches; yellowish brown (10YR 5/4) fine sandy loam, brown (10YR 5/3) moist; weak coarse subangular blocky structure; hard, very friable, nonsticky and nonplastic; few very fine roots; few continuous random irregular pores; slightly alkaline; gradual wavy boundary.

C2—38 to 54 inches; light yellowish brown (10YR 6/4) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; slightly alkaline; clear wavy boundary.

C3—54 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; strongly effervescent; disseminated calcium carbonate and few fine irregular filaments of calcium carbonate; slightly alkaline.

The particle-size control section ranges from 10 to 18 percent clay. The depth to secondary accumulations of calcium carbonate is 40 inches or more. Reaction is neutral or slightly alkaline throughout.

The A horizon has value of 4 or 5 dry. The Bw horizon has value of 4 to 6 dry and chroma of 2 or 3. The C horizon has value of 5 to 7 dry (4 or 5 moist) and chroma of 3 or 4. Texture is fine sandy loam or very fine sandy loam.

Julesburg Series

The Julesburg series consists of very deep, well drained, moderately rapidly permeable soils on hillslopes and terraces. They formed in alluvium and eolian materials derived from various sources. Elevation is 4,300 to 5,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are coarse-loamy, mixed, superactive, mesic Aridic Argiustolls.

Typical pedon of Julesburg fine sandy loam, 6 percent slopes, in an area of Julesburg-Jayem-Phiferson fine sandy loams, 0 to 6 percent slopes, 75 feet west, 2,300 feet south of the northeast corner of sec. 9, T. 21 N., R. 65 W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine roots; slightly alkaline; clear smooth boundary.

BA—7 to 14 inches; dark brown (10YR 3/3) fine sandy loam, very dark brown (10YR 2/2) moist; weak coarse subangular blocky structure parting to weak fine subangular blocky; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; few very fine and fine continuous irregular pores; few fine faint clay bridging of sand grains; slightly alkaline; clear wavy boundary.

Bt1—14 to 18 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak

medium prismatic and coarse subangular blocky structure parting to weak very fine subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine and few fine continuous irregular pores; few faint clay films on faces of peds and common faint clay bridging of sand grains; neutral; clear wavy boundary.

Bt2—18 to 28 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak medium and coarse prismatic structure parting to weak fine subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine continuous irregular pores; common faint clay films on faces of peds and few faint clay bridging of sand grains; slightly alkaline; gradual wavy boundary.

Bt3—28 to 39 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak medium prismatic structure parting to weak fine subangular blocky; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine continuous random irregular pores; few faint clay films on faces of peds and common faint clay bridging of sand grains; slightly alkaline; abrupt wavy boundary.

C1—39 to 48 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; weak coarse subangular blocky structure; hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine continuous irregular pores; slightly alkaline; clear wavy boundary.

C2—48 to 54 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; slightly alkaline; clear wavy boundary.

C3—54 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; strongly effervescent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section ranges from 13 to 18 percent clay. The depth to secondary accumulations of calcium carbonates is 50 to more than 60 inches.

Reaction in the A horizon is neutral or slightly alkaline.

The Bt horizon has hue of 10YR or 2.5Y and chroma of 2 or 3. Reaction is neutral or slightly alkaline.

The Bk or C horizon has value of 5 or 6 dry (4 or 5 moist). Texture is fine sandy loam or very fine sandy loam. Reaction is neutral to moderately alkaline.

Keeline Series

The Keeline series consists of very deep, well drained, moderately rapidly permeable soils on hills and benches. They formed in alluvium and eolian material derived from sandstone. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 40 percent.

These soils are coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents.

Typical pedon of Keeline fine sandy loam, 8 percent slopes, in an area of Mainter-Keeline fine sandy loams, 6 to 10 percent slopes, 2,000 feet east, 75 feet north of the southwest corner of sec. 15, T. 26 N., R. 66 W.

Ap—0 to 5 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; slightly alkaline; abrupt smooth boundary.

Bw—5 to 14 inches; very pale brown (10YR 7/3) fine sandy loam, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

C1—14 to 30 inches; very pale brown (10YR 7/3) fine sandy loam, pale brown (10YR 6/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; gradual smooth boundary.

C2—30 to 60 inches; very pale brown (10YR 7/3) fine sandy loam, pale brown (10YR 6/3) moist; massive; soft, very friable, nonsticky and nonplastic; strongly effervescent; disseminated calcium carbonate; moderately alkaline.

Gravel covers 0 to 20 percent of the surface. The particle-size control section is 5 to 18 percent clay, with more than 15 percent fine or coarser sand and 0 to 5 percent gravel. Calcium carbonates generally are throughout the profile, but some pedons are leached as much as 6 inches.

The A horizon has value of 5 to 7 dry (4 or 5 moist) and chroma of 2 or 3. Reaction is slightly alkaline or moderately alkaline.

The Bw horizon, if it occurs, has characteristics similar to those of the C horizon.

The C horizon has value of 5 to 7 dry (4 to 6 moist) and chroma 3 or 4. Texture is fine sandy loam, sandy loam, or very fine sandy loam. The content of rock fragments ranges from 0 to 5 percent. The calcium carbonate equivalent ranges from 5 to 15 percent. Reaction is moderately alkaline or strongly alkaline.

Kishona Series

The Kishona series consists of very deep, well drained, moderately permeable soils on terraces. They formed in alluvium derived from various sources. Elevation is 4,500 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are fine-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents.

Typical pedon of Kishona clay loam, on a slope of 1 percent, in an area of Kishona clay loam, 0 to 6 percent slopes, 500 feet east, 800 feet north of the southwest corner of sec. 21, T. 30 N., R. 68 W.

Ap—0 to 5 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; hard, firm, sticky and plastic; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

C1—5 to 12 inches; grayish brown (10YR 5/2) clay loam, dark grayish brown (10YR 4/2) moist; massive; hard, firm, sticky and plastic; slightly effervescent; moderately alkaline; clear smooth boundary.

C2—12 to 60 inches; brown (10YR 5/3) clay loam, dark brown (10YR 4/3) moist; massive; hard, firm, sticky and plastic; slightly effervescent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section is 20 to 35 percent clay, with 15 to 35 percent fine or coarser sand and 0 to 15 percent rock fragments. Electrical conductivity is 0 to 4 millimhos per centimeter throughout the profile.

Reaction in the A horizon is slightly alkaline or moderately alkaline.

The Bk or C horizon has value of 5 to 7 dry (4 or 5 moist) and chroma of 2 or 3. Texture is clay loam or loam. The calcium carbonate equivalent ranges from 4 to 10 percent. Reaction is moderately alkaline or strongly alkaline.

Kovich Series

The Kovich series consists of very deep, poorly drained, moderately permeable soils on flood plains and terraces. They formed in alluvium derived from various sources. Elevation is 6,000 to 7,200 feet. The mean annual precipitation is 15 to 19 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 0 to 3 percent.

These soils are fine-loamy, mixed, superactive, frigid Cumulic Endoaquolls.

Typical pedon of Kovich loam, on a slope of 1 percent, in an area of Dalecreek-Kovich complex, 0 to 9 percent slopes, 1,200 feet east, 10 feet north of the southwest corner of sec. 12, T. 20 N., R. 70 W.

A—0 to 8 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to weak fine granular; slightly hard, firm, slightly sticky and slightly plastic; common very fine and few fine roots; neutral; 5 percent gravel; clear smooth boundary.

Cg1—8 to 21 inches; very dark grayish brown (10YR 3/2) clay loam, very dark brown (10YR 2/2) moist; few fine faint reddish brown (2.5YR 4/4) redoximorphic concentrations; strong coarse subangular blocky structure; hard, very firm, sticky and plastic; few very fine and fine roots; slightly alkaline; 5 percent gravel; gradual wavy boundary.

2Cg2—21 to 60 inches; very dark grayish brown (10YR 3/2) gravelly clay loam, very dark brown (10YR 2/2) moist; common fine distinct reddish brown (2.5YR 4/4) redoximorphic concentrations; massive; hard, very firm, sticky and plastic; few very fine and fine roots; slightly alkaline; 20 percent gravel.

The particle-size control section is commonly 19 to 35 percent clay. The depth to lithologic discontinuity ranges from 21 to 43 inches. Reaction is neutral or slightly alkaline throughout. The depth to the seasonal high water table is 0 to 2.5 feet from April through August. The mollic epipedon is more than 24 inches thick.

The content of gravel in the A horizon ranges from 0 to 5 percent. The 2Cg horizon has value of 3 or 4 dry (2 or 3 moist) and chroma of 1 or 2. The content of gravel ranges from 15 to 30 percent.

The Kovich soils in Platte County have a soil moisture control section that is affected by a significant precipitation peak from April through July.

Lininger Series

The Lininger series consists of moderately deep, well drained, moderately permeable soils on foothills. They formed in colluvium and residuum derived from granite. Elevation is 6,000 to 7,200 feet. The mean annual precipitation is 15 to 19 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 1 to 8 percent.

These soils are fine-loamy, mixed, superactive Typic Argiborolls.

Typical pedon of Lininger loam, 8 percent slopes, in an area of Boyle-Lininger association, 1 to 15 percent slopes, 2,200 feet east, 175 feet south of the northwest corner of sec. 17, T. 20 N., R. 70 W.

A—0 to 8 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and medium roots; 5 percent gravel; neutral; clear smooth boundary.

Bt1—8 to 12 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and medium roots; few distinct clay films on faces of peds; 10 percent gravel; neutral; clear smooth boundary.

Bt2—12 to 24 inches; brown (7.5YR 5/4) gravelly sandy clay loam, dark brown (7.5YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, firm, sticky and slightly plastic; few fine and medium roots; many prominent clay films on faces of peds; 20 percent gravel; neutral; clear wavy boundary.

Cr—24 to 34 inches; weathered granite.

Gravel covers 0 to 5 percent of the surface. The depth to bedrock ranges from 20 to 40 inches. The particle-size control section is 20 to 30 percent clay and 0 to 25 percent rock fragments. Reaction is neutral or slightly alkaline throughout.

The content of gravel in the A horizon ranges from 0 to 15 percent.

The Bt horizon has value of 3 or 4 moist and chroma of 3 or 4.

Livan Series

The Livan series consists of very deep, somewhat excessively drained, moderately rapidly permeable over very rapidly permeable soils on flood plains. They formed in alluvium derived from various sources. Elevation is 4,500 to 5,600 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are sandy-skeletal, mixed, calcareous, mesic Ustic Torrifluvents.

Typical pedon of Livan gravelly coarse sandy loam, on a slope of 1 percent, in an area of Livan-Clarkelen complex, 0 to 3 percent slopes, 800 feet west, 950 feet south of the northeast corner of sec. 7, T. 28 N., R. 68 W.

A—0 to 6 inches; pale brown (10YR 6/3) gravelly coarse sandy loam, brown (10YR 5/3) moist; weak very fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; common very fine and few fine continuous random irregular pores; 20 percent gravel; strongly effervescent; disseminated calcium carbonate; slightly alkaline; clear smooth boundary.

C1—6 to 32 inches; pale brown (10YR 6/3) stratified very gravelly loamy sand and gravelly sandy loam, brown (10YR 5/3) moist; single grained; loose, nonsticky and nonplastic; many very fine and common fine roots; common very fine and few fine continuous random irregular pores; 45 percent gravel; strongly effervescent; disseminated calcium carbonate; slightly alkaline; abrupt smooth boundary.

C2—32 to 60 inches; pale brown (10YR 6/3) very gravelly sand, brown (10YR 5/3) moist, stratified with few irregular strata of brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist; single grained; loose, nonsticky and nonplastic; many very fine and common fine roots; 60 percent gravel; strongly effervescent; disseminated calcium carbonate; slightly alkaline.

The particle-size control section ranges from 2 to 14 percent clay. The content of rock fragments in the particle-size control section ranges from 35 to 60 percent. The content of gravel ranges from 30 to 50 percent, and the content of cobbles ranges from 5 to 15 percent. Reaction is slightly alkaline or moderately alkaline throughout.

The A horizon has hue of 7.5YR or 10YR, value of 5 or 6 dry (4 or 5 moist), and chroma of 2 to 4. Texture is fine sandy loam or gravelly coarse sandy loam. The content of rock fragments ranges from 0 to 25 percent.

The C horizon has value of 5 to 7 dry (4 to 6 moist) and chroma of 3 or 4. Texture is stratified gravelly sandy loam to very gravelly sand, and the fine-earth fraction is dominantly loamy sand or sand. The content of rock fragments ranges from 35 to 60 percent. The

content of gravel ranges from 35 to 60 percent, and the content of cobbles ranges from 5 to 15 percent.

Luman Series

The Luman series consists of very deep, well drained, moderately permeable soils on benches, terraces, and hills. They formed in alluvium derived from various sources. Elevation is 4,500 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 10 percent.

These soils are loamy-skeletal, mixed, active, mesic Ustic Calciargids.

Typical pedon of Luman very gravelly sandy loam, on a slope of 1 percent, in an area of Claprych-Luman very gravelly sandy loams, 0 to 10 percent slopes, 450 feet south, 2,400 feet west of the northeast corner of sec. 23, T. 24 N., R. 69 W.

A—0 to 2 inches; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many fine and common very fine tubular pores; 35 percent gravel and 15 percent cobbles; slightly alkaline; clear smooth boundary.

Bt—2 to 8 inches; brown (10YR 5/3) gravelly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; many fine and common very fine roots; many fine and common very fine tubular pores; many prominent clay films on faces of peds; 20 percent gravel; slightly alkaline; clear smooth boundary.

Bk1—8 to 12 inches; pale brown (10YR 6/3) gravelly sandy clay loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and very fine roots; common fine and very fine tubular pores; strongly effervescent; disseminated calcium carbonate and few distinct soft masses and seams of calcium carbonate; 10 percent calcium carbonate equivalent; 25 percent gravel; slightly alkaline; abrupt wavy boundary.

Bk2—12 to 60 inches; white (10YR 8/2) very gravelly sandy loam, very pale brown (10YR 8/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine and medium roots; few fine tubular pores; violently effervescent; many distinct soft masses, seams, pendants, and coatings of calcium carbonate on rock fragments; 27 percent calcium carbonate equivalent; 30 percent gravel, 5 percent cobbles, and 5 percent stones; moderately alkaline.

Gravel and cobbles cover 40 to 50 percent of the surface. The particle-size control section ranges from 40 to 50 percent rock fragments. The depth to the base of the argillic horizon and the depth to accumulations of secondary calcium are less than 10 inches.

The content of rock fragments in the A horizon ranges from 20 to 60 percent. The content of gravel ranges from 20 to 40 percent, and the content of cobbles ranges from 0 to 20 percent. Texture is very gravelly sandy loam or gravelly sandy loam.

The texture of the Bt horizon is gravelly sandy clay loam or gravelly clay loam. The content of clay ranges from 25 to 35 percent. The content of rock fragments ranges from 15 to 35 percent.

The Bk horizon has value of 6 to 8 dry (4 to 8 moist) and chroma of 2 or 3. Texture is sandy loam, sandy clay loam, or loam modified by 25 to 60 percent gravel and cobbles. The calcium carbonate equivalent ranges from 10 to 30 percent.

Mainter Series

The Mainter series consists of very deep, moderately well drained and well drained, moderately rapidly permeable soils on hillslopes and benches. They formed in alluvium and eolian materials derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 10 percent.

These soils are coarse-loamy, mixed, superactive, mesic Aridic Argiustolls.

Typical pedon of Mainter fine sandy loam, on a slope of 1 percent, in an area of Phiferson-Mainter fine sandy loams, 0 to 6 percent slopes, 1,700 feet west, 350 feet south of the northeast corner of sec. 30, T. 21 N., R. 65 W.

Ap—0 to 8 inches; dark yellowish brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots throughout; common very fine continuous interstitial pores; slightly alkaline; abrupt smooth boundary.

Bt1—8 to 12 inches; yellowish brown (10YR 5/4) fine sandy loam, brown (10YR 4/3) moist; weak very coarse prismatic structure parting to weak medium subangular blocky; hard, friable, slightly

sticky and slightly plastic; common very fine and fine roots throughout; common very fine and few fine continuous interstitial pores; common distinct clay films on faces of peds; slightly alkaline; clear smooth boundary.

Bt2—12 to 20 inches; yellowish brown (10YR 5/4) fine sandy loam, brown (10YR 4/3) moist; weak very coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots throughout; common very fine and few fine continuous interstitial pores; common faint clay films on faces of peds; slightly alkaline; gradual wavy boundary.

Bk—20 to 60 inches; very pale brown (10YR 7/3) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots throughout; common very fine continuous interstitial pores; strongly effervescent; disseminated calcium carbonate; 4 percent calcium carbonate equivalent; moderately alkaline.

The mollic epipedon is 8 to 16 inches thick. The particle-size control section is 13 to 18 percent clay, with 15 to 35 percent fine or coarser sand. The depth to horizons that contain calcium carbonate is 14 to 30 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Texture is fine sandy loam or very fine sandy loam. Reaction is neutral or slightly alkaline.

The Bt horizon has value of 4 to 6 dry and chroma of 3 or 4. Texture is fine sandy loam or very fine sandy loam. Reaction is neutral to moderately alkaline.

The Bk horizon has value of 6 or 7 dry (5 or 6 moist) and chroma of 3 or 4 moist. Texture is fine sandy loam, very fine sandy loam, sandy loam, or loam. Reaction is slightly alkaline or moderately alkaline. The calcium carbonate equivalent ranges from 4 to 15 percent.

McFadden Series

The McFadden series consists of very deep, well drained, moderately rapidly permeable soils on terraces. They formed in alluvium derived from various sources. Elevation is 5,700 to 7,000 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 1 to 6 percent.

These soils are coarse-loamy, mixed, superactive, frigid Ustic Haplocalcids.

Typical pedon of McFadden gravelly fine sandy loam, 3 percent slopes, in an area of McFadden gravelly fine sandy loam, 1 to 6 percent slopes, in Albany County, 2,480 feet north, 20 feet east of the southwest corner of sec. 33, T. 16 N., R. 76 W.

A—0 to 5 inches; brown (10YR 5/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; strongly effervescent; disseminated calcium carbonate; less than 2 percent calcium carbonate equivalent; 15 percent gravel; moderately alkaline; abrupt smooth boundary.

Bk1—5 to 9 inches; pale brown (10YR 6/3) gravelly fine sandy loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine roots; violently effervescent; disseminated calcium carbonate; 12 percent calcium carbonate equivalent; 25 percent gravel; moderately alkaline; clear smooth boundary.

Bk2—9 to 18 inches; very pale brown (10YR 7/3) gravelly fine sandy loam, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few fine roots; violently effervescent; disseminated calcium carbonate; 28 percent calcium carbonate equivalent; 30 percent gravel; moderately alkaline; clear smooth boundary.

2Bk3—18 to 60 inches; light gray (10YR 7/2) loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; violently effervescent; 25 percent calcium carbonate equivalent; 10 percent gravel; strongly alkaline.

Gravel and cobbles cover 15 to 35 percent of the surface. The particle-size control section is 10 to 17 percent clay.

The Bk horizon commonly has a texture of gravelly loam, gravelly sandy loam, or gravelly fine sandy loam. The content of gravel ranges from 10 to 35 percent. The calcium carbonate equivalent in this horizon ranges from 10 to 30 percent, but at least some part has more than 15 percent. Reaction is moderately alkaline or strongly alkaline.

Some pedons have a 2Bk horizon. It has texture of loam.

Mitchell Series

The Mitchell series consists of very deep, well drained, moderately permeable and moderately rapidly permeable soils on hillslopes. They formed in alluvium derived from siltstone. Elevation is 4,300 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F.

The frost-free season is 110 to 130 days. Slopes are 0 to 10 percent.

These soils are coarse-silty, mixed, superactive, calcareous, mesic Ustic Torriorthents.

Typical pedon of Mitchell very fine sandy loam, 3 percent slopes, in an area of Mitchell very fine sandy loam, 0 to 6 percent slopes, 85 feet west, 1,100 feet north of the southeast corner of sec. 21, T. 30 N., R. 68 W.

Ap—0 to 7 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure parting to weak fine granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few fine interstitial pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt wavy boundary.

C1—7 to 30 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; few very fine roots; few fine tubular pores; violently effervescent; disseminated calcium carbonate; moderately alkaline; gradual smooth boundary.

C2—30 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; massive; soft, friable, slightly sticky and slightly plastic; few very fine roots; few fine tubular pores; violently effervescent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section is 12 to 18 percent clay. The sand fraction is less than 15 percent fine or coarser sand. Reaction is slightly alkaline or moderately alkaline throughout.

The A horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 2 or 3.

Some pedons have an AC horizon. It is similar to the A horizon.

The C horizon has value of 5 or 6 moist. Texture is very fine sandy loam or silt loam.

Moskee Series

The Moskee series consists of very deep, well drained, moderately permeable soils on fan remnants and hillslopes. They formed in alluvium and eolian materials derived from sandstone. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 6 percent.

These soils are fine-loamy, mixed, superactive, mesic Aridic Argiustolls.

Typical pedon of Moskee sandy loam, 2 percent slopes, in an area of Moskee sandy loam, 0 to 6 percent slopes, 1,300 feet south, 1,600 feet east of the northwest corner of sec. 23, T. 26 N., R. 66 W.

Ap—0 to 5 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; neutral; abrupt smooth boundary.

A—5 to 11 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; common very fine continuous tubular pores; neutral; clear smooth boundary.

Bt—11 to 21 inches; pale brown (10YR 6/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine continuous vertical tubular pores; many prominent clay films on faces of peds and lining pores; neutral; clear smooth boundary.

Btk—21 to 32 inches; light brownish gray (10YR 6/2) sandy clay loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few distinct clay films on faces of peds; few very fine roots; few very fine continuous vertical tubular pores; violently effervescent; few distinct irregularly shaped soft masses of calcium carbonate; 7 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Bk1—32 to 42 inches; light gray (10YR 7/2) very fine sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine continuous vertical pores; violently effervescent; dissseminated calcium carbonate; 10 percent calcium carbonate equivalent; moderately alkaline; gradual smooth boundary.

Bk2—42 to 60 inches; light gray (10YR 7/2) sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent; disseminated calcium carbonate; 9 percent calcium carbonate equivalent; moderately alkaline.

The particle-size control section ranges from 20 to 30 percent clay, with more than 35 percent fine or coarser sand. The mollic epipedon is 7 to 19 inches thick. The depth to secondary calcium carbonate is 19 to 28 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Texture is sandy loam or fine sandy loam. Reaction is neutral or slightly alkaline.

The Bt horizon has value of 5 or 6 dry (3 or 4 moist) and chroma of 2 or 3. Reaction is neutral or slightly alkaline.

The Btk horizon, if it occurs, has texture of sandy clay loam or very fine sandy loam. The calcium carbonate equivalent ranges from 5 to 15 percent.

The Bk horizon has value of 6 or 7 dry (5 or 6 moist) and chroma of 2 or 3. Texture is very fine sandy loam, fine sandy loam, or sandy loam. The calcium carbonate equivalent ranges from 5 to 15 percent. Reaction is slightly alkaline or moderately alkaline.

Nidix Series

The Nidix series consists of moderately deep, well drained, moderately rapidly permeable soils on hillslopes. They formed in alluvium and colluvium derived from sandstone. Elevation is 4,500 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 10 to 60 percent.

These soils are loamy-skeletal, mixed, superactive, mesic Aridic Haplustolls.

Typical pedon of Nidix very cobbly sandy loam, 42 percent slopes, in an area of Keeline-Nidix-Taluce complex, 10 to 60 percent slopes, 1,650 feet west and 600 feet north of the southeast corner of sec. 20, T. 25 N., R. 67 W.

A—0 to 8 inches; dark brown (10YR 4/3) very cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine and few medium roots; 25 percent gravel and 30 percent cobbles; slightly alkaline; clear wavy boundary.

Bw—8 to 20 inches; brown (10YR 5/3) very cobbly sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine and fine and medium roots; common very fine and fine tubular pores; 25 percent gravel and 30 percent cobbles; neutral; gradual wavy boundary.

C—20 to 30 inches; pale brown (10YR 6/3) cobbly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine and medium roots; few very fine and fine tubular pores; 10 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

Cr—30 to 40 inches; weakly consolidated sandstone.

The particle-size control section ranges from 35 to 60 percent rock fragments, 10 to 16 percent clay, and 15 to 35 percent fine or coarser sand. Individual horizons have less than 35 percent rock fragments. The depth to paralithic contact is 20 to 40 inches. The mollic epipedon is 7 to 10 inches thick. Reaction is neutral or slightly alkaline throughout.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. The content of rock fragments ranges from 35 to 60 percent. Texture is very cobbly sandy loam, very gravelly fine sandy loam, or very gravelly coarse sandy loam.

The Bw horizon, if it occurs, has value of 4 or 5 dry and chroma of 2 or 3. The content of rock fragments ranges from 35 to 60 percent. Texture is very cobbly sandy loam or very cobbly fine sandy loam.

The C horizon has value of 5 or 6 dry and chroma of 3 or 4. Texture is gravelly sandy loam, very gravelly sandy loam, very cobbly sandy loam, or cobbly sandy loam.

Numa Series

The Numa series consists of very deep, well drained, moderately permeable soils on terraces. They formed in alluvium and eolian material derived from various sources. Elevation is 4,600 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are fine-loamy, mixed, superactive, mesic Ustic Haplocalcids.

Typical pedon of Numa sandy clay loam, on a slope of 1 percent, in an area of Sweatbee-Numa sandy clay loams, 0 to 3 percent slopes, 1,100 feet east, 1,150 feet north of the southwest corner of sec. 21, T. 24 N., R. 68 W.

Ap—0 to 10 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and plastic; common very fine and fine roots; few very fine and fine discontinuous random pores; strongly effervescent; discontinuous calcium carbonate; moderately alkaline; abrupt smooth boundary.

Bk—10 to 30 inches; very pale brown (10YR 7/3) sandy clay loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; few very fine and fine discontinuous vertical pores; 10 percent gravel; violently effervescent; disseminated calcium carbonate; 15 percent calcium carbonate

equivalent; moderately alkaline; gradual smooth boundary.
C—30 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; 5 percent gravel; violently effervescent; disseminated calcium carbonate; 10 percent calcium carbonate equivalent; moderately alkaline.

The particle-size control section ranges from 18 to 25 percent clay and 10 percent or less rock fragments. The depth to the calcic horizon is 10 to 14 inches.

The Bk horizon has value of 6 to 8 dry and chroma of 2 to 4. The calcium carbonate equivalent ranges from 15 to 25 percent. Texture is sandy clay loam or loam.

The C horizon, if it occurs, has calcium carbonate equivalent of 5 to 15 percent. The content of rock fragments is less than 10 percent. Texture is fine sandy loam.

Nuncho Series

The Nuncho series consists of very deep, well drained, moderately slowly permeable soils on hillslopes and fan remnants. They formed in alluvium and colluvium derived from sandstone and shale. Elevation is 4,500 to 5,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 10 percent.

These soils are fine, smectitic, mesic Aridic Argiustolls.

Typical pedon of Nuncho loam, on a slope of 1 percent, in an area of Recluse-Nuncho loams, 0 to 10 percent slopes, 1,425 feet west, 700 feet north of the southeast corner of sec. 27, T. 30 N., R. 69 W.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; slightly alkaline; abrupt wavy boundary.
Bt—10 to 21 inches; grayish brown (10YR 5/2) clay loam, dark grayish brown (10YR 4/2) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, firm, very sticky and very plastic; many very fine roots; common very fine continuous tubular pores; many prominent clay films on faces of peds; slightly alkaline; gradual smooth boundary.
Btk—21 to 31 inches; grayish brown (10YR 5/2) clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine roots; strongly effervescent; disseminated calcium carbonate; 7 percent calcium carbonate equivalent; common very fine continuous vertical tubular pores; few distinct clay films on faces of peds; moderately alkaline; clear smooth boundary.
Bk—31 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and very fine roots; violently effervescent; disseminated calcium carbonate and many distinct irregularly shaped filaments or threads of calcium carbonate; 6 percent calcium carbonate equivalent; moderately alkaline.

The particle-size control section ranges from 35 to 40 percent clay, with 15 to 35 percent fine or coarser sand. The thickness of the mollic epipedon ranges from 8 to 16 inches.

The A horizon is neutral or slightly alkaline.

The Bt horizon has value of 4 or 5 dry (3 or 4 moist) and chroma of 2 or 3.

The Btk horizon has characteristics similar to those of the Bt horizon, but reaction in the Btk horizon is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 2 or 3. Texture is clay loam or silt loam. The calcium carbonate equivalent ranges from 4 to 14 percent.

Orpha Series

The Orpha series consists of very deep, excessively drained, moderately rapidly permeable to very rapidly permeable soils on hillslopes. They formed in eolian materials derived from various sources. Elevation is 4,300 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 20 percent.

These soils are mixed, mesic Ustic Torripsamments.

Typical pedon of Orpha fine sand, 2 percent slopes, in an area of Orpha fine sand, 0 to 15 percent slopes, 1,800 feet west, 1,100 feet south of the northeast corner of sec. 6, T. 24 N., R. 66 W.

A—0 to 5 inches; pale brown (10YR 6/3) fine sand, dark grayish brown (10YR 4/2) moist; single grained; loose, nonsticky and nonplastic; common fine and medium roots; neutral; clear wavy boundary.

C—5 to 60 inches; yellowish brown (10YR 5/4) sand, grayish brown (10YR 5/2) moist; single grained; loose, nonsticky and nonplastic; few medium and common fine roots to a depth of 35 inches; slightly alkaline.

The depth to calcium carbonate is typically more than 40 inches, but it is 30 inches in some pedons. Reaction is neutral or slightly alkaline throughout the soil.

The A horizon has value of 3 or 4 moist and chroma of 2 or 3. Texture is fine sand or loamy fine sand.

The C horizon has value of 5 to 7 dry (4 to 6 moist) and chroma of 2 to 4. Texture is sand, fine sand, or loamy sand.

Phiferson Series

The Phiferson series consists of moderately deep, well drained, moderately rapidly permeable soils on benches, terraces, and hillslopes. They formed in residuum and eolian material derived from sandstone. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 20 percent.

These soils are coarse-loamy, mixed, superactive, mesic Aridic Haplustolls.

Typical pedon of Phiferson sandy loam, on a slope of 1 percent, in an area of Phiferson-Treon complex, 0 to 6 percent slopes, 1,850 feet east, 650 feet south of the northwest corner of sec. 32, T. 24 N., R. 66 W.

A—0 to 8 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; neutral; clear smooth boundary.

Bw—8 to 19 inches; dark brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; weak coarse prismatic structure parting to moderate coarse subangular blocky; slightly hard, very friable, nonsticky and nonplastic; many fine and few medium roots; very few faint clay bridges between sand grains; slightly alkaline; clear wavy boundary.

Bk—19 to 30 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few fine roots; 10 percent soft sandstone gravel; strongly effervescent; few distinct soft rounded masses, threads, and seams of calcium carbonate; 8 percent calcium carbonate equivalent; slightly alkaline; abrupt smooth boundary.

Cr—30 to 40 inches; soft, calcareous sandstone.

Gravel covers 0 to 10 percent of the surface. The depth to paralithic contact ranges from 20 to 40 inches. The particle-size control section ranges from 10 to 18 percent clay and is more than 35 percent fine or coarser sand. The content of rock fragments ranges from 0 to 10 percent gravel throughout the soil.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Texture is sandy loam, fine sandy loam, or very fine sandy loam. Reaction is neutral or slightly alkaline.

The Bw horizon has value of 4 to 6 dry (3 or 4 moist) and chroma of 2 to 4. Texture is sandy loam, fine sandy loam, or very fine sandy loam.

The Bk and C horizons have value of 6 or 7 dry (4 to 6 moist) and chroma of 2 or 3. Texture is very fine sandy loam, fine sandy loam, or sandy loam. The calcium carbonate equivalent ranges from 5 to 14 percent. Reaction is slightly alkaline or moderately alkaline.

Pinelli Series

The Pinelli series consists of very deep, well drained, slowly permeable soils on hillslopes and alluvial fans. These soils formed in clayey alluvium derived from various sources. Elevation ranges from 6,500 to 7,500 feet. The mean annual precipitation is 15 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free period is 85 to 110 days. Slopes are 3 to 10 percent.

These soils are fine, smectitic, frigid Ustic Haplargids.

Typical pedon of Pinelli clay loam, in an area of Pinelli-Chivington complex, 0 to 15 percent slopes, in Laramie County, Western Part, 800 feet north and 2,200 feet east of the southwest corner of sec. 10, T. 14 N., R. 69 W.

A—0 to 4 inches; dark brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine roots; 10 percent gravel; slightly alkaline; clear smooth boundary.

Bt1—4 to 9 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 4/4) moist; moderate coarse angular blocky structure; hard, firm, sticky and plastic; many very fine roots; many distinct clay films on faces of peds; slightly alkaline; clear smooth boundary.

Bt2—9 to 23 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 4/4) moist; weak fine

subangular blocky structure; hard, firm, sticky and plastic; many distinct clay films on faces of peds; slightly effervescent; disseminated calcium carbonate; slightly alkaline; clear smooth boundary.

Bk—23 to 60 inches; light brown (7.5YR 6/4) sandy clay loam, brown (7.5YR 5/4) moist; massive; hard, friable, sticky and plastic; violently effervescent; few distinct soft masses of calcium carbonate; moderately alkaline.

The depth to horizons that have secondary calcium carbonate is 6 to 30 inches.

The A horizon has hue of 7.5YR or 10YR. Reaction is neutral or slightly alkaline. Texture is loam or clay loam.

The Bt horizon is clay or clay loam. It has 35 to 45 percent clay.

The Bk horizon is sandy clay loam or clay loam. It is moderately alkaline or strongly alkaline and has a calcium carbonate equivalent ranging from 4 to 14 percent.

Poposhia Series

The Poposhia series consists of very deep, well drained, moderately permeable soils on hillslopes and alluvial fans. They formed in alluvium derived from shale interbedded with sandstone. Elevation is 5,600 to 7,500 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 0 to 15 percent.

These soils are fine-loamy, mixed, superactive, calcareous, frigid Ustic Torriorthents.

Typical pedon of Poposhia loam, 6 percent slopes, in an area of Poposhia-Chaperton association, 6 to 12 percent slopes, 1,600 feet east, 1,450 feet north of the southwest corner of sec. 27, T. 21 N., R. 75 W.

A1—0 to 1 inch; yellowish brown (10YR 5/4) loam, brown (10YR 4/3) moist; weak very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common very fine and fine continuous irregular pores; moderately alkaline; abrupt smooth boundary.

A2—1 to 5 inches; dark yellowish brown (10YR 4/4) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine and medium granular; soft, friable, sticky and plastic; many fine and few medium roots; common very fine and fine continuous irregular pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bk1—5 to 15 inches; brown (10YR 5/3) loam, olive brown (2.5Y 4/4) moist; moderate medium and coarse subangular blocky structure parting to weak fine and medium granular; slightly hard, friable, sticky and plastic; many fine and few medium roots; common very fine and fine continuous irregular pores; strongly effervescent; disseminated calcium carbonate and many fine soft light gray (10YR 7/2) masses of calcium carbonate; 9 percent calcium carbonate equivalent; strongly alkaline; gradual smooth boundary.

Bk2—15 to 29 inches; grayish brown (2.5Y 5/2) loam, olive (5Y 4/4) moist; weak medium and coarse prismatic structure; slightly hard, friable, sticky and plastic; many fine and few medium roots; common very fine and fine continuous irregular pores; strongly effervescent; disseminated calcium carbonate; 9 percent calcium carbonate equivalent; strongly alkaline; gradual smooth boundary.

C—29 to 60 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, sticky and plastic; few fine and medium roots; common very fine and fine continuous irregular pores; slightly effervescent; disseminated calcium carbonate; strongly alkaline.

The particle-size control section ranges from 18 to 30 percent clay. The content of rock fragments ranges from 0 to 10 percent throughout the soil.

The A horizon has value of 4 to 6 dry. Reaction is slightly alkaline or moderately alkaline.

The Bk or C horizon has hue of 2.5Y or 10YR, value of 5 to 7 dry, and chroma of 2 to 4. Texture is loam, silt loam, clay loam, or sandy clay loam. Reaction is moderately alkaline or strongly alkaline.

Quarterback Series

The Quarterback series consists of very deep, well drained, moderately permeable or moderately rapidly permeable soils on terraces, in drainageways, and on flood plains. They formed in alluvium derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are coarse-loamy, mixed, superactive, mesic Torrifluventic Haplustolls.

Typical pedon of Quarterback loam (fig. 14), on a slope of 1 percent, in an area of Quarterback loam, 0 to 3 percent slopes, 2,300 feet west, 1,700 feet south of the northeast corner of sec. 19, T. 29 N., R. 68 W.

Ap1—0 to 1 inch; dark brown (10YR 3/3) loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine continuous random irregularly shaped pores; moderately alkaline; abrupt smooth boundary.

Figure 14.—Profile of Quarterback loam.

Ap2—1 to 12 inches; dark brown (10YR 3/3) sandy loam, dark brown (10YR 3/3) moist; moderate very coarse and coarse granular structure; hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine continuous random irregularly shaped pores; moderately alkaline; abrupt smooth boundary.

C1—12 to 17 inches; brown (10YR 5/3) coarse sandy loam, very dark grayish brown (10YR 3/2) moist; massive; hard, loose, nonsticky and nonplastic; many very fine and few fine roots; few very fine and fine continuous random irregularly shaped pores; 10 percent gravel; slightly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

C2—17 to 21 inches; light yellowish brown (10YR 6/4) very fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine continuous random irregularly shaped pores; slightly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

C3—21 to 52 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine continuous random irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear wavy boundary.

C4—52 to 60 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine continuous random irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section ranges from 10 to 20 percent clay and 0 to 15 percent rock fragments. Reaction is neutral to moderately alkaline throughout.

The A horizon has value of 3 or 4 dry (2 or 3 moist) and chroma of 2 or 3. Texture is loam, sandy loam, or very fine sandy loam.

The C horizon has value of 3 to 6 dry (3 or 4 moist) and chroma of 2 to 4. Texture is stratified coarse sandy loam to sandy clay loam. Thin strata of other textures are present. Some gravelly modifiers are also present.

The Quarterback, thick surface, soil in map unit 206 has a mollic epipedon that is more than 20 inches (50 centimeters) thick. Because the representative value

for the thickness of the mollic epipedon is less than 20 inches, however, no change in taxonomic classification is warranted. This difference does not significantly affect the use and management of the soil.

Recluse Series

The Recluse series consists of very deep, well drained, moderately permeable or moderately slowly permeable soils on hillslopes, on terraces, in drainageways, on benches, and on fans. They formed in alluvium and eolian material derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 20 percent.

These soils are fine-loamy, mixed, superactive, mesic Aridic Argiustolls.

Typical pedon of Recluse very fine sandy loam, on a slope of 1 percent, in an area of Cedak-Recluse very fine sandy loams, 0 to 6 percent slopes, 1,400 feet south, 2,150 feet west of the northeast corner of sec. 9, T. 20 N., R. 65 W.

Ap1—0 to 3 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine continuous random irregular pores; slightly alkaline; abrupt smooth boundary.

Ap2—3 to 9 inches; brown (10YR 4/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine and few fine continuous random irregular pores; slightly alkaline; abrupt smooth boundary.

Bt1—9 to 14 inches; dark yellowish brown (10YR 4/4) loam, brown (10YR 4/3) moist; moderate medium and coarse prismatic structure parting to weak fine and medium subangular blocky; very hard, friable, slightly sticky and plastic; common very fine roots; common very fine and few fine continuous random irregular pores; common distinct clay films on faces of peds; slightly alkaline; clear smooth boundary.

Bt2—14 to 20 inches; yellowish brown (10YR 5/4) loam, yellowish brown (10YR 5/4) moist; moderate medium and coarse prismatic structure parting to weak fine and medium subangular blocky; very hard, friable, slightly sticky and plastic; common very fine roots; common very fine and few fine continuous random irregular pores; common distinct clay films on faces of peds; slightly alkaline; clear wavy boundary.

Bk1—20 to 35 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; weak coarse prismatic structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few fine continuous random irregular pores; violently effervescent; disseminated calcium carbonate and common fine filaments of calcium carbonate; 15 percent calcium carbonate equivalent; strongly alkaline; gradual wavy boundary.

Bk2—35 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine continuous random irregular pores; violently effervescent; disseminated calcium carbonate; 6 percent calcium carbonate equivalent; strongly alkaline.

The mollic epipedon is 8 to 19 inches thick. The depth to continuous horizons of calcium carbonate accumulation ranges from 16 to 30 inches. The particle-size control section is 24 to 35 percent clay and is 15 to 35 percent fine or coarser sand.

The A horizon has value of 4 or 5 dry (2 or 3 moist) and chroma of 2 or 3. Texture is fine sandy loam, loam, or very fine sandy loam. The content of rock fragments ranges from 0 to 10 percent gravel. Reaction is neutral or slightly alkaline.

The Bt horizon has value 4 to 6 dry (3 to 5 moist) and chroma of 2 to 4 dry or moist. Texture is loam, clay loam, or sandy clay loam. The content of rock fragments ranges from 0 to 10 percent gravel. Reaction is neutral or slightly alkaline.

Some pedons have a Btk horizon. This horizon has characteristics similar to those of the Bt horizon, but it has 1 to 10 percent calcium carbonate equivalent. Texture is loam or clay loam.

The Bk horizon has value of 6 or 7 dry (4 to 6 moist) and chroma of 2 to 4. Texture is loam, very fine sandy loam, or sandy clay loam. The content of rock fragments ranges from 0 to 10 percent gravel. Reaction is slightly alkaline to strongly alkaline. The calcium carbonate equivalent is 5 to 15 percent.

Some pedons have a C horizon. This horizon has characteristics similar to those of the Bk horizon.

Rentsac Series

The Rentsac series consists of shallow, well drained, moderately rapidly permeable soils on hills. They formed in residuum and colluvium derived from sandstone. Elevation is 5,500 to 6,500 feet. The mean

annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 20 to 45 percent.

These soils are loamy-skeletal, mixed, superactive, calcareous, Aridic Lithic Ustochrepts.

Typical pedon of Rentsac very gravelly sandy loam, 20 percent slopes, in an area of Rentsac-Brownsto-Ipson complex, 10 to 45 percent slopes, 30 feet north, 20 feet west of the southeast corner of sec. 12, T. 20 N., R. 70 W.

A—0 to 3 inches; brown (10YR 5/3) very gravelly sandy loam, brown (10YR 4/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; 40 percent gravel; violently effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bk—3 to 15 inches; yellowish brown (10YR 5/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; 45 percent gravel; 10 percent calcium carbonate equivalent; strongly effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; moderately alkaline; abrupt smooth boundary.

R—15 inches; hard, calcareous sandstone.

The depth to lithic contact ranges from 10 to 20 inches. The particle-size control section ranges from 8 to 18 percent clay. The content of rock fragments ranges from 40 to 60 percent throughout the soil.

The A horizon has value of 5 or 6 dry (3 or 4 moist).

The Bk horizon has value of 5 to 7 dry (4 or 5 moist) and chroma of 2 to 4. The calcium carbonate equivalent ranges from 5 to 15 percent.

Satanka Series

The Satanka series consists of moderately deep, well drained, moderately permeable soils on hills. They formed in alluvium and residuum derived from sedimentary rock. Elevation is 6,000 to 7,200 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 5 to 20 percent.

These soils are fine-loamy, mixed, superactive, frigid Ustic Haplargids.

Typical pedon of Satanka fine sandy loam, 5 percent slopes, in an area of Blackhall-Satanka-Rock outcrop complex, 5 to 20 percent slopes, 50 feet north, 2,400 feet west of the southeast corner of sec. 36, T. 16 N., R. 74 W.

A—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; slightly alkaline; clear smooth boundary.

Bt—4 to 9 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, very friable, slightly sticky and slightly plastic; common faint clay films on faces of peds; slightly alkaline; clear smooth boundary.

Bk1—9 to 13 inches; grayish brown (2.5Y 5/2) sandy clay loam, olive brown (2.5Y 4/4) moist; weak coarse prismatic structure parting to weak medium subangular blocky; hard, very friable, slightly sticky and slightly plastic; strongly effervescent; disseminated calcium carbonate and few distinct soft masses, threads, and seams of calcium carbonate; moderately alkaline; clear wavy boundary.

Bk2—13 to 35 inches; light gray (2.5Y 7/2) sandy clay loam, light yellowish brown (2.5Y 6/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; strongly effervescent; disseminated calcium carbonate and common distinct soft masses, threads, and seams of calcium carbonate; many partly weathered shale chips that break down when wetted; strongly alkaline; diffuse wavy boundary.

Cr—35 to 45 inches; soft shale.

The depth to the base of the argillic horizon is 5 to 10 inches. The depth to paralithic material ranges from 20 to 40 inches. The particle-size control section ranges from 20 to 30 percent clay and 45 to 55 percent fine or coarser sand.

Reaction in the A and Bt horizons is slightly alkaline or moderately alkaline.

The Bk horizon is dominantly sandy clay loam, but in some pedons it has a layer of sandy loam 5 to 8 inches thick above the bedrock. Reaction is moderately alkaline or strongly alkaline. The calcium carbonate equivalent ranges from 6 to 14 percent.

Selpats Series

The Selpats series consists of very deep, well drained, moderately permeable soils on terraces, benches, and hills. They formed in alluvium and eolian materials derived from various sources. Elevation is 4,300 to 5,500 feet. The mean annual precipitation is

12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 20 percent.

These soils are fine-loamy, mixed, superactive, mesic Ustic Calciargids.

Typical pedon of Selpats sandy clay loam, on a slope of 1 percent, in an area of Claprych-Selpats sandy clay loams, 0 to 3 percent slopes, 2,100 feet north, 1,100 feet west of the southeast corner of sec. 9, T. 24 N., R. 68 W.

Ap—0 to 10 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; weak coarse subangular blocky structure parting to weak fine subangular blocky; slightly hard, very friable, sticky and plastic; many very fine and few fine roots; common fine discontinuous irregularly shaped pores; slightly alkaline; abrupt smooth boundary.

Bt1—10 to 14 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure parting to weak very fine and fine subangular blocky; slightly hard, friable, sticky and plastic; common very fine and fine and few medium roots; few very fine continuous vesicular pores; few distinct clay films on faces of peds and bridging of mineral grains; slightly alkaline; clear wavy boundary.

Bt2—14 to 19 inches; pale brown (10YR 6/3) clay loam, brown (10YR 5/3) moist; weak medium and coarse prismatic structure parting to moderate fine and medium subangular blocky; hard, friable, sticky and plastic; common very fine and few fine roots; many very fine and few fine continuous vesicular pores; many prominent clay films on faces of peds and in pores; slightly alkaline; clear irregular boundary.

Btk—19 to 24 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; weak medium and coarse prismatic structure parting to weak fine subangular blocky; hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine, common fine, and few medium continuous vesicular pores; few distinct clay films on faces of peds and in pores; strongly effervescent; disseminated calcium carbonate and few distinct soft masses and seams of calcium carbonate; 11 percent calcium carbonate equivalent; moderately alkaline; gradual wavy boundary.

2Bk—24 to 60 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; 35 percent gravel and 5 percent cobbles; violently effervescent; disseminated calcium carbonate and common prominent soft masses, seams, and pendants of calcium carbonate on rock fragments; 13 percent calcium carbonate equivalent; moderately alkaline.

Gravel and cobbles cover 0 to 20 percent of the surface. The depth to the base of the argillic horizon is 12 to 25 inches. The particle-size control section ranges from 20 to 32 percent clay and 0 to 25 percent rock fragments. The depth to the 2Bk horizon ranges from 15 to 39 inches. It is 5 to 15 percent clay and 35 to 60 percent rock fragments.

The A horizon has value of 4 or 5 dry (3 or 4 moist) and chroma of 3 or 4. Texture is sandy clay loam, fine sandy loam, loam, or gravelly sandy loam. The content of rock fragments ranges from 0 to 25 percent. Reaction is slightly alkaline or moderately alkaline.

The Bt horizon has value of 4 to 6 dry (4 to 6 moist) and chroma of 3 or 4. Texture is sandy clay loam, loam, or clay loam. In some pedons, the lower part of this horizon has a texture of very fine sandy loam, gravelly sandy clay loam, or gravelly sandy loam. The content of rock fragments averages from 0 to 15 percent.

The Btk and Bk horizons have value of 5 or 6 dry (4 or 5 moist) and chroma of 2 to 4. Texture is loam, sandy loam, very fine sandy loam, or gravelly sandy loam. The calcium carbonate equivalent ranges from 5 to 20 percent. The content of rock fragments ranges from 0 to 25 percent. Reaction is slightly alkaline or moderately alkaline.

The 2Bk horizon has value of 6 or 7 dry (5 to 7 moist) and chroma of 2 to 4. Texture is very gravelly sandy loam, but in some pedons very gravelly loamy sand is below a depth of 40 inches. The calcium carbonate equivalent ranges from 5 to 30 percent. The content of rock fragments ranges from 35 to 60 percent. The content of gravel ranges from 30 to 60 percent, and the content of cobbles ranges from 0 to 15 percent.

Sixmile Series

The Sixmile series consists of moderately deep, well drained, moderately permeable soils on hills. They formed in alluvium and residuum derived from sandstone. Elevation is 4,300 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 5 to 30 percent.

These soils are fine-loamy, mixed, superactive, calcareous, mesic Aridic Ustorthents.

Typical pedon of Sixmile loam, 5 percent slopes, in an area of Spearfish-Sixmile-Rock outcrop complex, 5

to 45 percent slopes, 150 feet north, 1,100 feet west of the southeast corner of sec. 2, T. 29 N., R. 68 W.

A—0 to 4 inches; reddish brown (2.5YR 5/4) loam, dark reddish brown (2.5YR 3/4) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

BC—4 to 15 inches; reddish brown (2.5YR 4/4) loam, dark reddish brown (2.5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; violently effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

C—15 to 28 inches; red (2.5YR 4/6) loam, dark red (2.5YR 3/6) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; violently effervescent; calcium carbonate; moderately alkaline; abrupt smooth boundary.

Cr—28 to 60 inches; dark red (2.5YR 3/6), soft, calcareous sandstone.

The depth to paralithic contact ranges from 20 to 40 inches. The particle-size control section is 18 to 27 percent clay, with 15 to 35 percent fine or coarser sand and 0 to 15 percent rock fragments.

The A horizon has value of 4 or 5 dry and chroma of 2 to 4.

The BC horizon has value of 4 or 5 dry and chroma of 3 to 6.

The C horizon has value of 4 or 5 dry (3 or 4 moist) and chroma of 3 to 6.

Snavee Series

The Snavee series consists of very deep, well drained, moderately rapidly permeable soils on hills. They formed in colluvium derived from hard, fine grained limestone. Elevation is 4,500 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 10 to 30 percent.

These soils are loamy-skeletal, mixed, superactive, mesic Aridic Haplustalfs.

Typical pedon of Snavee extremely channery loam, 15 percent slopes, in an area of Sunup-Snavee-Rock outcrop complex, 0 to 30 percent slopes, 600 feet north, 800 feet west of the southeast corner of sec. 19, T. 28 N., R. 67 W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) extremely channery loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine and common medium roots; common very fine and fine and few medium random tubular pores; 65 percent channers; neutral; clear wavy boundary.

Bt—4 to 9 inches; brown (10YR 5/3) extremely flaggy loam, brown (10YR 4/3) moist; medium fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine and fine and few medium random tubular pores; many faint and common distinct clay films on faces of peds; 65 percent flagstones; slightly alkaline; gradual wavy boundary.

Bk—9 to 60 inches; pale brown (10YR 6/3) extremely flaggy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few very fine and fine random tubular pores; 65 percent flagstones; strongly effervescent; 5 percent calcium carbonate equivalent; common fine and few medium and coarse irregularly shaped filaments and soft masses of calcium carbonate; moderately alkaline.

The depth to continuous accumulations of secondary calcium carbonate and the base of the argillic horizon is 5 to 10 inches. Rock fragments cover 15 to 90 percent of the surface. The particle-size control section ranges from 50 to 70 percent rock fragments. The rock fragments are dominantly flagstones. The content of clay ranges from 10 to 18 percent in the particle-size control section.

The A horizon has hue of 10YR, value of 3 to 5 dry, and chroma of 2 or 3. Texture is fine sandy loam or loam modified by 15 to 70 percent flagstones, cobbles, channers, or gravel.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5 dry (3 or 4 moist), and chroma of 2 to 4. Texture is modified by 15 to 70 percent flagstones, cobbles, channers, or gravel. Reaction is neutral or slightly alkaline.

The Bk horizon has hue of 2.5YR or 10YR, value of 5 to 7 dry (4 to 7 moist), and chroma of 2 to 4. Texture is fine sandy loam or loam modified by 50 to 70 percent channers, cobbles, or flagstones. It is a calcic horizon that has 5 to 20 percent calcium carbonate equivalent.

Snilloc Series

The Snilloc series consists of very deep, well drained, moderately rapidly permeable soils on hills and terraces. They formed in alluvium and eolian materials derived from various sources. Elevation is 4,300 to 5,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are coarse-loamy, mixed, superactive, mesic Haplocalcidic Ustochrepts.

Typical pedon of Snilloc very fine sandy loam, on a slope of 1 percent, in an area of Snilloc-Chugcity complex, 0 to 6 percent slopes, 2,000 feet north, 650 feet west of the southeast corner of sec. 24, T. 21 N., R. 67 W.

Ap1—0 to 2 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; moderate very fine and fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine continuous irregularly shaped pores; violently effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

Ap2—2 to 8 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine continuous irregularly shaped pores; violently effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

Bk1—8 to 17 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; weak very coarse prismatic structure; very hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine and fine continuous irregularly shaped pores; 16 percent calcium carbonate equivalent; violently effervescent; disseminated calcium carbonate and few distinct soft masses and seams of calcium carbonate; moderately alkaline; gradual wavy boundary.

Bk2—17 to 30 inches; white (10YR 8/2) loam, very pale brown (10YR 7/4) moist; massive; hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine continuous irregularly shaped pores; 5 percent gravel; 39 percent calcium carbonate equivalent; violently effervescent; disseminated calcium carbonate and common distinct soft masses and seams of calcium carbonate; strongly alkaline; gradual wavy boundary.

Bk3—30 to 60 inches; very pale brown (10YR 8/3) sandy loam, yellowish brown (10YR 6/4) moist; massive; hard, very friable, slightly sticky and nonplastic; few very fine and fine roots; common very fine and fine continuous irregularly shaped pores; 5 percent gravel; 25 percent calcium carbonate equivalent; violently effervescent; disseminated calcium carbonate and common distinct soft masses and seams of calcium carbonate; strongly alkaline.

Gravel covers 0 to 20 percent of the surface. The depth to the calcic horizon is less than 20 inches. The calcic horizon ranges from 5 to 40 percent calcium carbonate equivalent. The particle-size control section ranges from 8 to 18 percent clay, 15 to 35 percent fine or coarser sand, and 0 to 20 percent rock fragments.

The A horizon has hue of 10YR or 7.5YR, value of 5 or 6 dry (3 to 5 moist), and chroma of 2 to 4. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has hue of 10YR or 7.5YR, value of 5 to 8 dry (4 to 7 moist), and chroma of 2 to 4. Texture is loam, fine sandy loam, very fine sandy loam, or sandy loam. The content of gravel ranges from 0 to 20 percent. The calcium carbonate equivalent ranges from 5 to 40 percent. Reaction is moderately alkaline or strongly alkaline.

The C horizon, if it occurs, has hue of 10YR or 7.5YR, value of 6 or 7 dry (5 or 6 moist), and chroma of 3 or 4. Texture is sandy loam or fine sandy loam. The content of coarse fragments ranges from 0 to 20 percent.

Spearfish Series

The Spearfish series consists of shallow, well drained, moderately permeable soils on hills. They formed in residuum derived from sandstone. Elevation is 4,300 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 5 to 45 percent.

These soils are loamy, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents.

Typical pedon of Spearfish loam, 6 percent slopes, in an area of Spearfish-Sixmile-Rock outcrop complex, 5 to 45 percent slopes, 150 feet north, 1,100 feet west of the southeast corner of sec. 2, T. 29 N., R. 68 W.

A—0 to 4 inches; reddish brown (2.5YR 5/4) loam, dark reddish brown (2.5YR 3/4) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and

common medium roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

AC—4 to 8 inches; reddish brown (2.5YR 5/4) loam, reddish brown (2.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable; common very fine and fine and few medium roots; violently effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

C—8 to 16 inches; reddish brown (2.5YR 5/4) loam, reddish brown (2.5YR 4/4) moist; massive; soft, very friable; common very fine and fine roots; violently effervescent; 5 percent very soft sandstone fragments; moderately alkaline; clear smooth boundary.

Cr—16 to 26 inches; soft, calcareous, red sandstone.

The depth to paralithic contact ranges from 10 to 20 inches. The particle-size control section is 18 to 27 percent clay and less than 15 percent rock fragments.

The A horizon has value of 4 to 6 dry (3 or 4 moist) and chroma of 2 to 4. Reaction is slightly alkaline or moderately alkaline.

The AC and C horizons have value of 5 or 6 dry (3 to 5 moist) and chroma of 4 to 6. The C horizon contains 5 to 55 percent very soft sandstone fragments.

Spinekop Series

The Spinekop series consists of very deep, well drained, moderately slowly permeable soils on foothills. They formed in calcareous alluvium derived from various sources. Elevation is 5,400 to 7,500 feet. The mean annual precipitation is 15 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 0 to 25 percent.

These soils are fine-loamy, mixed, superactive, frigid Aridic Ustochrepts.

Typical pedon of Spinekop sandy loam, 5 percent slopes, in an area of Cathedral-Spinekop-Rock outcrop complex, 0 to 40 percent slopes, 1,200 feet north, 1,000 feet west of the southeast corner of sec. 29, T. 21 N., R. 70 W.

A—0 to 3 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many fine and medium and coarse roots; neutral; clear smooth boundary.

Bw—3 to 15 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; many fine and medium and coarse roots; neutral; clear smooth boundary.

2Bk1—15 to 28 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; weak very fine angular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; many medium and coarse and few fine roots; strongly effervescent; disseminated calcium carbonate and common distinct irregularly shaped seams of calcium carbonate; moderately alkaline; gradual wavy boundary.

2Bk2—28 to 60 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few medium and coarse roots; violently effervescent; disseminated calcium carbonate and common distinct irregularly shaped seams of calcium carbonate; moderately alkaline.

The particle-size control section ranges from 18 to 35 percent clay and 15 to 35 percent fine or coarser sand. Reaction ranges from neutral to moderately alkaline above the 2Bk horizon. In the 2Bk horizon, reaction is moderately alkaline.

Reaction in the A horizon is neutral to moderately alkaline.

The Bw horizon has texture of clay loam or silty clay loam.

The 2Bk horizon has texture of loam.

Storsun Series

The Storsun series consists of very deep, well drained, moderately permeable soils on hillslopes. They formed in alluvium derived from sandstone. Elevation is 4,500 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 3 to 50 percent.

These soils are loamy-skeletal, carbonatic, mesic Ustic Haplocalcids.

Typical pedon of Storsun very gravelly loam, 18 percent slopes, in an area of Storsun-Sunup-Rock outcrop complex, 3 to 50 percent slopes, 2,100 feet east, 1,300 feet north of the southwest corner of sec. 2, T. 27 N., R. 66 W.

A—0 to 4 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; common fine and very fine roots and few medium roots; violently effervescent; disseminated calcium carbonate; 25 percent gravel and 10

percent cobbles; slightly alkaline; clear wavy boundary.

Bw—4 to 8 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine and fine tubular pores; violently effervescent; disseminated calcium carbonate; 25 percent gravel and 10 percent cobbles; moderately alkaline; abrupt wavy boundary.

Bk1—8 to 25 inches; very pale brown (10YR 7/3) very cobbly loam, very pale brown (10YR 7/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine and fine tubular pores; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 55 percent calcium carbonate equivalent; 25 percent gravel, 25 percent cobbles, and 5 percent stones; moderately alkaline; clear wavy boundary.

Bk2—25 to 60 inches; very pale brown (10YR 7/4) very cobbly loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable, sticky and plastic; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 30 percent calcium carbonate equivalent; 20 percent gravel, 30 percent cobbles, and 10 percent stones; moderately alkaline.

Gravel, channers, cobbles, and stones cover 35 to 60 percent of the surface. The particle-size control section ranges from 18 to 25 percent clay and 35 to 60 percent rock fragments. The calcium carbonate equivalent is 40 to 60 percent in the calcic horizon. It decreases with depth.

The A horizon has value of 5 or 6 dry (3 to 5 moist) and chroma of 2 or 3. The content of rock fragments ranges from 35 to 55 percent.

The Bw horizon has value of 5 or 6 dry and chroma of 2 or 3. Texture is very gravelly loam or gravelly loam. The content of rock fragments ranges from 30 to 50 percent.

The Bk horizon has value of 7 or 8 dry (5 to 7 moist) and chroma of 3 or 4. The content of rock fragments ranges from 35 to 60 percent. Texture is very cobbly loam or very cobbly sandy clay loam.

Stylite Series

The Stylite series consists of very deep, well drained, moderately permeable soils on hillslopes. They formed in alluvium and residuum derived from gypsiferous sediments. Elevation is 5,600 to 6,000 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 3 to 8 percent.

These soils are fine-loamy, mixed, superactive, frigid Calcic Argigypsids.

Typical pedon of Stylite sandy loam, 3 percent slopes, in an area of Diamonkit-Stylite sandy loams, 3 to 15 percent slopes, 150 feet north, 2,300 feet west of the southeast corner of sec. 2, T. 15 N., R. 74 W.

A—0 to 2 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine granular structure; loose, nonsticky and nonplastic; many fine roots; few very fine discontinuous pores; slightly alkaline; abrupt smooth boundary.

BA—2 to 4 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; many fine roots; few very fine discontinuous pores; slightly effervescent; disseminated calcium carbonate; slightly alkaline; clear smooth boundary.

Bt—4 to 14 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium columnar structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; few fine and very fine discontinuous pores; common prominent clay films on faces of peds; slightly alkaline; gradual smooth boundary.

Btk—14 to 21 inches; very pale brown (10YR 7/3) clay loam, yellowish brown (10YR 5/4) moist; weak medium columnar structure parting to weak medium subangular blocky; slightly hard, friable, sticky and slightly plastic; common fine roots; few very fine discontinuous pores; few distinct clay films on faces of peds; violently effervescent; disseminated calcium carbonate and common distinct soft masses of calcium carbonate; 20 percent calcium carbonate equivalent; moderately alkaline; gradual smooth boundary.

Bk—21 to 31 inches; very pale brown (10YR 7/3) clay loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable, sticky and slightly plastic; few very fine roots; few very fine discontinuous pores; violently effervescent; disseminated calcium carbonate and few distinct soft masses of calcium carbonate; 10 percent calcium carbonate equivalent; moderately alkaline; gradual wavy boundary.

By1—31 to 40 inches; pale brown (10YR 6/3) loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, sticky and slightly

plastic; common very fine discontinuous pores; strongly effervescent; disseminated calcium carbonate and few distinct soft masses of calcium carbonate; many fine and few distinct soft masses of gypsum; moderately alkaline; gradual wavy boundary.

By2—40 to 60 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, sticky and plastic; common very fine discontinuous pores; slightly effervescent; disseminated calcium carbonate and few distinct soft masses of calcium carbonate; many fine and common medium soft masses of gypsum; moderately alkaline.

The depth to the base of the argillic horizon ranges from 16 to 21 inches. The depth to horizons that have continuous accumulations of calcium carbonate ranges from 4 to 14 inches. The depth to visible accumulations of gypsum ranges from 24 to 30 inches.

The A horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 3 or 4. Reaction is slightly alkaline or moderately alkaline.

The Bt horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 3 or 4. Texture is loam or clay loam. Reaction is slightly alkaline or moderately alkaline.

The Btk horizon has value of 6 or 7 dry and chroma of 3 or 4. The calcium carbonate equivalent ranges from 15 to 25 percent. Reaction is moderately alkaline or strongly alkaline.

The Bk horizon has value of 7 or 8 dry and chroma of 3 or 4. The calcium carbonate equivalent ranges from 10 to 20 percent.

The By horizon has value of 6 or 7 dry (5 or 6 moist) and chroma of 3 or 4.

Sunup Series

The Sunup series consists of shallow, well drained, moderately permeable soils on hillslopes. They formed in residuum derived from sandstone. Elevation is 4,500 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 50 percent.

These soils are loamy-skeletal, mixed, semiactive, calcareous, mesic Lithic Ustic Torriorthents.

Typical pedon of Sunup very cobbly fine sandy loam, 10 percent slopes, in an area of Sunup-Rock outcrop complex, 10 to 40 percent slopes, 800 feet east, 2,450 feet south of the northwest corner of sec. 9, T. 30 N., R. 66 W.

A—0 to 2 inches; brown (10YR 5/3) very cobbly fine sandy loam, dark brown (10YR 4/3) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; common fine and very fine roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

C—2 to 10 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 4/3) moist; massive; soft, very friable, sticky and plastic; few fine roots; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt wavy boundary.

R—10 inches; hard, fine grained sandstone.

Gravel, channers, cobbles, and stones cover 35 to 60 percent of the surface. The depth to lithic contact ranges from 10 to 20 inches. The particle-size control section ranges from 20 to 27 percent clay and 35 to 60 percent rock fragments.

The A horizon has value of 5 or 6 dry (3 or 4 moist) and chroma of 2 or 3. Texture is very channery fine sandy loam, very cobbly loam, or very cobbly fine sandy loam.

Some pedons have a thin Bk horizon. This horizon has characteristics similar to those of the C horizon.

The C horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 2 or 3. Texture is very channery loam or very cobbly loam. The calcium carbonate equivalent ranges from 1 to 8 percent.

Sweatbee Series

The Sweatbee series consists of very deep, well drained, moderately permeable and moderately rapidly permeable soils on terraces. They formed in alluvium and eolian material derived from various sources. Elevation is 4,600 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 20 percent.

These soils are coarse-loamy, mixed, superactive, mesic Haplocalcidic Ustochrepts.

Typical pedon of Sweatbee sandy clay loam, on a slope of 1 percent, in an area of Sweatbee-Numa sandy clay loams, 0 to 3 percent slopes, 1,650 feet east, 1,600 feet north of the southwest corner of sec. 21, T. 24 N., R. 68 W.

Ap—0 to 11 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine granular; hard, firm, sticky and plastic; common very fine and few fine roots; few very fine and fine discontinuous pores; strongly effervescent; disseminated calcium carbonate; 5

percent gravel; moderately alkaline; abrupt smooth boundary.

Bk1—11 to 17 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and plastic; common very fine and fine roots; few very fine and fine discontinuous pores; few faint clay films lining pores; strongly effervescent; disseminated calcium carbonate and common distinct threads and soft masses of calcium carbonate; 15 percent calcium carbonate equivalent; 5 percent gravel; moderately alkaline; clear smooth boundary.

Bk2—17 to 22 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, firm, sticky and slightly plastic; common very fine and fine roots; few very fine and fine discontinuous pores; strongly effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 15 percent calcium carbonate equivalent; 25 percent gravel; moderately alkaline; clear smooth boundary.

Bk3—22 to 35 inches; white (10YR 8/2) very gravelly sandy loam, very pale brown (10YR 7/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 35 percent calcium carbonate equivalent; 30 percent gravel and 10 percent cobbles; moderately alkaline; diffuse irregular boundary.

Bk4—35 to 60 inches; very pale brown (10YR 7/3) very gravelly sand, light yellowish brown (10YR 6/4) moist; massive; soft, very friable, nonsticky and nonplastic; strongly effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 11 percent calcium carbonate equivalent; 30 percent gravel and 10 percent cobbles; moderately alkaline.

Gravel covers 0 to 5 percent of the surface. The particle-size control section ranges from 10 to 18 percent clay and 15 to 35 percent rock fragments. The lower part of the subsoil may have as much as 45 percent rock fragments. The depth to the calcic horizon ranges from 10 to 22 inches. The calcium carbonate equivalent in the calcic horizon ranges from 5 to 40 percent.

The A horizon has value of 5 or 6 dry and chroma of 3 or 4. Texture is sandy clay loam or fine sandy loam. The content of rock fragments ranges from 0 to 10 percent gravel.

The Bk horizon has value of 6 to 8 dry (5 to 7 moist) and chroma of 1 to 4. Texture is sandy loam, gravelly sandy loam, very gravelly sandy loam, very gravelly loamy sand, very gravelly sand, or fine sandy loam. The calcium carbonate equivalent ranges from 5 to 40 percent. The content of rock fragments ranges from 15 to 35 percent in the particle-size control section. The content of rock fragments is more than 35 percent below the control section.

The Sweatbee soil in map unit 231 has a water table resulting from irrigation between the depths of 3.0 and 6.0 feet from April through October. Because the representative value for the depth to the water table is 4.5 feet, however, no change in taxonomic classification is warranted. This difference does not significantly affect the use and management of the soil.

Taluce Series

The Taluce series consists of very shallow or shallow, well drained, moderately rapidly permeable soils on ridges and hillslopes. They formed in residuum and alluvium derived from sandstone. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 60 percent.

These soils are loamy, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents.

Typical pedon of Taluce, thin solum, sandy loam, 6 percent slopes, in an area of Taluce-Treon complex, thin solums, 6 to 10 percent slopes; 575 feet east, 75 feet north of the southwest corner of sec. 2, T. 21 N., R. 66 W.

Ap—0 to 5 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine and fine interstitial pores; 10 percent gravel; violently effervescent; disseminated calcium carbonate; moderately alkaline; abrupt wavy boundary.

C—5 to 9 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine and fine interstitial pores; 20 percent gravel; violently effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

Cr—9 to 19 inches; white (2.5Y 8/2), calcareous, soft sandstone.

Gravel and cobbles cover 0 to 65 percent of the surface. The depth to paralithic contact ranges from 4

to 20 inches. The particle-size control section is 10 to 18 percent clay and 0 to 25 percent rock fragments.

The A horizon has value of 4 to 6 dry (3 to 5 moist) and chroma of 2 to 4. Texture is sandy loam, fine sandy loam, cobbly fine sandy loam, or gravelly fine sandy loam. The content of rock fragments ranges from 0 to 25 percent. Reaction is slightly alkaline or moderately alkaline.

The C horizon has value of 5 to 7 dry (4 or 5 moist) and chroma of 2 to 4. Texture is sandy loam, gravelly sandy loam, gravelly fine sandy loam, very fine sandy loam, or fine sandy loam. The content of rock fragments ranges from 0 to 25 percent gravel. Reaction is moderately alkaline or strongly alkaline.

Thirtynine Series

The Thirtynine series consists of very deep, well drained, moderately permeable soils on hills and terraces. They formed in alluvium derived from siltstone and sandstone. Elevation is 4,300 to 5,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are fine-silty, mixed, superactive, mesic Aridic Argiustolls.

Typical pedon of Thirtynine very fine sandy loam, on a slope of 1 percent, in an area of Deight-Thirtynine-Glendo very fine sandy loams, 0 to 6 percent slopes, 50 feet north, 1,025 feet east of the southwest corner of sec. 29, T. 25 N., R. 65 W.

A1—0 to 5 inches; brown (10YR 5/3) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine continuous random irregularly shaped pores; slightly alkaline; clear smooth boundary.

A2—5 to 7 inches; brown (10YR 4/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine continuous irregularly shaped pores; slightly alkaline; clear smooth boundary.

Bt1—7 to 11 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to weak fine and medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine continuous irregularly shaped pores; common distinct clay films on faces of peds; slightly alkaline; clear smooth boundary.

Bt2—11 to 17 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; hard, friable, slightly sticky and plastic; common very fine and fine roots; common very fine continuous irregularly shaped pores; common distinct clay films on faces of peds; slightly alkaline; abrupt smooth boundary.

Btk—17 to 22 inches; yellowish brown (10YR 5/4) loam, brown (10YR 5/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine continuous irregularly shaped pores; few distinct clay films on faces of peds; strongly effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bk1—22 to 27 inches; light gray (10YR 7/2) loam, pale brown (10YR 6/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine continuous irregularly shaped pores; violently effervescent; disseminated calcium carbonate; moderately alkaline; gradual smooth boundary.

Bk2—27 to 32 inches; light gray (10YR 7/2) loam, pale brown (10YR 6/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine continuous irregularly shaped pores; violently effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

C1—32 to 44 inches; light gray (10YR 7/2) loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; few very fine continuous irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

C2—44 to 60 inches; light gray (10YR 7/2) very fine sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; few very fine continuous irregularly shaped pores; strongly effervescent; disseminated calcium carbonate; moderately alkaline.

The particle-size control section ranges from 24 to 35 percent clay and is less than 15 percent fine or coarser sand. The thickness of the mollic epipedon is 7 to 11 inches. The depth to the base of the argillic horizon is 16 to 26 inches. The depth to continuous

accumulations of calcium carbonate is 11 to 20 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3.

The Bt horizon has value of 4 or 5 dry (3 to 5 moist) and chroma of 2 to 4. Texture is loam, silty clay loam, or clay loam. Some pedons have a Btk horizon. This horizon has characteristics similar to those of the Bt horizon.

The Bk horizon has value of 5 or 6 moist and chroma of 2 to 4. The calcium carbonate equivalent ranges from 5 to 10 percent.

The C horizon has hue 10YR or 7.5YR, value of 6 or 7 dry, and chroma of 2 to 4. Texture is loam or very fine sandy loam.

Treon Series

The Treon series consists of very shallow and shallow, well drained, moderately rapidly permeable soils on hillslopes, terraces, and benches. They formed in residuum derived from sandstone. Elevation is 4,300 to 6,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 60 percent.

These soils are loamy, mixed, superactive, mesic, shallow Torriorthentic Haplustolls.

Typical pedon of Treon gravelly fine sandy loam, 2 percent slopes, in an area of Treon-Alice-Phiferson complex, 0 to 6 percent slopes, 1,000 feet east, 725 feet south of the northwest corner of sec. 8, T. 21 N., R. 65 W.

Ap—0 to 8 inches; grayish brown (10YR 5/2) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak medium granular; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots concentrated near the base of the horizon; common very fine continuous random interstitial pores; 20 percent gravel and 1 percent cobbles; disseminated calcium carbonate; strongly effervescent; moderately alkaline; abrupt smooth boundary.

C—8 to 15 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine continuous interstitial pores; disseminated calcium carbonate; violently effervescent; moderately alkaline; gradual wavy boundary.

Cr—15 to 25 inches; weakly consolidated sandstone.

Gravel and cobbles cover 0 to 35 percent of the surface. The depth to paralithic contact ranges from 4 to 20 inches. The particle-size control section ranges from 10 to 20 percent clay, 15 to 35 percent fine or coarser sand, and 0 to 25 percent rock fragments.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Texture is sandy loam, fine sandy loam, very fine sandy loam, gravelly fine sandy loam, or cobbly fine sandy loam. The content of rock fragments ranges from 0 to 25 percent. Reaction is slightly alkaline or moderately alkaline.

The C horizon has value of 5 to 8 dry (3 to 6 moist) and chroma of 2 to 4. Texture is fine sandy loam, very fine sandy loam, sandy loam, or gravelly fine sandy loam. The content of rock fragments ranges from 0 to 25 percent. The calcium carbonate equivalent ranges from 5 to 15 percent. Reaction is slightly alkaline or moderately alkaline.

Trimad Series

The Trimad series consists of very deep, well drained, moderately permeable over moderately rapidly permeable soils on hills and alluvial fans. They formed in gravelly calcareous alluvium derived from various sources. Elevation is 6,500 to 7,500 feet. The mean annual precipitation is 15 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 90 to 110 days. Slope is 3 to 45 percent.

These soils are loamy-skeletal, mixed, superactive Typic Calciborolls.

Typical pedon of Trimad loam, 10 percent slopes, in an area of Trimad-Blazon-Rock outcrop complex, 3 to 40 percent slopes, 1,000 feet north, 2,500 feet east of the southwest corner of sec. 31, T. 20 N., R. 67 W.

A—0 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, friable; many very fine roots; violently effervescent; disseminated calcium carbonate; moderately alkaline; abrupt wavy boundary.

Bk1—7 to 25 inches; yellowish brown (10YR 5/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; 20 percent gravel; violently effervescent; concretions and pendants of calcium carbonate on gravel; 25 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Bk2—25 to 41 inches; very pale brown (10YR 7/3) very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable,

slightly sticky and slightly plastic; few very fine roots; 45 percent gravel; 25 percent calcium carbonate equivalent; pendants of calcium carbonate on gravel and common distinct soft concretions of calcium carbonate; violently effervescent; moderately alkaline; clear smooth boundary.

Bk3—41 to 60 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; 40 percent gravel; 20 percent calcium carbonate equivalent; pendants of calcium carbonate on gravel and common distinct soft concretions of calcium carbonate; violently effervescent; moderately alkaline.

The thickness of the mollic epipedon is 7 to 10 inches. The calcium carbonate equivalent is 15 to 25 percent in the calcic horizon. The particle-size control section ranges from 10 to 15 percent clay. Calcium carbonate is common on gravel.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 7 dry (4 to 6 moist) and chroma of 3 or 4. Texture is gravelly loam, very gravelly loam, or very gravelly sandy loam. The content of gravel ranges from 20 to 60 percent in the Bk horizon and averages 35 to 60 percent in the particle-size control section.

Tullock Series

The Tullock series consists of moderately deep, excessively drained, moderately rapidly permeable soils on hillslopes. They formed in eolian materials derived from sandstone. Elevation is 4,300 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 6 to 20 percent.

These soils are mixed, mesic Ustic Torripsamments.

Typical pedon of Tullock loamy fine sand, 6 percent slopes, in an area of Orpha-Tullock loamy fine sands, 6 to 20 percent slopes, 1,100 feet north, 100 feet east of the southwest corner of sec. 24, T. 24 N., R. 67 W.

A—0 to 8 inches; light yellowish brown (10YR 6/4) loamy fine sand, dark brown (10YR 3/3) moist; moderate coarse granular structure; soft, friable, nonsticky and nonplastic; slightly alkaline; clear smooth boundary.

AC—8 to 12 inches; pale brown (10YR 6/3) loamy fine sand, brown and dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; slightly alkaline; clear wavy boundary.

C—12 to 21 inches; light yellowish brown (10YR 6/4) loamy fine sand, dark yellowish brown (10YR 4/4) moist; massive; soft, friable, nonsticky and nonplastic; slightly effervescent; disseminated calcium carbonate; slightly alkaline; abrupt wavy boundary.

2Cr—21 inches; weakly consolidated, fine grained, calcareous sandstone.

The depth to paralithic contact is 20 to 40 inches. The depth to calcareous material is 10 to 15 inches.

The A horizon has chroma of 3 or 4. Texture is loamy fine sand, sand, or loamy sand.

The AC horizon, if it occurs, has characteristics similar to those of the A horizon.

The C horizon has chroma of 3 or 4. Texture is loamy fine sand, sand, or loamy sand.

Turnercrest Series

The Turnercrest series consists of moderately deep, well drained, moderately rapidly permeable soils on hillslopes and benches. They formed in residuum and alluvium derived from sandstone. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 30 percent.

These soils are coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents.

Typical pedon of Turnercrest sandy loam, 5 percent slopes, in an area of Taluce-Turnercrest sandy loams, 0 to 6 percent slopes, 1,950 feet east, 1,625 feet south of the northwest corner of sec. 36, T. 20 N., R. 67 W.

Ap—0 to 7 inches; yellowish brown (10YR 5/4) sandy loam, brown (10YR 4/3) moist; moderate fine and medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; many very fine continuous interstitial pores; violently effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bk1—7 to 16 inches; pale brown (10YR 6/3) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and slightly plastic; common very fine and few fine roots; many very fine continuous interstitial pores; violently effervescent; disseminated calcium carbonate; moderately alkaline; clear smooth boundary.

Bk2—16 to 24 inches; very pale brown (10YR 7/3) fine

sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and few fine roots; many very fine continuous interstitial pores; 10 percent soft sandstone fragments; strongly effervescent; disseminated calcium carbonate; moderately alkaline; gradual smooth boundary.

Cr—24 to 34 inches; calcareous sandstone.

Rock fragments cover 0 to 10 percent of the surface. The depth to paralithic contact ranges from 20 to 40 inches. The depth to the base of the Bw horizon is less than 10 inches. The particle-size control section ranges 7 to 18 percent clay. Reaction is slightly alkaline or moderately alkaline throughout.

The A horizon has value of 5 or 6 dry (3 to 5 moist) and chroma of 2 to 4. Texture is sandy loam, fine sandy loam, or very fine sandy loam.

The Bk or Bw horizon, if it occurs, has value of 5 to 7 dry (4 to 6 moist) and chroma of 2 to 4. Texture is fine sandy loam, very fine sandy loam, or sandy loam. The calcium carbonate equivalent ranges from 1 to 15 percent.

The C horizon, if it occurs, has value of 5 to 7 dry (4 to 6 moist) and chroma of 2 to 4. Texture is fine sandy loam or sandy loam.

Typic Calciaquolls

Typic Calciaquolls consist of very deep, somewhat poorly drained, moderately permeable soils on flood plains and terraces. They formed in alluvium derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 3 percent.

These soils are Typic Calciaquolls.

Typical pedon of Typic Calciaquolls fine sandy loam, on a slope of 1 percent, in an area of Typic Calciaquolls-Whetsoon fine sandy loams, 0 to 3 percent slopes, 100 feet west, 2,050 feet south of the northeast corner of sec. 18, T. 23 N., R. 68 W.

A—0 to 5 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, friable, nonsticky and slightly plastic; slightly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

ABkg—5 to 11 inches; light brownish gray (10YR 6/2) sandy clay loam, dark brown (10YR 4/3) moist; few and common fine yellowish red (5YR 5/6) redoximorphic concentrations; weak fine angular blocky structure; soft, friable, slightly sticky and slightly plastic; slightly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt smooth boundary.

Bkg—11 to 22 inches; light gray (10YR 7/2) very fine sandy loam, yellowish brown (10YR 5/4) moist; common medium strong brown and reddish yellow (7.5YR 5/6 and 6/6) and few fine yellowish red (5YR 5/6) redoximorphic concentrations; massive; soft, very friable, nonsticky and nonplastic; slightly effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

Cg—22 to 60 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; common medium strong brown (7.5YR 5/6) redoximorphic concentrations; massive; soft, friable, nonsticky and nonplastic; slightly effervescent; disseminated calcium carbonate; strongly alkaline.

The depth to the seasonal high water table ranges from 0.5 foot to 1.5 feet from April through October. The particle-size control section commonly ranges from 12 to 30 percent clay, with more than 15 percent fine or coarser sand and 0 to 15 percent rock fragments. Colors and textures are highly variable throughout the profile.

The A horizon commonly has texture of sandy clay loam, fine sandy loam, or loam. Reaction is slightly alkaline or moderately alkaline.

The Bkg horizon commonly has texture of very fine sandy loam, loam, clay loam, sandy clay loam, or fine sandy loam. The calcium carbonate equivalent ranges from 10 to 25 percent. Reaction is moderately alkaline or strongly alkaline.

The Cg horizon commonly has texture of fine sandy loam, very fine sandy loam, clay loam, sandy clay loam, or loam. The calcium carbonate equivalent ranges from 5 to 15 percent. Reaction is moderately alkaline or strongly alkaline.

Tyzak Series

The Tyzak series consists of very shallow and shallow, well drained, moderately permeable soils on hillslopes. They formed in residuum, colluvium, and alluvium derived from limestone. Elevation is 6,300 to 7,000 feet. The mean annual precipitation is 15 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The frost-free season is 85 to 110 days. Slope is 8 to 50 percent.

These soils are loamy-skeletal, mixed, superactive Lithic Calciborolls.

Typical pedon of Tyzak extremely channery loam, 20 percent slopes, in an area of Tyzak-Tyzak, thin solum-Rock outcrop complex, 8 to 50 percent slopes,

2,500 feet south, 2,500 feet east of the northwest corner of sec. 17, T. 21 N., R. 69 W.

A—0 to 3 inches; dark grayish brown (10YR 4/2) extremely channery loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; few medium, common fine, and many very fine roots; few medium, common fine, and many very fine tubular pores; 60 percent channery fragments and 10 percent gravel; slightly effervescent; moderately alkaline; clear smooth boundary.

Bk—3 to 11 inches; dark brown (10YR 4/3) extremely channery loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few medium, common fine, and many very fine roots; few medium, common fine, and many fine tubular pores; 60 percent channery fragments and 10 percent gravel; violently effervescent; disseminated calcium carbonate and pendants of calcium carbonate on rock fragments; 27 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

R—11 inches; hard limestone.

The depth to lithic contact ranges from 4 to 20 inches. The particle-size control section ranges from 18 to 25 percent clay and 35 to 85 percent rock fragments. The thickness of the mollic epipedon after mixing ranges from 7 to 11 inches.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5 dry, and chroma of 2 or 3. Texture is extremely channery loam or very channery loam. The content of calcium carbonate ranges from 15 to 25 percent.

Some pedons have a Bw horizon. This horizon has characteristics similar to those of the Bk horizon.

The Bk horizon has hue of 7.5YR or 10YR, value of 4 or 5 dry, and chroma of 2 or 3. The content of calcium carbonate ranges from 25 to 35 percent.

Valent Series

The Valent series consists of very deep, excessively drained, moderately rapidly permeable soils on dunes. They formed in sandy eolian deposits derived from sandstone. Elevation ranges from 5,000 to 6,500 feet. The mean annual precipitation is 15 to 17 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free period is 110 to 130 days. Slopes are 0 to 6 percent.

These soils are mixed, mesic Ustic Torripsamments.

Typical pedon of Valent loamy fine sand, moist, 0 to 6 percent slopes, in Laramie County, Western Part, 2,000 feet south, 50 feet east of the northwest corner of sec. 17, T. 18 N., R. 65 W.

A—0 to 10 inches; light yellowish brown (10YR 6/4) loamy fine sand, yellowish brown (10YR 5/4) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; many very fine roots; slightly alkaline; abrupt wavy boundary.

C—10 to 60 inches; light yellowish brown (10YR 6/4) loamy fine sand, yellowish brown (10YR 5/4) moist; massive; soft, friable, nonsticky and nonplastic; few very fine roots; slightly alkaline.

The depth to horizons that have calcium carbonate is 40 inches or more. The particle-size control section ranges from 3 to 10 percent clay. Reaction is neutral or slightly alkaline throughout.

Vetal Series

The Vetal series consists of very deep, well drained, moderately rapidly permeable soils on fans, hillslopes, terraces, and in swales. They formed in alluvium and eolian materials derived from various sources. Elevation is 4,300 to 5,700 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 9 percent.

These soils are coarse-loamy, mixed, superactive, mesic Pachic Haplustolls.

Typical pedon of Vetal fine sandy loam, on a slope of 1 percent, in an area of Vetal-Julesburg fine sandy loams, 0 to 6 percent slopes, 510 feet west, 200 feet south of the northeast corner of sec. 10, T. 21 N., R. 66 W.

Ap—0 to 9 inches; dark brown (10YR 4/3) fine sandy loam, very dark brown (10YR 2/2) moist; weak very fine and fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; many very fine continuous interstitial pores; neutral; abrupt smooth boundary.

Bw1—9 to 19 inches; dark brown (10YR 4/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine and fine prismatic structure parting to weak fine and medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine continuous interstitial pores; slightly alkaline; clear wavy boundary.

Bw2—19 to 32 inches; dark grayish brown (10YR 4/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine prismatic structure parting to weak fine and medium subangular blocky; slightly

hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine continuous interstitial pores; slightly alkaline; clear wavy boundary.

Bw3—32 to 39 inches; brown (10YR 4/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine prismatic structure parting to weak fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine continuous random irregularly shaped pores; slightly alkaline; clear wavy boundary.

C—39 to 60 inches; pale brown (10YR 6/3) fine sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine continuous random irregularly shaped pores; slightly alkaline.

The particle-size control section ranges from 12 to 16 percent clay, with more than 15 percent fine or coarser sand. The thickness of the mollic epipedon ranges from 20 to 40 inches.

The A horizon has value of 4 or 5 dry (2 or 3 moist), and chroma of 2 or 3.

The Bw horizon has value of 4 to 6 dry (3 or 4 moist), and chroma of 2 or 3.

The C horizon has value of 5 to 7 dry (4 or 5 moist), and chroma of 2 or 3.

Vonalee Series

The Vonalee series consists of very deep, well drained, moderately rapidly permeable soils on hillslopes and terraces. They formed in alluvium and eolian material derived from sandstone. Elevation is 4,300 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 0 to 6 percent.

These soils are coarse-loamy, mixed, superactive, mesic Ustic Haplargids.

Typical pedon of Vonalee fine sandy loam, 2 percent slopes, in an area of Vonalee fine sandy loam, 0 to 6 percent slopes, 2,550 feet west, 1,400 feet south of the northeast corner of sec. 12, T. 26 N., R. 68 W.

Ap—0 to 6 inches; yellowish brown (10YR 5/4) fine sandy loam, dark brown (10YR 3/3) moist; moderate medium and coarse granular structure; soft, very friable, nonsticky and nonplastic; slightly alkaline; clear smooth boundary.

Bt1—6 to 13 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; moderate fine prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common distinct clay films on vertical faces of peds; slightly alkaline; clear wavy boundary.

Bt2—13 to 18 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; weak medium prismatic structure; slightly hard, friable, nonsticky and nonplastic; common distinct clay films on vertical faces of peds; moderately alkaline; abrupt wavy boundary.

Bk—18 to 60 inches; light gray (10YR 7/2) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, nonsticky and nonplastic; violently effervescent; many distinct threads and soft masses of calcium carbonate; moderately alkaline.

The particle-size control section ranges from 12 to 18 percent clay. The depth to horizons that have continuous accumulations of calcium carbonate ranges from 11 to 30 inches.

The A horizon has value of 3 or 4 moist and chroma of 3 or 4.

The Bt horizon has value of 5 or 6 dry (4 or 5 moist) and chroma of 3 or 4. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 7 dry (5 or 6 moist) and chroma of 2 to 4.

Wagonhound Series

The Wagonhound series consists of very deep, well drained, moderately permeable soils on hillslopes. They formed in alluvium and colluvium derived from various sources. Elevation is 4,500 to 5,500 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 3 to 20 percent.

These soils are fine-loamy, mixed, superactive, mesic Aridic Haplustalfs.

Typical pedon of Wagonhound loam, 8 percent slopes, in an area of Wagonhound-Selpats complex, 3 to 20 percent slopes, 1,200 feet south, 900 feet west of the northeast corner of sec. 16, T. 28 N., R. 69 W.

Oi—1 inch to 0; undecomposed needles.

Oe—0 to 1 inch; decomposed forest litter.

A—1 to 4 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; slightly acid; clear smooth boundary.

Bt1—4 to 9 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; moderate fine

subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common fine tubular pores; few distinct clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt2—9 to 16 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 5/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common fine and medium tubular pores; few distinct clay films on faces of peds; moderately acid; clear smooth boundary.

Bk—16 to 60 inches; light gray (10YR 7/2) loam, pale brown (10YR 6/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine and medium and coarse roots; strongly effervescent; disseminated calcium carbonate and common distinct soft masses and seams of calcium carbonate; moderately alkaline.

The particle-size control section ranges from 20 to 32 percent clay, 35 to 60 percent fine or coarser sand, and less than 15 percent rock fragments. The depth to the base of the argillic horizon is 10 to 24 inches. The depth to horizons that have continuous accumulations of calcium carbonate ranges from 10 to 24 inches.

The A horizon has value of 4 or 5 dry (2 or 3 moist) and chroma of 2 to 4. Texture is loam or fine sandy loam. Reaction is slightly acid or moderately acid.

The Bt horizon has value of 4 to 6 dry (4 or 5 moist) and chroma of 2 to 4. Texture is sandy clay loam or loam. Reaction is slightly acid or moderately acid.

The Bk horizon has value 5 to 7 dry (4 to 6 moist) and chroma of 2 or 3. Texture is sandy loam, gravelly sandy loam, or loam. The content of gravel ranges from 0 to 30 percent. The calcium carbonate equivalent ranges from 5 to 15 percent. Reaction is slightly alkaline or moderately alkaline.

Weed Series

The Weed series consists of very deep, well drained, moderately slowly permeable soils on hillslopes and fans. These soils formed in loamy alluvium derived from various sources. Elevation ranges from 6,500 to 7,500 feet. The mean annual precipitation is 15 to 17 inches, and the mean annual air temperature is 39 to 45 degrees F. The average frost-free period is 90 to 100 days. Slopes are 0 to 15 percent.

These soils are fine-loamy, mixed, superactive Pachic Argiborolls.

Typical pedon of Weed loam, 0 to 6 percent slopes, in Laramie County, Western Part, 350 feet north, 2,500 feet west of the southeast corner of sec. 8, T. 12 N., R. 67 W.

A—0 to 6 inches; dark brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; slightly alkaline; abrupt wavy boundary.

Bt1—6 to 14 inches; dark brown (10YR 4/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine and fine and common medium roots; many distinct clay films on faces of peds; slightly alkaline; clear wavy boundary.

Bt2—14 to 28 inches; dark brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) moist; strong medium prismatic structure; hard, firm, sticky and plastic; common very fine roots; many distinct clay films on faces of peds; slightly effervescent; disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.

Bk—28 to 60 inches; brown (10YR 5/3) sandy clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; strongly effervescent; common distinct soft threads of calcium carbonate; moderately alkaline.

The mollic epipedon is 16 to 30 inches thick. The depth to the base of the argillic horizon is 25 to 35 inches. The depth to horizons that have secondary calcium carbonate is 25 to 35 inches. The particle-size control section is 0 to 15 percent gravel and 27 to 34 percent clay.

The A horizon has texture of loam or sandy loam.

The Bt horizon has texture of sandy clay loam or clay loam. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has texture of sandy loam, loam, or sandy clay loam.

The Weed soils in Platte County have a soil moisture control section that is affected by a significant precipitation peak from April through July.

Wendover Series

The Wendover series consists of shallow, well drained, moderately permeable soils on hillslopes. They formed in colluvium derived from limestone. Elevation is 4,900 to 6,100 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slope is 10 to 60 percent.

These soils are loamy-skeletal, mixed, superactive, mesic Lithic Argiustolls.

Typical pedon of Wendover very cobbly fine sandy loam, 15 percent slopes, in an area of Wendover-Rock outcrop complex, 10 to 60 percent slopes, 1,900 feet west, 500 feet north of the southeast corner of sec. 1, T. 30 N., R. 66 W.

A—0 to 6 inches; grayish brown (10YR 5/2) very cobbly fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine and fine and few medium random distinct tubular pores; 25 percent gravel and 25 percent cobbles; slightly alkaline; clear smooth boundary.

Bt—6 to 12 inches; grayish brown (10YR 5/2) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine and fine and common medium roots; common very fine and fine and few medium random distinct tubular pores; fine faint clay films on faces of peds; 25 percent gravel and 25 percent cobbles; slightly effervescent; disseminated calcium carbonate; slightly alkaline; clear smooth boundary.

Bk—12 to 18 inches; very pale brown (10YR 7/3) very cobbly loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few very fine and fine random distinct tubular pores; 25 percent gravel and 25 percent cobbles; strongly effervescent; disseminated calcium carbonate and common distinct pendants and coatings of calcium carbonate on rock fragments; slightly alkaline; abrupt wavy boundary.

R—18 inches; hard, somewhat fractured limestone.

Gravel, cobbles, and stones cover 0 to 40 percent of the surface. The depth to lithic contact ranges from 10 to 20 inches. The particle-size control section ranges from 18 to 25 percent clay. The content of rock fragments ranges from 35 to 60 percent throughout the profile.

The A horizon has value of 4 or 5 dry. Texture is very cobbly fine sandy loam or very cobbly sandy loam.

The Bt horizon has value of 4 or 5 dry (2 to 4 moist) and chroma of 2 to 4. Texture is very cobbly sandy clay loam or very cobbly loam. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 7 dry. The calcium carbonate equivalent is 15 to 40 percent.

Whetsoon Series

The Whetsoon series consists of very deep, somewhat poorly drained, moderately permeable soils on flood plains and in seep areas on terraces. They formed in alluvium derived from various sources. Elevation is 4,300 to 5,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 46 to 48 degrees F. The frost-free season is 110 to 130 days. Slopes are 0 to 3 percent.

These soils are fine-loamy, mixed, superactive, mesic Aquic Argiustolls.

Typical pedon of Whetsoon fine sandy loam, 2 percent slopes, in an area of Fluvaquentic Endoaquolls-Whetsoon complex, 0 to 3 percent slopes, 750 feet east, 450 feet south of the northwest corner of sec. 13, T. 24 N., R. 69 W.

A—0 to 7 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure parting to weak fine granular and very fine subangular blocky; hard, friable, slightly sticky and slightly plastic; many very fine and common fine and few medium roots; few very fine and fine discontinuous random irregularly shaped pores; slightly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt wavy boundary.

Bt1—7 to 13 inches; brown (10YR 5/3) loam, dark grayish brown (10YR 4/2) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and slightly plastic; many very fine and few fine roots; many very fine and common fine continuous random irregularly shaped pores; common distinct clay films on faces of peds; strongly effervescent; disseminated calcium carbonate; moderately alkaline; abrupt wavy boundary.

Bt2—13 to 21 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine discontinuous random irregularly shaped pores; few faint clay films on faces of peds; strongly effervescent; disseminated calcium carbonate; strongly alkaline; gradual wavy boundary.

Bk1—21 to 33 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; few fine prominent reddish yellow (7.5YR 6/6) redoximorphic concentrations; weak medium subangular blocky structure parting to weak fine subangular blocky; hard, friable, sticky and plastic; common very fine roots; common fine and few very fine continuous tubular pores; strongly effervescent; disseminated

calcium carbonate and common distinct irregular soft concretions of calcium carbonate; strongly alkaline; clear wavy boundary.

Bk2—33 to 60 inches; very pale brown (10YR 7/3) loam, pale brown (10YR 6/3) moist; common fine prominent reddish yellow (7.5YR 6/6) redoximorphic concentrations and few fine distinct light gray (10YR 7/2) redoximorphic depletions; massive; hard, very friable, slightly sticky and slightly plastic; strongly effervescent; disseminated calcium carbonate and few distinct irregular soft concretions of calcium carbonate; moderately alkaline.

The depth to the seasonal high water table ranges from 1.5 to 3.0 feet from April through October. The particle-size control section ranges from 20 to 30 percent clay, with 15 to 30 percent fine or coarser sand. The mollic epipedon is 7 to 20 inches thick.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3. Texture is very fine sandy loam, fine sandy loam, or loam. Reaction is slightly alkaline or moderately alkaline.

Some pedons have an AB horizon. This horizon has similar characteristics to those of the A horizon.

The Bt horizon has value of 5 or 6 dry (3 to 5 moist) and chroma of 2 or 3. Texture is loam, sandy clay loam, or clay loam. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 6 or 7 dry (5 or 6 moist) and chroma of 2 or 3. Redoximorphic features have hue of 10YR to 5YR, value 4 to 7 moist, and chroma of 2 to 6. Texture is loam, fine sandy loam, very fine sandy loam, clay loam, or sandy clay loam. Reaction is slightly alkaline to strongly alkaline.

Some pedons have a C horizon. This horizon has similar characteristics to those of the Bk horizon.

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Glossary

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. Pertaining to material or processes associated with transportation and/or subaerial deposition by concentrated running water.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

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 month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

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 capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3.5
Low	3.5 to 5.0
Moderate	5.0 to 7.5
High	more than 7.5

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench. Refer to structural bench.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour,

supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

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.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Buried soil. A soil once exposed but now overlain by more recently formed or deposited soil.

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 horizon in which secondary calcium carbonate or other carbonates have accumulated to a significant extent.

Cambic horizon. A horizon that results from physical alterations, chemical transformations, or removals or of a combination of two or more of these processes.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

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.

Colluvial. Pertaining to material or processes associated with transportation and/or deposition by mass movement and local, unconcentrated runoff on side slopes and/or at the base of slopes.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

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 rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is 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.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

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 rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of 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 term restricted to relatively small, linear depressions that, at some time, move concentrated water and either lack a defined channel or have a small, defined channel.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

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.

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 soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess salt (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

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.

Fan. A gently sloping, fan-shaped mass of detritus forming a section of a low-angle cone commonly at a place where there is a notable decrease in gradient.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine earth. The particles of the soil that are smaller than 2 millimeters in diameter, or the sand, silt, and clay part of the soil. (See Texture, soil.)

Fine textured soil. Sandy clay, silty clay, or clay.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Grazable woodland. Forest land on which the understory includes, as an integral part of the forest plant community, plants that can be grazed without significantly impairing other forest values.

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 miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Gypsic horizon. A horizon in which secondary gypsum has accumulated to a significant extent.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

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 natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of the hill.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive

characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

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

Interbedded. Said of beds lying between or alternating with others of different character.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

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.

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.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability).

Landform. Any physical, recognizable form or feature of the earth's surface having a characteristic shape and range in composition and produced by natural causes.

Landscape. A collection of related, natural landforms; usually the land surface which the eye can comprehend in a single view.

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.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Limestone. A sedinentary rock consisting chiefly of calcium carbonate, primarily in the form of calcite.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Lithic contact. Boundary between soil and a coherent underlying material where cracks that can be penetrated by roots are few and horizontal spacing is 10 centimeters or more. Underlying material must be sufficiently coherent when moist to make hand-digging with a spade impractical.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by the wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

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. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5

millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

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.

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.

Ochric epipedon. A surface horizon that does not meet the requirements for any other surface horizon or that is both hard and massive when dry.

Organic matter. 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

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*.

Paralithic contact. A contact between soil and paralithic materials where the paralithic materials have no cracks or the spacing of cracks that roots can enter is 10 centimeters or more.

Paralithic materials. Relatively unaltered materials that have an extremely weakly cemented to moderately cemented rupture-resistance class.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

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:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

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.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Quaternary. The period of the Cenozoic era of geologic time, extending from the end of the Tertiary period (about 2 million years ago) to the present.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Range renovation. Practices such as furrowing on the contour, pitting, chiseling, or disking. Improves plant cover by increasing water infiltration and available moisture.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redox concentrations. See Redoximorphic concentrations.

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination

of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

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.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

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.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

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.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly

weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

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.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

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 3 percent
Gently sloping	3 to 6 percent
Strongly sloping	6 to 12 percent
Moderately steep	12 to 25 percent
Steep	25 to 60 percent
Very steep	60 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

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.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structural bench. A platform-like, nearly level to gently inclined erosional surface developed on resistant strata.

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.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summer wildlife habitat. A population or portion of a population uses this habitat annually during the summer but not during the winter.

Summit. The topographycally highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. In tilled soils, the part of 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.” In uncultivated soils, the part of the soil designated as the “A horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Swale. A long, narrow, generally shallow, trough-like depression between two ridges.

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.

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.

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.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Too arid (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

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. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

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.

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.

Windthrow. The uprooting and tipping over of trees by the wind.

Winter wildlife habitat. A population or portion of a population uses this habitat annually only during the winter. A substantial number of animals use the habitat during this period.

Year-long wildlife habitat. A population or a substantial portion of a population uses this habitat during all seasons of the year.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Wheatland, Wyoming)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	40.7	15.7	28.2	64	-25	31	0.27	0.08	0.43	0	6.4
February	44.0	19.3	31.6	67	-18	38	0.29	0.11	0.45	1	5.5
March	51.1	24.4	37.8	76	-6	95	0.73	0.23	1.14	2	8.6
April	61.2	31.6	46.4	84	5	233	1.46	0.71	2.11	3	5.5
May	70.8	40.8	55.8	91	24	492	2.22	0.90	3.33	5	1.3
June	81.4	49.4	65.4	100	34	762	2.14	0.71	3.32	4	0.0
July	89.2	55.5	72.3	103	42	1,002	1.61	0.64	2.43	3	0.0
August	87.0	52.7	69.8	100	39	924	1.00	0.36	1.53	2	0.0
September	77.3	42.9	60.1	95	23	604	1.17	0.29	1.93	3	1.2
October	66.1	33.9	50.0	85	11	331	0.65	0.24	0.98	1	2.5
November	50.8	25.0	37.9	74	-8	102	0.45	0.15	0.78	1	6.0
December	41.8	17.5	29.6	65	-25	38	0.28	0.07	0.45	0	6.6
Yearly:											
Average	63.4	34.1	48.7	---	---	---	---	---	---	---	---
Extreme	107	-39	---	103	-31	---	---	---	---	---	---
Total	---	---	---	---	---	4,651	12.25	9.95	14.44	25	43.6

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperature, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Wheatland, Wyoming)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 5	May 14	June 1
2 years in 10 later than--	Apr. 30	May 9	May 27
5 years in 10 later than--	Apr. 21	Apr. 28	May 16
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 23	Sept. 15	Sept. 7
2 years in 10 earlier than--	Sept. 29	Sept. 19	Sept. 12
5 years in 10 earlier than--	Oct. 10	Sept. 28	Sept. 21

Table 3.--Growing Season

(Recorded in the period 1961-90 at Wheatland, Wyoming)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	149	132	105
8 years in 10	156	139	112
5 years in 10	170	152	126
2 years in 10	185	165	140
1 year in 10	192	172	148

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
100	Aberone gravelly sandy loam, 0 to 15 percent slopes	22,720	1.7
101	Aberone-Cragola complex, 10 to 30 percent slopes	12,560	1.0
102	Albinas loam, 0 to 6 percent slopes	22	*
103	Alice-Bayard fine sandy loams, 0 to 6 percent slopes	22,029	1.7
104	Alice-Phiferson fine sandy loams, 3 to 10 percent slopes	4,230	0.3
105	Alice-Recluse-Cedak fine sandy loams, 0 to 6 percent slopes	2,480	0.2
106	Bayard fine sandy loam, 0 to 3 percent slopes	1,583	0.1
107	Bayard fine sandy loam, 0 to 15 percent slopes	41	*
108	Bayard-Phiferson-Treon, thin solum complex, 0 to 6 percent slopes	8,839	0.7
109	Bayard-Phiferson-Treon, thin solum complex, 3 to 45 percent slopes	13,319	1.0
110	Blackhall-Satanka-Rock outcrop complex, 5 to 20 percent slopes	51	*
111	Blazon-Trimad complex, 15 to 45 percent slopes	26	*
112	Bonjea-Chugcreek-Rock outcrop complex, 3 to 15 percent slopes	277	*
113	Bonjea-Rock outcrop-Chugcreek complex, 15 to 40 percent slopes	251	*
114	Boyle-Boyle, thin solum gravelly loams, 3 to 6 percent slopes	5,059	0.4
115	Boyle, thin solum-Breece-Cathedral complex, 0 to 30 percent slopes	796	*
116	Boyle-Lininger association, 1 to 15 percent slopes	2,571	0.2
117	Boyle-Rock outcrop complex, 5 to 25 percent slopes	10,378	0.8
118	Boyle-Rock outcrop-Cathedral complex, 5 to 45 percent slopes	681	*
119	Brown-Featherlegs-Recluse complex, 5 to 40 percent slopes	54,483	4.1
120	Byrnie-Byrnie, thin solum-Rock outcrop complex, 5 to 45 percent slopes	2,393	0.2
121	Byrnie-Coocreek-Byrnie, thin solum complex, 0 to 15 percent slopes	2,915	0.2
122	Cascajo-Taluce-Rock outcrop complex, 6 to 40 percent slopes	32,524	2.5
123	Cathedral-Spinekop-Rock outcrop complex, 0 to 40 percent slopes	6,283	0.5
124	Cedak-Bayard-Treon, thin solum, complex, 0 to 6 percent slopes	2,072	0.2
125	Cedak-Recluse very fine sandy loams, 0 to 6 percent slopes	4,169	0.3
126	Cedak-Recluse-Treon very fine sandy loams, 0 to 6 percent slopes	7,071	0.5
127	Cedak-Treon fine sandy loams, 0 to 6 percent slopes	4,059	0.3
128	Chaperton, moderately saline-Blazon complex, 8 to 20 percent slopes	84	*
129	Claprych gravelly fine sandy loam, 0 to 3 percent slopes	1,874	0.1
130	Claprych-Luman very gravelly sandy loams, 0 to 10 percent slopes	38,648	2.9
131	Claprych-Selpats sandy clay loams, 0 to 3 percent slopes	6,370	0.5
132	Claprych-Sweatbee complex, 3 to 20 percent slopes	5,904	0.4
133	Clarkelen-Quarterback very fine sandy loams, 0 to 3 percent slopes	21,685	1.6
134	Clarkelen, wet-Anvil loams, 0 to 3 percent slopes	17,238	1.3
135	Coaliams-Haverdad complex, 0 to 3 percent slopes	24,813	1.9
136	Cowestglen fine sandy loam, 0 to 3 percent slopes	176	*
137	Creighton very fine sandy loam, 0 to 6 percent slopes	4,953	0.4
138	Curabith very cobbly sandy loam, 0 to 6 percent slopes	2,738	0.2
139	Cushool-Cutback complex, 2 to 10 percent slopes	445	*
140	Dalecreek-Kovich complex, 0 to 9 percent slopes	3,398	0.3
141	Deight-Thirtynine-Glendo very fine sandy loams, 0 to 6 percent slopes	21,964	1.7
142	Diamonkit-Stylite sandy loams, 3 to 15 percent slopes	59	*
143	Embry loamy fine sand, 2 to 10 percent slopes	152	*
144	Evanston loam, 0 to 6 percent slopes	50	*
145	Evanston-Ipson complex, 0 to 20 percent slopes	26,092	2.0
146	Evanston-Ipson-Brownsto complex, 15 to 45 percent slopes	16,102	1.2
147	Evanston-Weed complex, 3 to 35 percent slopes	67	*
148	Evanston-Weed-Trimad loams, 3 to 15 percent slopes	19	*
149	Featherlegs fine sandy loam, wet, 0 to 3 percent slopes	617	*
150	Featherlegs-Bayard fine sandy loams, 0 to 6 percent slopes	1,410	0.1
151	Featherlegs-Curabith fine sandy loams, 0 to 3 percent slopes	8,903	0.7
152	Featherlegs-Greenhope-Curabith fine sandy loams, 3 to 15 percent slopes	25,891	2.0
153	Featherlegs-Recluse loams, 0 to 3 percent slopes	2,144	0.2
154	Featherlegs-Recluse loams, 3 to 6 percent slopes	4,103	0.3
155	Featherlegs-Recluse loams, 3 to 15 percent slopes	29,719	2.3
156	Fluvaquentic Endoaquolls-Whetsoon complex, 0 to 3 percent slopes	5,399	0.4
157	Forelle loam, 0 to 6 percent slopes	49	*
158	Forelle-Diamondville association, 3 to 15 percent slopes	1,382	0.1
159	Forkwood fine sandy loam, 0 to 3 percent slopes	5,067	0.4
160	Forkwood loam, 0 to 6 percent slopes	3,941	0.3
161	Forkwood loam, wet, 0 to 3 percent slopes	802	*
162	Glendo silt loam, 0 to 6 percent slopes	5,130	0.4

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
163	Graystone-Alice fine sandy loams, 0 to 6 percent slopes	2,612	0.2
164	Graystone-Greenhope-Bayard fine sandy loams, 0 to 10 percent slopes	14,699	1.1
165	Graystone-Mainter fine sandy loams, 0 to 6 percent slopes	2,004	0.2
166	Graystone-Phiferson-Treon very fine sandy loams, 0 to 6 percent slopes	3,190	0.2
167	Greenhope-Featherlegs complex, 0 to 6 percent slopes	15,365	1.2
168	Hiland fine sandy loam, 0 to 3 percent slopes	3,965	0.3
169	Hiland-Cambria sandy loams, 0 to 6 percent slopes	6,525	0.5
170	Ipson-Evanston complex, 6 to 30 percent slopes	381	*
171	Ipson-Evanston-Rock outcrop complex, 0 to 30 percent slopes	265	*
172	Jayem-Mainter-Moskee fine sandy loams, 0 to 6 percent slopes	18,655	1.4
173	Julesburg-Jayem-Phiferson fine sandy loams, 0 to 6 percent slopes	3,378	0.3
174	Keeline fine sandy loam, 0 to 3 percent slopes	5,630	0.4
175	Keeline fine sandy loam, 3 to 6 percent slopes	15,332	1.2
176	Keeline fine sandy loam, 6 to 10 percent slopes	6,756	0.5
177	Keeline-Mainter very fine sandy loams, 0 to 6 percent slopes	12,294	0.9
178	Keeline-Nidix-Taluce complex, 10 to 60 percent slopes	28,457	2.2
179	Keeline-Taluce-Turnercrest fine sandy loams, 3 to 40 percent slopes	41,175	3.1
180	Keeline-Turnercrest fine sandy loams, 0 to 6 percent slopes	18,870	1.4
181	Keeline-Turnercrest fine sandy loams, 6 to 10 percent slopes	8,868	0.7
182	Kishona clay loam, 0 to 6 percent slopes	1,708	0.1
183	Livan-Clarkelen complex, 0 to 3 percent slopes	9,724	0.7
184	Livan-Riverwash complex, 0 to 3 percent slopes	4,164	0.3
185	Mainter fine sandy loam, 0 to 6 percent slopes	4,472	0.3
186	Mainter fine sandy loam, wet, 0 to 3 percent slopes	693	*
187	Mainter-Keeline fine sandy loams, 6 to 10 percent slopes	6,292	0.5
188	McFadden gravelly fine sandy loam, 1 to 6 percent slopes	418	*
189	Mines and Quarries	592	*
190	Mitchell very fine sandy loam, 0 to 6 percent slopes	5,246	0.4
191	Mitchell very fine sandy loam, 6 to 10 percent slopes	16,986	1.3
192	Moskee sandy loam, 0 to 6 percent slopes	2,640	0.2
193	Moskee fine sandy loam, 0 to 3 percent slopes	6,416	0.5
194	Orpha fine sand, 0 to 15 percent slopes	4,174	0.3
195	Orpha-Tullock loamy fine sands, 6 to 20 percent slopes	2,389	0.2
196	Phiferson-Alice, bedrock substratum, very fine sandy loams, 0 to 6 percent slopes	2,263	0.2
197	Phiferson-Mainter fine sandy loams, 0 to 6 percent slopes	3,151	0.2
198	Phiferson-Treon complex, 0 to 6 percent slopes	2,669	0.2
199	Pinelli loam, 3 to 10 percent slopes	9	*
200	Poposhia silt loam, 0 to 6 percent slopes	740	*
201	Poposhia-Blazon silt loams, 3 to 30 percent slopes	66	*
202	Poposhia-Blazon, thin solum-Rock outcrop complex, 5 to 35 percent slopes	4	*
203	Poposhia-Chaperton association, 6 to 12 percent slopes	455	*
204	Poposhia-Forelle complex, 1 to 8 percent slopes	369	*
205	Quarterback loam, 0 to 3 percent slopes	6,924	0.5
206	Quarterback, thick surface-Albinas complex, 0 to 3 percent slopes	10,401	0.8
207	Recluse fine sandy loam, 3 to 6 percent slopes	8,036	0.6
208	Recluse loam, 0 to 3 percent slopes	2,008	0.2
209	Recluse loam, 0 to 6 percent slopes	11,851	0.9
210	Recluse-Albinas-Treon, thin solum, complex, 0 to 6 percent slopes	3,335	0.3
211	Recluse-Cedak loams, 0 to 6 percent slopes	8,087	0.6
212	Recluse-Cedak loams, 6 to 10 percent slopes	6,429	0.5
213	Recluse-Graystone very fine sandy loams, 0 to 6 percent slopes	4,346	0.3
214	Recluse-Nuncho loams, 0 to 10 percent slopes	6,788	0.5
215	Rentsac-Brownsto-Ipson complex, 10 to 45 percent slopes	9,558	0.7
216	Riverwash	48	*
217	Rock outcrop-Blazon, thin solum, complex, 30 to 60 percent slopes	86	*
218	Rock outcrop-Bonjea complex, 40 to 60 percent slopes	349	*
219	Rock outcrop-Cathedral complex, 20 to 40 percent slopes	37,524	2.8
220	Rock outcrop-Cathedral-Alderon complex, 25 to 50 percent slopes	9,141	0.7
221	Selpats fine sandy loam, 0 to 3 percent slopes	2,478	0.2
222	Selpats-Forkwood loams, 0 to 3 percent slopes	5,193	0.4
223	Selpats-Hiland complex, 0 to 6 percent slopes	9,892	0.8
224	Snilloc-Chugcity complex, 0 to 6 percent slopes	11,461	0.9

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
225	Snilloc-Recluse complex, 0 to 6 percent slopes	20,742	1.6
226	Spearfish-Sixmile-Rock outcrop complex, 5 to 45 percent slopes	1,361	0.1
227	Storsun-Sunup-Rock outcrop complex, 3 to 50 percent slopes	22,621	1.7
228	Sunup-Rock outcrop complex, 10 to 40 percent slopes	13,618	1.0
229	Sunup-Snavee-Rock outcrop complex, 0 to 30 percent slopes	36,570	2.8
230	Sweatbee fine sandy loam, 0 to 3 percent slopes	11,334	0.9
231	Sweatbee fine sandy loam, wet, 0 to 3 percent slopes	799	*
232	Sweatbee-Numa sandy clay loams, 0 to 3 percent slopes	2,775	0.2
233	Taluce, thin solum-Rock outcrop complex, 10 to 60 percent slopes	2,872	0.2
234	Taluce, thin solum-Keeline complex, 6 to 50 percent slopes	6,095	0.5
235	Taluce, thin solum-Rock outcrop-Turnercrest complex, 6 to 50 percent slopes	47,235	3.6
236	Taluce-Rock outcrop-Turnercrest complex, 6 to 50 percent slopes	11,505	0.9
237	Taluce-Rock outcrop-Turnercrest complex, moist, 6 to 50 percent slopes	21,834	1.7
238	Taluce-Taluce, thin solum-Rock outcrop complex, 3 to 30 percent slopes	752	*
239	Taluce-Taluce, thin solum-Turnercrest fine sandy loams, 3 to 15 percent slopes	882	*
240	Taluce-Treon complex, thin solums, 6 to 10 percent slopes	5,160	0.4
241	Taluce-Turnercrest sandy loams, 0 to 6 percent slopes	13,730	1.0
242	Taluce-Turnercrest-Keeline fine sandy loams, 3 to 20 percent slopes	21,543	1.6
243	Torriorthents, gullied	34	*
244	Treon-Aberone fine sandy loams, 6 to 30 percent slopes	3,349	0.3
245	Treon-Alice-Phiferson complex, 0 to 6 percent slopes	5,756	0.4
246	Treon-Rock outcrop complex, 6 to 60 percent slopes	10,448	0.8
247	Treon, thin solum-Phiferson-Keeline fine sandy loams, 0 to 6 percent slopes	3,752	0.3
248	Trimad-Blazon-Rock outcrop complex, 3 to 40 percent slopes	2,777	0.2
249	Trimad-Evanston complex, 3 to 30 percent slopes	23	*
250	Trimad-Weed-Blazon association, 0 to 15 percent slopes	103	*
251	Turnercrest-Phiferson-Taluce complex, 0 to 6 percent slopes	3,675	0.3
252	Typic Calciaquolls-Whetsoon fine sandy loams, 0 to 3 percent slopes	4,686	0.4
253	Tyzak-Tyzak, thin solum-Rock outcrop complex, 8 to 50 percent slopes	25,922	2.0
254	Valent loamy fine sand, moist, 0 to 6 percent slopes	22	*
255	Vetal fine sandy loam, 3 to 9 percent slopes	4,473	0.3
256	Vetal-Julesburg fine sandy loams, 0 to 6 percent slopes	1,638	0.1
257	Vetal-Treon-Phiferson complex, 3 to 20 percent slopes	7,450	0.6
258	Vonalee fine sandy loam, 0 to 6 percent slopes	7,512	0.6
259	Wagonhound-Selpats complex, 3 to 20 percent slopes	8,229	0.6
260	Water areas, less than 40 acres	809	*
261	Water areas, more than 40 acres	18,258	1.4
262	Weed loam, 0 to 6 percent slopes	50	*
263	Wendover-Rock outcrop complex, 10 to 60 percent slopes	17,613	1.3
	Total	1,317,273	100.0

* Less than 0.1 percent.

Table 5a.--Land Capability and Yields per Acre of Crops

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
100:										
Aberone	6e	---	---	---	---	---	---	---	---	---
101:										
Aberone	6e	---	---	---	---	---	---	---	---	---
Cragola	7s	---	---	---	---	---	---	---	---	---
102:										
Albinas	3e	3e	---	---	---	---	---	---	---	---
103:										
Alice	3e	3e	---	---	---	---	25	75	---	---
Bayard	3e	3e	---	---	---	---	25	75	---	---
104:										
Alice	4e	---	---	---	---	---	---	---	---	---
Phiferson	4e	---	---	---	---	---	---	---	---	---
105:										
Alice	3e	---	---	---	---	---	25	---	---	---
Recluse	3e	---	---	---	---	---	25	---	---	---
Cedak	4e	---	---	---	---	---	25	---	---	---
106:										
Bayard	3e	3e	---	---	---	---	25	75	---	---
107:										
Bayard	4e	3e	---	---	---	---	---	---	---	---
108:										
Bayard	3e	---	---	---	---	---	25	---	---	---
Phiferson	4e	---	---	---	---	---	20	---	---	---
Treon, thin solum	7s	---	---	---	---	---	10	---	---	---
109:										
Bayard	6e	---	---	---	---	---	---	---	---	---
Phiferson	6e	---	---	---	---	---	---	---	---	---
Treon, thin solum	7s	---	---	---	---	---	---	---	---	---
110:										
Blackhall	7e	---	---	---	---	---	---	---	---	---
Satanka	6e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
111:										
Blazon	7e	---	---	---	---	---	---	---	---	---
Trimad	7e	---	---	---	---	---	---	---	---	---
112:										
Bonjea	7s	---	---	---	---	---	---	---	---	---
Chugcreek	4e	---	---	---	---	---	---	---	---	---
113:										
Bonjea	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Chugcreek	7e	---	---	---	---	---	---	---	---	---
114:										
Boyle	7e	---	---	---	---	---	---	---	---	---
Boyle, thin solum	7e	---	---	---	---	---	---	---	---	---
115:										
Boyle, thin solum	7e	---	---	---	---	---	---	---	---	---
Breece	4e	---	---	---	---	---	---	---	---	---
Cathedral	7e	---	---	---	---	---	---	---	---	---
116:										
Boyle	7e	---	---	---	---	---	---	---	---	---
Lininger	6s	---	---	---	---	---	---	---	---	---
117:										
Boyle	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
118:										
Boyle	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Cathedral	7e	---	---	---	---	---	---	---	---	---
119:										
Brown	6e	---	---	---	---	---	---	---	---	---
Featherlegs	6e	---	---	---	---	---	---	---	---	---
Recluse	6e	---	---	---	---	---	---	---	---	---
120:										
Byrnie	7e	---	---	---	---	---	---	---	---	---
Byrnie, thin solum	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
121:										
Byrnie----------	7e	---	---	---	---	---	---	---	---	---
Coocreek--------	4e	---	---	---	---	---	---	---	---	---
Byrnie, thin solum----------	7s	---	---	---	---	---	---	---	---	---
122:										
Cascajo---------	7e	---	---	---	---	---	---	---	---	---
Taluce----------	7e	---	---	---	---	---	---	---	---	---
Rock outcrop----	8s	---	---	---	---	---	---	---	---	---
123:										
Cathedral-------	7s	---	---	---	---	---	---	---	---	---
Spinekop--------	4e	---	---	---	---	---	---	---	---	---
Rock outcrop----	8s	---	---	---	---	---	---	---	---	---
124:										
Cedak-----------	3e	---	---	---	---	---	25	---	---	---
Bayard----------	3e	---	---	---	---	---	25	---	---	---
Treon, thin solum----------	7s	---	---	---	---	---	10	---	---	---
125:										
Cedak-----------	3e	---	---	---	---	---	25	---	---	---
Recluse---------	3e	---	---	---	---	---	25	---	---	---
126:										
Cedak-----------	4e	---	---	---	---	---	25	---	---	---
Recluse---------	3e	---	---	---	---	---	25	---	---	---
Treon-----------	7e	---	---	---	---	---	10	---	---	---
127:										
Cedak-----------	4e	---	---	---	---	---	25	---	---	---
Treon-----------	7e	---	---	---	---	---	10	---	---	---
128:										
Chaperton, moderately saline---------	6e	---	---	---	---	---	---	---	---	---
Blazon----------	7e	---	---	---	---	---	---	---	---	---
129:										
Claprych--------	3s	3s	---	1,500	---	100	---	---	---	15
130:										
Claprych--------	6s	---	---	---	---	---	---	---	---	---
Luman-----------	4e	---	---	---	---	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
131:										
Claprych--------	3e	3e	---	1,500	---	100	20	60	---	15
Selpats---------	3e	3e	---	1,850	---	150	25	75	---	18
132:										
Claprych--------	6s	---	---	---	---	---	15	---	---	---
Sweatbee--------	6e	---	---	---	---	---	15	---	---	---
133:										
Clarkelen-------	3e	3e	---	---	---	150	25	75	---	---
Quarterback-----	3e	3e	---	---	---	150	25	75	---	---
134:										
Clarkelen, wet--	3w	3w	---	---	---	---	---	---	---	---
Anvil-----------	4w	4w	---	---	---	---	---	---	---	---
135:										
Coaliams--------	3w	3w	---	---	---	150	25	75	---	---
Haverdad--------	3e	3e	---	---	---	150	25	75	---	---
136:										
Cowestglen------	4e	4e	---	---	---	---	---	---	---	---
137:										
Creighton-------	3e	---	---	---	---	---	25	---	---	---
138:										
Curabith--------	6s	---	---	---	---	---	15	---	---	---
139:										
Cushool---------	4e	---	---	---	---	---	---	---	---	---
Cutback---------	4e	---	---	---	---	---	---	---	---	---
140:										
Dalecreek-------	4w	4w	---	---	---	---	---	---	---	---
Kovich----------	5w	5w	---	---	---	---	---	---	---	---
141:										
Deight----------	3e	---	---	---	---	---	25	---	---	---
Thirtynine------	3e	---	---	---	---	---	25	---	---	---
Glendo----------	3e	---	---	---	---	---	20	---	---	---
142:										
Diamonkit-------	4e	---	---	---	---	---	---	---	---	---
Stylite---------	4e	---	---	---	---	---	---	---	---	---
143:										
Embry-----------	3e	---	---	---	---	---	---	---	---	---
144:										
Evanston--------	4e	---	---	---	---	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
145:										
Evanston--------	6e	---	---	---	---	---	---	---	---	---
Ipson-----------	6e	---	---	---	---	---	---	---	---	---
146:										
Evanston--------	6e	---	---	---	---	---	---	---	---	---
Ipson-----------	6e	---	---	---	---	---	---	---	---	---
Brownsto--------	6e	---	---	---	---	---	---	---	---	---
147:										
Evanston--------	6e	---	---	---	---	---	---	---	---	---
Weed------------	4e	---	---	---	---	---	---	---	---	---
148:										
Evanston--------	4e	---	---	---	---	---	---	---	---	---
Weed------------	4e	---	---	---	---	---	---	---	---	---
Trimad----------	6s	---	---	---	---	---	---	---	---	---
149:										
Featherlegs, wet	3w	3w	---	1,850	---	150	---	---	---	18
150:										
Featherlegs-----	3e	---	---	---	---	---	25	---	---	---
Bayard----------	3e	---	---	---	---	---	25	---	---	---
151:										
Featherlegs-----	4e	4e	---	1,850	---	150	25	---	---	18
Curabith--------	4e	4e	---	1,500	---	100	25	---	---	17
152:										
Featherlegs-----	4e	---	---	---	---	---	25	---	---	---
Greenhope-------	4e	---	---	---	---	---	25	---	---	---
Curabith--------	4e	---	---	---	---	---	20	---	---	---
153:										
Featherlegs-----	3e	3e	---	1,850	---	150	25	75	---	18
Recluse---------	3e	3e	---	1,900	---	170	30	75	---	20
154:										
Featherlegs-----	3e	3e	---	1,850	---	150	25	---	---	18
Recluse---------	3e	3e	---	1,900	---	170	30	---	---	20
155:										
Featherlegs-----	4e	---	---	---	---	---	---	---	---	---
Recluse---------	4e	---	---	---	---	---	---	---	---	---
156:										
Fluvaquentic Endoaquolls----	5w	5w	---	---	---	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
156:										
Whetsoon	3w	3w	---	---	---	---	25	75	---	---
157:										
Forelle	4e	---	---	---	---	---	---	---	---	---
158:										
Forelle	4e	---	---	---	---	---	---	---	---	---
Diamondville	4e	---	---	---	---	---	---	---	---	---
159:										
Forkwood	3e	3e	---	1,850	---	150	25	75	---	18
160:										
Forkwood	3e	3e	---	---	---	---	---	---	---	---
161:										
Forkwood, wet	3w	3w	---	1,850	---	150	---	---	---	18
162:										
Glendo	3e	3e	---	---	---	---	20	60	---	---
163:										
Graystone	3e	---	---	---	---	---	25	---	---	---
Alice	3e	---	---	---	---	---	25	---	---	---
164:										
Graystone	4e	---	---	---	---	---	25	---	---	---
Greenhope	4e	---	---	---	---	---	25	---	---	---
Bayard	3e	---	---	---	---	---	25	---	---	---
165:										
Graystone	3e	---	---	---	---	---	25	---	---	---
Mainter	3e	---	---	---	---	---	25	---	---	---
166:										
Graystone	3e	---	---	---	---	---	25	---	---	---
Phiferson	3e	---	---	---	---	---	25	---	---	---
Treon	7e	---	---	---	---	---	---	---	---	---
167:										
Greenhope	3e	3e	---	1,850	---	150	25	---	---	18
Featherlegs	4e	4e	---	1,850	---	150	25	---	---	18
168:										
Hiland	3e	3e	---	1,850	---	150	25	75	---	18
169:										
Hiland	3e	3e	---	1,850	---	150	25	75	---	18
Cambria	3e	3e	---	1,850	---	150	25	75	---	18
170:										
Ipson	6e	---	---	---	---	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
170:										
Evanston--------	4e	---	---	---	---	---	---	---	---	---
171:										
Ipson-----------	6e	---	---	---	---	---	---	---	---	---
Evanston--------	4e	---	---	---	---	---	---	---	---	---
Rock outcrop----	8s	---	---	---	---	---	---	---	---	---
172:										
Jayem-----------	3e	---	---	---	---	---	---	---	---	---
Mainter---------	3e	---	---	---	---	---	---	---	---	---
Moskee----------	3e	---	---	---	---	---	---	---	---	---
173:										
Julesburg-------	3e	---	---	---	---	---	25	---	---	---
Jayem-----------	3e	---	---	---	---	---	25	---	---	---
Phiferson-------	4e	---	---	---	---	---	20	---	---	---
174:										
Keeline---------	3e	3e	---	1,850	---	150	25	75	---	18
175:										
Keeline---------	3e	---	---	---	---	---	25	---	---	---
176:										
Keeline---------	4e	---	---	---	---	---	25	---	---	---
177:										
Keeline---------	3e	---	---	---	---	---	25	---	---	---
Mainter---------	3e	---	---	---	---	---	25	---	---	---
178:										
Keeline---------	6e	---	---	---	---	---	---	---	---	---
Nidix-----------	7e	---	---	---	---	---	---	---	---	---
Taluce----------	7e	---	---	---	---	---	---	---	---	---
179:										
Keeline---------	4e	---	---	---	---	---	---	---	---	---
Taluce----------	7e	---	---	---	---	---	---	---	---	---
Turnercrest-----	6e	---	---	---	---	---	---	---	---	---
180:										
Keeline---------	3e	---	---	---	---	---	25	---	---	---
Turnercrest-----	4e	---	---	---	---	---	25	---	---	---
181:										
Keeline---------	4e	---	---	---	---	---	25	---	---	---
Turnercrest-----	4e	---	---	---	---	---	25	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
182:										
Kishona	3e	---	---	---	---	---	25	---	---	---
183:										
Livan	7s	---	---	---	---	---	---	---	---	---
Clarkelen	4e	---	---	---	---	---	---	---	---	---
184:										
Livan	7s	---	---	---	---	---	---	---	---	---
Riverwash	8w	---	---	---	---	---	---	---	---	---
185:										
Mainter	3e	---	---	---	---	---	25	---	---	---
186:										
Mainter, wet	3w	3w	---	1,850	---	150	---	---	---	18
187:										
Mainter	4e	---	---	---	---	---	20	---	---	---
Keeline	4e	---	---	---	---	---	25	---	---	---
188:										
McFadden	4e	---	---	---	---	---	---	---	---	---
189:										
Mines.										
Quarries.										
190:										
Mitchell	3e	---	---	---	---	---	25	---	---	---
191:										
Mitchell	6e	---	---	---	---	---	---	---	---	---
192:										
Moskee	3e	3e	---	---	---	---	25	---	---	---
193:										
Moskee	3e	3e	---	1,850	---	150	25	---	---	18
194:										
Orpha	6e	---	---	---	---	---	---	---	---	---
195:										
Orpha	6e	---	---	---	---	---	---	---	---	---
Tullock	7e	---	---	---	---	---	---	---	---	---
196:										
Phiferson	4e	---	---	---	---	---	20	---	---	---
Alice, bedrock substratum	3e	---	---	---	---	---	25	---	---	---
197:										
Phiferson	4e	---	---	---	---	---	20	---	---	---
Mainter	3e	---	---	---	---	---	25	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
198:										
Phiferson	4e	---	---	---	---	---	20	---	---	---
Treon	7e	---	---	---	---	---	10	---	---	---
199:										
Pinelli	4e	4e	---	---	---	---	---	---	---	---
200:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
201:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
Blazon	7e	---	---	---	---	---	---	---	---	---
202:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
Blazon, thin solum	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	9s	---	---	---	---	---	---	---	---	---
203:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
Chaperton	4e	---	---	---	---	---	---	---	---	---
204:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
Forelle	4e	---	---	---	---	---	---	---	---	---
205:										
Quarterback	3e	3e	---	1,900	---	160	25	75	---	---
206:										
Quarterback, thick surface	4e	4e	---	---	---	---	25	---	---	---
Albinas	3e	3e	---	---	---	---	25	---	---	---
207:										
Recluse	3e	3e	---	1,900	---	170	30	---	---	20
208:										
Recluse	3e	3e	---	1,900	---	170	30	---	---	20
209:										
Recluse	3e	---	---	---	---	---	25	---	---	---
210:										
Recluse	3e	---	---	---	---	---	25	---	---	---
Albinas	3e	---	---	---	---	---	25	---	---	---
Treon, thin solum	7s	---	---	---	---	---	---	---	---	---
211:										
Recluse	3e	---	---	---	---	---	25	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
211:										
Cedak	4e	---	---	---	---	---	25	---	---	---
212:										
Recluse	3e	---	---	---	---	---	25	---	---	---
Cedak	4e	---	---	---	---	---	---	---	---	---
213:										
Recluse	3e	---	---	---	---	---	25	---	---	---
Graystone	3e	---	---	---	---	---	25	---	---	---
214:										
Recluse	3e	4e	---	---	---	---	---	---	---	---
Nuncho	3e	4e	---	---	---	---	---	---	---	---
215:										
Rentsac	7e	---	---	---	---	---	---	---	---	---
Brownsto	6e	---	---	---	---	---	---	---	---	---
Ipson	6e	---	---	---	---	---	---	---	---	---
216:										
Riverwash	8w	---	---	---	---	---	---	---	---	---
217:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Blazon, thin solum	7e	---	---	---	---	---	---	---	---	---
218:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Bonjea	7e	---	---	---	---	---	---	---	---	---
219:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Cathedral	7e	---	---	---	---	---	---	---	---	---
220:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Cathedral	7e	---	---	---	---	---	---	---	---	---
Alderon	7e	---	---	---	---	---	---	---	---	---
221:										
Selpats	3e	3e	---	1,500	---	130	25	75	---	17
222:										
Selpats	3e	3e	---	1,500	---	130	25	75	---	17
Forkwood	3e	3e	---	1,850	---	150	25	75	---	18
223:										
Selpats	3e	3e	---	1,850	---	150	25	75	---	18
Hiland	3e	3e	---	1,850	---	150	25	75	---	18

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
224:										
Snilloc	3e	3e	---	---	---	---	25	---	---	---
Chugcity	4e	4e	---	---	---	---	22	---	---	---
225:										
Snilloc	3e	3e	---	---	---	---	25	---	---	---
Recluse	3e	3e	---	---	---	---	25	---	---	---
226:										
Spearfish	7e	---	---	---	---	---	---	---	---	---
Sixmile	6e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
227:										
Storsun	7e	---	---	---	---	---	---	---	---	---
Sunup	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
228:										
Sunup	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
229:										
Sunup	7e	---	---	---	---	---	---	---	---	---
Snavee	7s	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
230:										
Sweatbee	4e	4e	---	1,500	---	150	25	---	---	15
231:										
Sweatbee, wet	3w	3w	---	1,500	---	150	---	---	---	15
232:										
Sweatbee	4e	4e	---	1,500	---	150	25	---	---	15
Numa	3e	3e	---	1,850	---	150	25	---	---	18
233:										
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
234:										
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Keeline	6e	---	---	---	---	---	---	---	---	---
235:										
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
235:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
236:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
237:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
238:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
239:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
240:										
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Treon, thin solum	7s	---	---	---	---	---	---	---	---	---
241:										
Taluce	7e	---	---	---	---	---	10	---	---	---
Turnercrest	4e	---	---	---	---	---	25	---	---	---
242:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
Keeline	6e	---	---	---	---	---	---	---	---	---
243:										
Torriorthents, gullied	7e	---	---	---	---	---	---	---	---	---
Gullied land	8e	---	---	---	---	---	---	---	---	---
244:										
Treon	7e	---	---	---	---	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
244:										
Aberone---	6e	---	---	---	---	---	---	---	---	---
245:										
Treon---	7e	---	---	---	---	---	---	---	---	---
Alice---	3e	---	---	---	---	---	25	---	---	---
Phiferson---	4e	---	---	---	---	---	20	---	---	---
246:										
Treon---	7e	---	---	---	---	---	---	---	---	---
Rock outcrop---	8s	---	---	---	---	---	---	---	---	---
247:										
Treon, thin solum---	7s	---	---	---	---	---	5	---	---	---
Phiferson---	4e	---	---	---	---	---	20	---	---	---
Keeline---	3e	---	---	---	---	---	25	---	---	---
248:										
Trimad---	6s	---	---	---	---	---	---	---	---	---
Blazon---	7e	---	---	---	---	---	---	---	---	---
Rock outcrop---	8s	---	---	---	---	---	---	---	---	---
249:										
Trimad---	6e	---	---	---	---	---	---	---	---	---
Evanston---	4e	---	---	---	---	---	---	---	---	---
250:										
Trimad ---	6s	---	---	---	---	---	---	---	---	---
Weed---	4e	---	---	---	---	---	---	---	---	---
Blazon---	7e	---	---	---	---	---	---	---	---	---
251:										
Turnercrest---	4e	---	---	---	---	---	25	---	---	---
Phiferson---	4e	---	---	---	---	---	20	---	---	---
Taluce---	7e	---	---	---	---	---	---	---	---	---
252:										
Typic Calciaquolls---	5w	---	---	---	---	---	---	---	---	---
Whetsoon---	3w	3w	---	---	---	---	25	75	---	---
253:										
Tyzak---	7e	---	---	---	---	---	---	---	---	---
Tyzak, thin solum---	7s	---	---	---	---	---	---	---	---	---
Rock outcrop---	8s	---	---	---	---	---	---	---	---	---

Table 5a.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Dry pinto beans		Corn		Oats		Sugar beets	
	N	I	N	I	N	I	N	I	N	I
			Lbs	Lbs	Bu	Bu	Bu	Bu	Tons	Tons
254:										
Valent	6e	4e	---	---	---	---	---	---	---	---
255:										
Vetal	3e	---	---	---	---	---	---	---	---	---
256:										
Vetal	3e	---	---	---	---	---	30	---	---	---
Julesburg	3e	---	---	---	---	---	25	---	---	---
257:										
Vetal	3e	---	---	---	---	---	---	---	---	---
Treon	7e	---	---	---	---	---	---	---	---	---
Phiferson	6e	---	---	---	---	---	---	---	---	---
258:										
Vonalee	3e	3e	---	1,850	---	150	---	---	---	18
259:										
Wagonhound	6e	---	---	---	---	---	---	---	---	---
Selpats	6e	---	---	---	---	---	---	---	---	---
260:										
Water.										
261:										
Water.										
262:										
Weed	4e	---	---	---	---	---	---	---	---	---
263:										
Wendover	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Crops

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
100:										
Aberone	6e	---	---	---	---	---	---	---	---	---
101:										
Aberone	6e	---	---	---	---	---	---	---	---	---
Cragola	7s	---	---	---	---	---	---	---	---	---
102:										
Albinas	3e	3e	---	4.0	---	---	---	3.0	45	---
103:										
Alice	3e	3e	1.00	3.0	---	---	---	---	25	---
Bayard	3e	3e	1.00	3.0	---	---	---	---	25	---
104:										
Alice	4e	---	---	---	---	---	---	---	---	---
Phiferson	4e	---	---	---	---	---	---	---	---	---
105:										
Alice	3e	---	---	---	---	---	---	---	25	---
Recluse	3e	---	---	---	---	---	---	---	25	---
Cedak	4e	---	---	---	---	---	---	---	25	---
106:										
Bayard	3e	3e	1.00	3.0	---	---	---	---	25	---
107:										
Bayard	4e	3e	---	3.0	---	---	---	---	---	---
108:										
Bayard	3e	---	---	---	---	---	---	---	25	---
Phiferson	4e	---	---	---	---	---	---	---	20	---
Treon, thin solum	7s	---	---	---	---	---	---	---	10	---
109:										
Bayard	6e	---	---	---	---	---	---	---	---	---
Phiferson	6e	---	---	---	---	---	---	---	---	---
Treon, thin solum	7s	---	---	---	---	---	---	---	---	---
110:										
Blackhall	7e	---	---	---	---	---	---	---	---	---
Satanka	6e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
111:										
Blazon	7e	---	---	---	---	---	---	---	---	---
Trimad	7e	---	---	---	---	---	---	---	---	---
112:										
Bonjea	7s	---	---	---	---	---	---	---	---	---
Chugcreek	4e	---	---	---	---	---	---	---	---	---
113:										
Bonjea	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Chugcreek	7e	---	---	---	---	---	---	---	---	---
114:										
Boyle	7e	---	---	---	---	---	---	---	---	---
Boyle, thin solum	7e	---	---	---	---	---	---	---	---	---
115:										
Boyle, thin solum	7e	---	---	---	---	---	---	---	---	---
Breece	4e	---	---	---	---	---	---	---	---	---
Cathedral	7e	---	---	---	---	---	---	---	---	---
116:										
Boyle	7e	---	---	---	---	---	---	---	---	---
Lininger	6s	---	---	---	---	---	---	---	---	---
117:										
Boyle	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
118:										
Boyle	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Cathedral	7e	---	---	---	---	---	---	---	---	---
119:										
Brown	6e	---	---	---	---	---	---	---	---	---
Featherlegs	6e	---	---	---	---	---	---	---	---	---
Recluse	6e	---	---	---	---	---	---	---	---	---
120:										
Byrnie	7e	---	---	---	---	---	---	---	---	---
Byrnie, thin solum	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
121:										
Byrnie----------	7e	---	---	---	---	---	---	---	---	---
Coocreek--------	4e	---	---	---	---	---	---	---	---	---
Byrnie, thin solum----------	7s	---	---	---	---	---	---	---	---	---
122:										
Cascajo---------	7e	---	---	---	---	---	---	---	---	---
Taluce----------	7e	---	---	---	---	---	---	---	---	---
Rock outcrop----	8s	---	---	---	---	---	---	---	---	---
123:										
Cathedral-------	7s	---	---	---	---	---	---	---	---	---
Spinekop--------	4e	---	---	---	---	---	---	---	---	---
Rock outcrop----	8s	---	---	---	---	---	---	---	---	---
124:										
Cedak-----------	3e	---	---	---	---	---	---	---	25	---
Bayard----------	3e	---	---	---	---	---	---	---	25	---
Treon, thin solum----------	7s	---	---	---	---	---	---	---	10	---
125:										
Cedak-----------	3e	---	---	---	---	---	---	---	25	---
Recluse---------	3e	---	---	---	---	---	---	---	25	---
126:										
Cedak-----------	4e	---	---	---	---	---	---	---	25	---
Recluse---------	3e	---	---	---	---	---	---	---	25	---
Treon-----------	7e	---	---	---	---	---	---	---	10	---
127:										
Cedak-----------	4e	---	---	---	---	---	---	---	25	---
Treon-----------	7e	---	---	---	---	---	---	---	10	---
128:										
Chaperton, moderately saline---------	6e	---	---	---	---	---	---	---	---	---
Blazon----------	7e	---	---	---	---	---	---	---	---	---
129:										
Claprych--------	3s	3s	0.75	2.5	---	12	---	---	---	---
130:										
Claprych--------	6s	---	---	---	---	---	---	---	---	---
Luman-----------	4e	---	---	---	---	---	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
131:										
Claprych	3e	3e	0.75	3.0	---	12	---	---	20	---
Selpats	3e	3e	1.00	3.0	---	16	---	---	25	---
132:										
Claprych	6s	---	---	---	---	---	---	---	15	---
Sweatbee	6e	---	---	---	---	---	---	---	15	---
133:										
Clarkelen	3e	3e	1.00	3.0	---	16	---	---	25	---
Quarterback	3e	3e	1.50	3.0	---	16	---	---	25	---
134:										
Clarkelen, wet	3w	3w	1.00	3.0	---	---	1.0	2.0	---	---
Anvil	4w	4w	1.00	3.0	---	---	1.0	2.0	---	---
135:										
Coaliams	3w	3w	1.00	3.0	---	16	1.0	3.0	25	---
Haverdad	3e	3e	1.00	3.0	---	16	1.0	3.0	25	---
136:										
Cowestglen	4e	4e	---	---	---	---	---	3.0	---	---
137:										
Creighton	3e	---	---	---	---	---	---	---	25	---
138:										
Curabith	6s	---	---	---	---	---	---	---	15	---
139:										
Cushool	4e	---	---	---	---	---	---	---	---	---
Cutback	4e	---	---	---	---	---	---	---	---	---
140:										
Dalecreek	4w	4w	---	---	---	---	---	3.0	---	---
Kovich	5w	5w	---	---	---	---	---	2.0	---	---
141:										
Deight	3e	---	---	---	---	---	---	---	25	---
Thirtynine	3e	---	---	---	---	---	---	---	25	---
Glendo	3e	---	---	---	---	---	---	---	20	---
142:										
Diamonkit	4e	---	---	---	---	---	---	---	---	---
Stylite	4e	---	---	---	---	---	---	---	---	---
143:										
Embry	3e	---	---	---	---	---	---	---	---	---
144:										
Evanston	4e	---	---	---	---	---	---	---	30	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
145:										
Evanton	6e	---	---	---	---	---	---	---	---	---
Ipson	6e	---	---	---	---	---	---	---	---	---
146:										
Evanston	6e	---	---	---	---	---	---	---	---	---
Ipson	6e	---	---	---	---	---	---	---	---	---
Brownsto	6e	---	---	---	---	---	---	---	---	---
147:										
Evanston	6e	---	---	---	---	---	---	---	---	---
Weed	4e	---	---	---	---	---	---	---	---	---
148:										
Evanston	4e	---	---	---	---	---	---	---	---	---
Weed	4e	---	---	---	---	---	---	---	---	---
Trimad	6s	---	---	---	---	---	---	---	---	---
149:										
Featherlegs, wet	3w	3w	1.00	3.0	---	16	---	---	---	---
150:										
Featherlegs	3e	---	---	---	---	---	---	---	25	---
Bayard	3e	---	---	---	---	---	---	---	25	---
151:										
Featherlegs	4e	4e	1.00	3.0	---	16	---	---	25	---
Curabith	4e	4e	1.00	3.0	---	16	---	---	25	---
152:										
Featherlegs	4e	---	---	---	---	---	---	---	25	---
Greenhope	4e	---	---	---	---	---	---	---	25	---
Curabith	4e	---	---	---	---	---	---	---	20	---
153:										
Featherlegs	3e	3e	1.00	3.0	---	16	---	---	25	75
Recluse	3e	3e	2.00	4.0	---	20	---	---	30	---
154:										
Featherlegs	3e	3e	1.00	3.0	---	16	---	---	25	---
Recluse	3e	3e	2.00	4.0	---	20	---	---	30	---
155:										
Featherlegs	4e	---	1.00	---	---	---	---	---	25	---
Recluse	4e	---	2.00	---	---	---	---	---	25	---
156:										
Fluvaquentic Endoaquolls	5w	5w	---	---	---	---	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
156:										
Whetsoon	3w	3w	1.00	1.5	---	---	---	---	---	---
157:										
Forelle	4e	---	---	---	---	---	---	---	---	---
158:										
Forelle	4e	---	---	---	---	---	---	---	---	---
Diamondville	4e	---	---	---	---	---	---	---	---	---
159:										
Forkwood	3e	3e	1.00	3.0	---	16	---	---	25	---
160:										
Forkwood	3e	3e	---	3.0	---	---	---	---	---	---
161:										
Forkwood, wet	3w	3w	---	3.0	---	16	---	---	---	---
162:										
Glendo	3e	3e	1.00	3.0	---	---	---	---	20	60
163:										
Graystone	3e	---	---	---	---	---	---	---	25	---
Alice	3e	---	---	---	---	---	---	---	25	---
164:										
Graystone	4e	---	---	---	---	---	---	---	25	---
Greenhope	4e	---	---	---	---	---	---	---	25	---
Bayard	3e	---	---	---	---	---	---	---	25	---
165:										
Graystone	3e	---	---	---	---	---	---	---	25	---
Mainter	3e	---	---	---	---	---	---	---	25	---
166:										
Graystone	3e	---	---	---	---	---	---	---	25	---
Phiferson	3e	---	---	---	---	---	---	---	25	---
Treon	7e	---	---	---	---	---	---	---	---	---
167:										
Greenhope	3e	3e	1.00	3.0	---	16	---	---	25	---
Featherlegs	4e	4e	1.00	3.0	---	16	---	---	25	---
168:										
Hiland	3e	3e	1.00	3.0	---	16	---	---	25	---
169:										
Hiland	3e	3e	1.00	3.0	---	16	---	---	25	---
Cambria	3e	3e	1.00	3.0	---	16	---	---	25	---
170:										
Ipson	6e	---	---	---	---	---	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
170:										
Evanston--------	4e	---	---	---	---	---	---	---	---	---
171:										
Ipson-----------	6e	---	---	---	---	---	---	---	---	---
Evanston--------	4e	---	---	---	---	---	---	---	---	---
Rock outcrop----	8s	---	---	---	---	---	---	---	---	---
172:										
Jayem-----------	3e	---	---	---	---	---	---	---	---	---
Mainter---------	3e	---	---	---	---	---	---	---	---	---
Moskee----------	3e	---	---	---	---	---	---	---	---	---
173:										
Julesburg-------	3e	---	---	---	---	---	---	---	25	---
Jayem-----------	3e	---	---	---	---	---	---	---	25	---
Phiferson-------	4e	---	---	---	---	---	---	---	20	---
174:										
Keeline---------	3e	3e	1.00	3.0	---	---	---	---	25	---
175:										
Keeline---------	3e	---	---	---	---	---	---	---	25	---
176:										
Keeline---------	4e	---	---	---	---	---	---	---	25	---
177:										
Keeline---------	3e	---	---	---	---	---	---	---	25	---
Mainter---------	3e	---	---	---	---	---	---	---	25	---
178:										
Keeline---------	6e	---	---	---	---	---	---	---	---	---
Nidix-----------	7e	---	---	---	---	---	---	---	---	---
Taluce----------	7e	---	---	---	---	---	---	---	---	---
179:										
Keeline---------	4e	---	---	---	---	---	---	---	---	---
Taluce----------	7e	---	---	---	---	---	---	---	---	---
Turnercrest-----	6e	---	---	---	---	---	---	---	---	---
180:										
Keeline---------	3e	---	---	---	---	---	---	---	25	---
Turnercrest-----	4e	---	---	---	---	---	---	---	25	---
181:										
Keeline---------	4e	---	---	---	---	---	---	---	25	---
Turnercrest-----	4e	---	---	---	---	---	---	---	25	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
182:										
Kishona	3e	---	2.00	---	---	---	---	---	---	---
183:										
Livan	7s	---	---	---	---	---	---	---	---	---
Clarkelen	4e	---	---	---	---	---	---	---	---	---
184:										
Livan	7s	---	---	---	---	---	---	---	---	---
Riverwash	8w	---	---	---	---	---	---	---	---	---
185:										
Mainter	3e	---	---	---	---	---	---	---	25	---
186:										
Mainter, wet	3w	3w	---	3.0	---	---	---	---	---	---
187:										
Mainter	4e	---	---	---	---	---	---	---	20	---
Keeline	4e	---	---	---	---	---	---	---	25	---
188:										
McFadden	4e	---	---	---	---	---	---	---	---	---
189:										
Mines.										
Quarries.										
190:										
Mitchell	3e	---	---	---	---	---	---	---	25	---
191:										
Mitchell	6e	---	---	---	---	---	---	---	---	---
192:										
Moskee	3e	3e	1.00	3.0	---	---	---	---	25	---
193:										
Moskee	3e	3e	1.00	3.0	---	---	---	---	25	---
194:										
Orpha	6e	---	---	---	---	---	---	---	---	---
195:										
Orpha	6e	---	---	---	---	---	---	---	---	---
Tullock	7e	---	---	---	---	---	---	---	---	---
196:										
Phiferson	4e	---	---	---	---	---	---	---	20	---
Alice, bedrock substratum	3e	---	---	---	---	---	---	---	25	---
197:										
Phiferson	4e	---	---	---	---	---	---	---	20	---
Mainter	3e	---	---	---	---	---	---	---	25	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
198:										
Phiferson	4e	---	---	---	---	---	---	---	20	---
Treon	7e	---	---	---	---	---	---	---	10	---
199:										
Pinelli	4e	4e	---	---	---	---	---	2.0	---	---
200:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
201:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
Blazon	7e	---	---	---	---	---	---	---	---	---
202:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
Blazon, thin solum	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
203:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
Chaperton	4e	---	---	---	---	---	---	---	---	---
204:										
Poposhia	4e	---	---	---	---	---	---	---	---	---
Forelle	4e	---	---	---	---	---	---	---	---	---
205:										
Quarterback	3e	3e	1.50	3.0	---	16	---	---	25	---
206:										
Quarterback, thick surface	4e	4e	1.00	3.0	---	---	---	---	---	---
Albinas	3e	3e	1.00	3.0	---	---	---	---	---	---
207:										
Recluse	3e	3e	2.00	4.0	---	20	---	---	30	---
208:										
Recluse	3e	3e	2.00	4.0	---	20	---	---	30	---
209:										
Recluse	3e	---	---	---	---	---	---	---	25	---
210:										
Recluse	3e	---	---	---	---	---	---	---	25	---
Albinas	3e	---	---	---	---	---	---	---	25	---
Treon, thin solum	7s	---	---	---	---	---	---	---	---	---
211:										
Recluse	3e	---	---	---	---	---	---	---	25	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
211:										
Cedak	4e	---	---	---	---	---	---	---	25	---
212:										
Recluse	3e	---	---	---	---	---	---	---	25	---
Cedak	4e	---	---	---	---	---	---	---	---	---
213:										
Recluse	3e	---	---	---	---	---	---	---	25	---
Graystone	3e	---	---	---	---	---	---	---	25	---
214:										
Recluse	3e	4e	---	3.0	---	---	---	---	---	---
Nuncho	3e	4e	---	3.0	---	---	---	---	---	---
215:										
Rentsac	7e	---	---	---	---	---	---	---	---	---
Brownsto	6e	---	---	---	---	---	---	---	---	---
Ipson	6e	---	---	---	---	---	---	---	---	---
216:										
Riverwash	8w	---	---	---	---	---	---	---	---	---
217:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Blazon, thin solum	7e	---	---	---	---	---	---	---	---	---
218:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Bonjea	7e	---	---	---	---	---	---	---	---	---
219:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Cathedral	7e	---	---	---	---	---	---	---	---	---
220:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Cathedral	7e	---	---	---	---	---	---	---	---	---
Alderon	7e	---	---	---	---	---	---	---	---	---
221:										
Selpats	3e	3e	1.00	3.0	---	16	---	---	25	---
222:										
Selpats	3e	3e	1.00	3.0	---	16	---	---	25	---
Forkwood	3e	3e	1.00	3.0	---	16	---	---	25	---
223:										
Selpats	3e	3e	1.00	3.0	---	16	---	---	25	---
Hiland	3e	3e	1.00	3.0	---	16	---	---	25	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
224:										
Snilloc	3e	3e	1.00	3.0	---	---	---	---	25	---
Chugcity	4e	4e	0.75	2.5	---	---	---	---	22	---
225:										
Snilloc	3e	3e	1.00	3.0	---	---	---	---	25	---
Recluse	3e	3e	1.00	3.0	---	---	---	---	25	---
226:										
Spearfish	7e	---	---	---	---	---	---	---	---	---
Sixmile	6e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
227:										
Storsun	7e	---	---	---	---	---	---	---	---	---
Sunup	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
228:										
Sunup	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
229:										
Sunup	7e	---	---	---	---	---	---	---	---	---
Snavee	7s	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
230:										
Sweatbee	4e	4e	0.75	2.5	---	16	---	---	25	---
231:										
Sweatbee, wet	3w	3w	0.75	2.5	---	---	---	---	---	---
232:										
Sweatbee	4e	4e	0.75	2.5	---	16	---	---	25	---
Numa	3e	3e	1.00	3.0	---	16	---	---	25	---
233:										
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
234:										
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Keeline	6e	---	---	---	---	---	---	---	---	---
235:										
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
235:										
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
236:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
237:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
238:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
239:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
240:										
Taluce, thin solum	7s	---	---	---	---	---	---	---	---	---
Treon, thin solum	7s	---	---	---	---	---	---	---	---	---
241:										
Taluce	7e	---	---	---	---	---	---	---	10	---
Turnercrest	4e	---	---	---	---	---	---	---	25	---
242:										
Taluce	7e	---	---	---	---	---	---	---	---	---
Turnercrest	6e	---	---	---	---	---	---	---	---	---
Keeline	6e	---	---	---	---	---	---	---	---	---
243:										
Torriorthents, gullied	7e	---	---	---	---	---	---	---	---	---
Gullied land	8e	---	---	---	---	---	---	---	---	---
244:										
Treon	7e	---	---	---	---	---	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
244:										
Aberone	6e	---	---	---	---	---	---	---	---	---
245:										
Treon	7e	---	---	---	---	---	---	---	---	---
Alice	3e	---	---	---	---	---	---	---	25	---
Phiferson	4e	---	---	---	---	---	---	---	20	---
246:										
Treon	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
247:										
Treon, thin solum	7s	---	---	---	---	---	---	---	5	---
Phiferson	4e	---	---	---	---	---	---	---	20	---
Keeline	3e	---	---	---	---	---	---	---	25	---
248:										
Trimad	6s	---	---	---	---	---	---	---	---	---
Blazon	7e	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---
249:										
Trimad	6e	---	---	---	---	---	---	---	---	---
Evanston	4e	---	---	---	---	---	---	---	---	---
250:										
Trimad	6s	---	---	---	---	---	---	---	---	---
Weed	4e	---	---	---	---	---	---	---	---	---
Blazon	7e	---	---	---	---	---	---	---	---	---
251:										
Turnercrest	4e	---	---	---	---	---	---	---	25	---
Phiferson	4e	---	---	---	---	---	---	---	20	---
Taluce	7e	---	---	---	---	---	---	---	---	---
252:										
Typic Calciaquolls	5w	---	---	---	---	---	---	---	---	---
Whetsoon	3w	3w	1.00	1.5	---	---	---	---	---	---
253:										
Tyzak	7e	---	---	---	---	---	---	---	---	---
Tyzak, thin solum	7s	---	---	---	---	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---	---	---	---	---

Table 5b.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Tons	Tons	Tons	Tons	Bu	Bu
254:										
Valent----------	6e	4e	---	3.0	---	---	---	---	---	---
255:										
Vetal----------	3e	---	---	---	---	---	---	---	---	---
256:										
Vetal----------	3e	---	---	---	---	---	---	---	30	---
Julesburg-------	3e	---	---	---	---	---	---	---	25	---
257:										
Vetal----------	3e	---	---	---	---	---	---	---	---	---
Treon----------	7e	---	---	---	---	---	---	---	---	---
Phiferson-------	6e	---	---	---	---	---	---	---	---	---
258:										
Vonalee---------	3e	3e	1.00	3.0	---	---	---	---	25	---
259:										
Wagonhound------	6e	---	---	---	---	---	---	---	---	---
Sslpats---------	6e	---	---	---	---	---	---	---	---	---
260:										
Water.										
261:										
Water.										
262:										
Weed----------	4e	---	---	---	---	---	---	---	---	---
263:										
Wendover--------	7e	---	---	---	---	---	---	---	---	---
Rock outcrop----	8s	---	---	---	---	---	---	---	---	---

Table 6.--Rangeland Productivity and Characteristic Plant Communities

(Only the soils that support rangeland vegetation suitable for grazing are rated. The abbreviations in ecological site are precipitation zones. They are as follows: “sp” (Southern Plains), “se” (Southeast), and “np” (Northern Plains).

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
100:						
Aberone	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5
101:						
Aberone	Gravelly (15-17sp) 067XY212WY	900	600	400	little bluestem	30
					bluebunch wheatgrass	25
					Indian ricegrass	10
					needleandthread	10
					western wheatgrass	10
					small soapweed	5
Cragola	Very Shallow (15-17sp) 067XY276WY	600	500	300	bluebunch wheatgrass	35
					little bluestem	20
					Indian ricegrass	15
					juniper	5
					needleandthread	5
102:						
Albinas	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
103:						
Alice	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Bayard	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					sand bluestem	5
					silver sagebrush	5
104:						
Alice	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
Phiferson	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
105:						
Alice	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Recluse	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Cedak	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					sand bluestem	5
					silver sagebrush	5
106:						
Bayard	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
107:						
Bayard	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
108:						
Bayard	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Phiferson	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
108:						
Treon, thin solum	Very Shallow (12-14sp) 067XY176WY	900	600	300	bluebunch wheatgrass	25
					little bluestem	15
					needleandthread	15
					blue grama	10
					threadleaf sedge	5
					western wheatgrass	5
					sand bluestem	5
					silver sagebrush	5
109:						
Bayard	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Phiferson	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Treon, thin solum	Very Shallow (12-14sp) 067XY176WY	900	600	300	bluebunch wheatgrass	25
					little bluestem	15
					needleandthread	15
					blue grama	10
					threadleaf sedge	5
					western wheatgrass	5
110:						
Blackhall	Shallow Sandy (10-14se) 034XY366WY	1,200	900	700	bluebunch wheatgrass	20
					Indian ricegrass	10
					needleandthread	10
					black sagebrush	5
					blue grama	5
					prairie junegrass	5
					threadleaf sedge	5
					western wheatgrass	5
Satanka	Sandy (10-14se) 034XY350WY	1,500	1,200	700	needleandthread	30
					thickspike wheatgrass	20
					Indian ricegrass	15
					silver sagebrush	10
					threadleaf sedge	10
					bottlebrush squirreltail	5
Rock outcrop.						
111:						
Blazon	Shallow Loamy (15-17sp) 067XY262WY	1,400	1,100	600	bluebunch wheatgrass	25
					little bluestem	20
					western wheatgrass	15
					blue grama	5
					needleandthread	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
111:						
Trimad	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
112:						
Bonjea	Shallow Igneous (15-19se) 049XY160WY	1,200	900	600	bluebunch wheatgrass	20
					slimstem muhly	15
					threetip sagebrush	10
					antelope bitterbrush	5
					fringed sagewort	5
					Idaho fescue	5
					Indian ricegrass	5
					mountainmahogany	5
					needleandthread	5
					Sandberg bluegrass	5
					western wheatgrass	5
Chugcreek	Loamy (15-19se) 049XY122WY	2,000	1,500	800	bluebunch wheatgrass	15
					big sagebrush	10
					Griffith wheatgrass	10
					Idaho fescue	10
					prairie junegrass	10
					Columbia needlegrass	5
					mountain brome	5
					Parry danthonia	5
					Sandberg bluegrass	5
					threetip sagebrush	5
Rock outcrop.						
113:						
Bonjea	Shallow Igneous (15-19se) 049XY160WY	1,200	900	600	bluebunch wheatgrass	20
					slimstem muhly	15
					threetip sagebrush	10
					antelope bitterbrush	5
					fringed sagewort	5
					Idaho fescue	5
					Indian ricegrass	5
					mountainmahogany	5
					needleandthread	5
					Sandberg bluegrass	5
					western wheatgrass	5
Rock outcrop.						
Chugcreek	Loamy (15-19se) 049XY122WY	2,000	1,500	800	bluebunch wheatgrass	15
					big sagebrush	10
					Griffith wheatgrass	10
					Idaho fescue	10
					prairie junegrass	10
					Columbia needlegrass	5
					mountain brome	5
					Parry danthonia	5
					Sandberg bluegrass	5
					threetip sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
114:						
Boyle	Shallow Igneous (15-19se) 049XY160WY	1,200	900	600	bluebunch wheatgrass	25
					slimstem muhly	15
					threetip sagebrush	15
					Griffith wheatgrass	5
					Idaho fescue	5
					western wheatgrass	5
					winterfat	5
Boyle, thin solum	Igneous (15-19se) 049XY116WY	700	550	350	bluebunch wheatgrass	35
					slimstem muhly	15
					black sagebrush	10
					threetip sagebrush	10
					Griffith wheatgrass	5
					Idaho fescue	5
115:						
Boyle, thin solum	Igneous (15-19se) 049XY116WY	700	550	350	bluebunch wheatgrass	35
					slimstem muhly	15
					black sagebrush	10
					threetip sagebrush	10
					Griffith wheatgrass	5
					Idaho fescue	5
Breece	Loamy (15-19se) 049XY122WY	2,000	1,500	800	bluebunch wheatgrass	20
					Idaho fescue	20
					Griffith wheatgrass	10
					prairie junegrass	10
					threetip sagebrush	5
					big sagebrush	5
Cathedral	Shallow Igneous (15-19se) 049XY160WY	1,200	900	600	bluebunch wheatgrass	25
					slimstem muhly	15
					threetip sagebrush	15
					Griffith wheatgrass	5
					Idaho fescue	5
					western wheatgrass	5
					winterfat	5
116:						
Boyle	Shallow Igneous (15-19se) 049XY160WY	1,200	900	600	bluebunch wheatgrass	25
					slimstem muhly	15
					threetip sagebrush	15
					Griffith wheatgrass	5
					Idaho fescue	5
					western wheatgrass	5
					winterfat	5
Lininger	Loamy (15-19se) 049XY122WY	2,000	1,500	800	bluebunch wheatgrass	20
					Idaho fescue	20
					Griffith wheatgrass	10
					prairie junegrass	10
					big sagebrush	5
					threetip sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
117:						
Boyle	Shallow Igneous (15-19se) 049XY160WY	1,200	900	600	bluebunch wheatgrass	25
					slimstem muhly	15
					threetip sagebrush	15
					Griffith wheatgrass	5
					Idaho fescue	5
					western wheatgrass	5
					winterfat	5
Rock outcrop.						
118:						
Boyle	Shallow Igneous (15-19se) 049XY160WY	1,200	900	600	bluebunch wheatgrass	25
					slimstem muhly	15
					threetip sagebrush	15
					black sagebrush	5
					Griffith wheatgrass	5
					Idaho fescue	5
					western wheatgrass	5
					winterfat	5
Rock outcrop.						
Cathedral	Shallow Igneous (15-19se) 049XY160WY	1,200	900	600	bluebunch wheatgrass	25
					slimstem muhly	15
					threetip sagebrush	15
					Griffith wheatgrass	5
					Idaho fescue	5
					western wheatgrass	5
					winterfat	5
119:						
Brown	Shallow Sandy (15-17sp) 067XY266WY	1,500	1,200	700	little bluestem	35
					needleandthread	20
					Indian ricegrass	10
					western wheatgrass	10
					small soapweed	5
					threadleaf sedge	5
Featherlegs	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Recluse	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					winterfat	5
120:						
Byrnie	Shallow Sandy (15-17sp) 067XY266WY	1,500	1,200	700	little bluestem	35
					needleandthread	20
					Indian ricegrass	10
					western wheatgrass	10
					small soapweed	5
					threadleaf sedge	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
120:						
Byrnie, thin solum---------	Very Shallow (15-17sp) 067XY276WY	600	500	300	bluebunch wheatgrass---------	35
					little bluestem-------------	20
					Indian ricegrass------------	15
					needleandthread-------------	5
					Rocky Mountain juniper-------	5
Rock outcrop.						
121:						
Byrnie---------	Shallow Sandy (15-17sp) 067XY266WY	1,500	1,200	700	little bluestem-------------	35
					needleandthread-------------	20
					Indian ricegrass------------	10
					western wheatgrass----------	10
					small soapweed--------------	5
					threadleaf sedge------------	5
Coocreek-------	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread-------------	35
					western wheatgrass----------	20
					blue grama-------------------	10
					big sagebrush---------------	5
					little bluestem-------------	5
					winterfat-------------------	5
Byrnie, thin solum---------	Very Shallow (15-17sp) 067XY276WY	600	500	300	bluebunch wheatgrass---------	35
					little bluestem-------------	20
					Indian ricegrass------------	15
					needleandthread-------------	5
					Rocky Mountain juniper-------	5
122:						
Cascajo--------	Coarse Upland (15-17sp) 067XY208WY	1,600	1,300	700	bluebunch wheatgrass---------	20
					little bluestem-------------	20
					needleandthread-------------	20
					Indian ricegrass------------	10
					sideoats grama--------------	10
					western wheatgrass----------	10
Taluce---------	Shallow Sandy (15-17sp) 067XY266WY	1,500	1,200	700	little bluestem-------------	35
					needleandthread-------------	20
					Indian ricegrass------------	10
					western wheatgrass----------	10
					small soapweed--------------	5
					threadleaf sedge------------	5
Rock outcrop.						
123:						
Cathedral------	Rocky Hills (15-19se) 049XY134WY	1,150	900	250	mountainmahogany------------	30
					bluebunch wheatgrass---------	20
					needleandthread-------------	15
					spike fescue----------------	15
					antelope bitterbrush--------	10
Spinekop-------	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread-------------	35
					western wheatgrass----------	20
					little bluestem-------------	5
					winterfat-------------------	5
Rock outcrop.						

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
124:						
Cedak	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Bayard	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Treon, thin solum	Very Shallow (12-14sp) 067XY176WY	900	600	300	bluebunch wheatgrass	25
					little bluestem	15
					needleandthread	15
					blue grama	10
					threadleaf sedge	5
					western wheatgrass	5
125:						
Cedak	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Recluse	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
126:						
Cedak	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Recluse	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Treon	Shallow Loamy (12-14sp) 067XY162WY	1,200	900	500	needleandthread	25
					western wheatgrass	25
					blue grama	15
					little bluestem	5
					prairie junegrass	5
127:						
Cedak	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
127:						
Treon	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5
128:						
Chaperton, moderately saline	Saline Loamy (10-14se) 034XY336WY	900	700	500	western wheatgrass	25
					birdfoot sagebrush	15
					Gardner saltbush	15
					needleandthread	15
					big sagebrush	10
					bluebunch wheatgrass	10
Blazon	Shallow Clayey (10-14se) 034XY358WY	1,000	800	500	western wheatgrass	40
					bluebunch wheatgrass	10
					bottlebrush squirreltail	10
					muttongrass	10
					winterfat	10
129:						
Claprych.						
130:						
Claprych	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Luman	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
131:						
Claprych	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Selpats	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
132:						
Claprych	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
132:						
Sweatbee-------	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread----------	35
					prairie sandreed----------	10
					thickspike wheatgrass--------	10
					threadleaf sedge----------	10
					blue grama----------	5
					sand bluestem----------	5
					silver sagebrush----------	5
133:						
Clarkelen------	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread----------	20
					western wheatgrass----------	20
					blue grama----------	10
					big sagebrush----------	5
					threadleaf sedge----------	5
Quarterback----	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread----------	20
					western wheatgrass----------	20
					blue grama----------	10
					big sagebrush----------	5
					threadleaf sedge----------	5
134:						
Clarkelen, wet-	Subirrigated (12-14sp) 067XY174WY	5,000	4,000	3,500	basin wildrye----------	30
					big bluestem----------	15
					little bluestem----------	10
					prairie cordgrass----------	10
					slender wheatgrass----------	10
					switchgrass----------	10
Anvil----------	Subirrigated (12-14sp) 067XY174WY	5,000	4,000	3,500	basin wildrye----------	30
					big bluestem----------	15
					little bluestem----------	10
					prairie cordgrass----------	10
					slender wheatgrass----------	10
					switchgrass----------	10
135:						
Coaliams-------	Sandy Lowland (12-14sp) 067XY152WY	3,000	2,600	1,600	needleandthread----------	35
					western wheatgrass----------	15
					cottonwood----------	10
					Indian ricegrass----------	5
					needleleaf sedge----------	5
					sand dropseed----------	5
					silver sagebrush----------	5
Haverdad-------	Sandy Lowland (12-14sp) 067XY152WY	3,000	2,600	1,600	needleandthread----------	35
					western wheatgrass----------	15
					cottonwood----------	10
					Indian ricegrass----------	5
					needleleaf sedge----------	5
					sand dropseed----------	5
					silver sagebrush----------	5
136:						
Cowestglen-----	Lowland (15-17sp) 067XY228WY	3,000	2,500	1,800	needleandthread----------	20
					western wheatgrass----------	20
					eastern cottonwood----------	15
					Indian ricegrass----------	10
					little bluestem----------	10
					Canada wildrye----------	5
					prairie junegrass----------	5
					silver sagebrush----------	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
137:						
Creighton	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
138:						
Curabith	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
139:						
Cushool	Loamy (10-14se) 034XY322WY	1,400	1,100	600	western wheatgrass	30
					big sagebrush	10
					bluebunch wheatgrass	10
					needleandthread	10
					fringed sagewort	5
					prairie junegrass	5
					Sandberg bluegrass	5
					spiny phlox	5
Cutback	Shallow Loamy (10-14se) 034XY362WY	1,200	900	700	bluebunch wheatgrass	20
					western wheatgrass	20
					black sagebrush	10
					muttongrass	10
					needleandthread	10
					green needlegrass	5
					prairie junegrass	5
					Sandberg bluegrass	5
					winterfat	5
140:						
Dalecreek	Subirrigated (15-19se) 049XY174WY	4,500	4,000	3,300	basin wildrye	30
					slender wheatgrass	10
					tufted hairgrass	10
					western wheatgrass	10
					Nebraska sedge	5
					willow	5
Kovich	Wetland (15-19se) 049XY178WY	6,500	5,500	4,000	tufted hairgrass	30
					Nebraska sedge	15
					willow	15
					slough sedge	10
					water birch	10
141:						
Deight	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Thirtynine	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
141:						
Glendo	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
142:						
Diamonkit	Shallow Loamy (10-14se) 034XY362WY	1,200	900	700	bluebunch wheatgrass	15
					black sagebrush	10
					muttongrass	10
					needleandthread	10
					western wheatgrass	10
					blue grama	5
					green needlegrass	5
					Indian ricegrass	5
					prairie junegrass	5
					Sandberg bluegrass	5
					threadleaf sedge	5
					threetip sagebrush	5
Stylite	Loamy (10-14se) 034XY322WY	1,400	1,100	600	western wheatgrass	30
					needleandthread	15
					big sagebrush	10
					bluebunch wheatgrass	10
					green needlegrass	5
					muttongrass	5
					Truckee rabbitbrush	5
143:						
Embry	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
144:						
Evanston	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
145:						
Evanston	Loamy (15-19se) 049XY122WY	2,000	1,500	800	bluebunch wheatgrass	20
					Idaho fescue	20
					Griffith wheatgrass	10
					prairie junegrass	10
					big sagebrush	5
					threetip sagebrush	5
Ipson	Coarse Upland (15-19se) 049XY108WY	1,700	1,300	800	bluebunch wheatgrass	30
					Idaho fescue	20
					prairie junegrass	10
					western wheatgrass	10

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
146:						
Evanston	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
Ipson	Coarse Upland (15-17sp) 067XY208WY	1,600	1,300	700	bluebunch wheatgrass	20
					little bluestem	20
					needleandthread	20
					Indian ricegrass	10
					sideoats grama	10
					western wheatgrass	10
Brownsto	Gravelly (15-17sp) 067XY212WY	900	600	400	little bluestem	30
					bluebunch wheatgrass	25
					Indian ricegrass	10
					needleandthread	10
					western wheatgrass	10
					small soapweed	5
147:						
Evanston	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Weed	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
148:						
Evanston	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Weed	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Trimad	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
149:						
Featherlegs, wet	Subirrigated (12-14sp) 067XY174WY	5,000	4,000	3,500	basin wildrye	30
					big bluestem	15
					little bluestem	10
					prairie cordgrass	10
					slender wheatgrass	10
					switchgrass	10
150:						
Featherlegs	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					sand bluestem	5
					silver sagebrush	5
Bayard	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
151:						
Featherlegs	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Curabith	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
152:						
Featherlegs	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Greenhope	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
152:						
Curabith	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
153:						
Featherlegs.						
Recluse.						
154:						
Featherlegs	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Recluse	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
155:						
Featherlegs	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
Recluse	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
156:						
Fluvaquentic Endoaquolls	Wetland (12-14sp) 067XY178WY	6,000	5,500	5,000	prairie cordgrass	30
					bluejoint	20
					Nebraska sedge	20
					northern reedgrass	10
Whetsoon	Subirrigated (12-14sp) 067XY174WY	5,000	4,000	3,500	basin wildrye	30
					big bluestem	15
					little bluestem	10
					prairie cordgrass	10
					slender wheatgrass	10
					switchgrass	10
157:						
Forelle	Loamy (10-14se) 034XY322WY	1,400	1,100	600	western wheatgrass	30
					needleandthread	15
					big sagebrush	10
					bluebunch wheatgrass	10
					green needlegrass	5
					green rabbitbrush	5
					muttongrass	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
158:						
Forelle	Loamy (10-14se) 034XY322WY	1,400	1,100	600	western wheatgrass	30
					needleandthread	15
					big sagebrush	10
					bluebunch wheatgrass	10
					green needlegrass	5
					green rabbitbrush	5
					muttongrass	5
Diamondville	Loamy (10-14se) 034XY322WY	1,400	1,100	600	western wheatgrass	30
					needleandthread	15
					big sagebrush	10
					bluebunch wheatgrass	10
					green needlegrass	5
					green rabbitbrush	5
					muttongrass	5
159:						
Forkwood	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
160:						
Forkwood	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
161:						
Forkwood, wet	Subirrigated (12-14sp) 067XY174WY	5,000	4,000	3,500	basin wildrye	30
					big bluestem	15
					little bluestem	10
					prairie cordgrass	10
					slender wheatgrass	10
					switchgrass	10
162:						
Glendo	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
163:						
Graystone	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
163:						
Alice	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
164:						
Graystone	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Greenhope	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Bayard	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
165:						
Graystone	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Mainter	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
166:						
Graystone	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Phiferson	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
166:						
Treon	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5
167:						
Greenhope	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Featherlegs	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
168:						
Hiland	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
169:						
Hiland	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Cambria	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
170:						
Ipson	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
170:						
Evanston	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
171:						
Ipson	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Evanston	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Rock outcrop.						
172:						
Jayem	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
Mainter	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
Moskee	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
173:						
Julesburg	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Jayem	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
173:						
Phiferson	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
174:						
Keeline.						
175:						
Keeline	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
176:						
Keeline	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
177:						
Keeline	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Mainter	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
178:						
Keeline	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Nidix	Coarse Upland (12-14sp) 067XY108WY	1,400	900	500	little bluestem	20
					western wheatgrass	20
					needleandthread	15
					big bluestem	5
					bluebunch wheatgrass	5
					sideoats grama	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
178:						
Taluce	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5
179:						
Keeline	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Taluce	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5
Turnercrest	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
180:						
Keeline	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Turnercrest	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
181:						
Keeline	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
181:						
Turnercrest----	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
182:						
Kishona--------	Saline Lowland (12-14sp) 067XY138WY	2,000	1,500	1,200	western wheatgrass	40
					alkali sacaton	15
					inland saltgrass	10
					Indian ricegrass	5
					Sandberg bluegrass	5
183:						
Livan----------	Gravelly Loamy (15-17sp) 067XY214WY	1,300	1,100	600	needleandthread	25
					western wheatgrass	20
					little bluestem	15
					bluebunch wheatgrass	10
					Indian ricegrass	10
Clarkelen------	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
184:						
Livan----------	Gravelly Loamy (12-14sp) 067XY114WY	1,200	1,000	600	needleandthread	30
					little bluestem	15
					western wheatgrass	15
					blue grama	10
					bluebunch wheatgrass	5
					small soapweed	5
Riverwash.						
185:						
Mainter--------	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
186:						
Mainter, wet---	Subirrigated (12-14sp) 067XY174WY	5,000	4,000	3,500	basin wildrye	30
					big bluestem	15
					little bluestem	10
					prairie cordgrass	10
					slender wheatgrass	10
					switchgrass	10
187:						
Mainter--------	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
187:						
Keeline	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
188:						
McFadden	Shallow Sandy (10-14se) 034XY366WY	1,200	900	700	needleandthread	25
					bluebunch wheatgrass	20
					threadleaf sedge	15
					Indian ricegrass	10
					muttongrass	10
					black sagebrush	5
189:						
Mines.						
Quarries.						
190:						
Mitchell	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
191:						
Mitchell	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
192:						
Moskee	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
193:						
Moskee	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
194:						
Orpha	Sands (12-14sp) 067XY146WY	1,800	1,300	900	sand bluestem	35
					needleandthread	15
					prairie sandreed	15
					little bluestem	10
					thickspike wheatgrass	10
					sand sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
195:						
Orpha	Sands (12-14sp) 067XY146WY	1,800	1,300	900	sand bluestem	35
					needleandthread	15
					prairie sandreed	15
					little bluestem	10
					thickspike wheatgrass	10
					sand sagebrush	5
Tullock	Sands (12-14sp) 067XY146WY	1,800	1,300	900	sand bluestem	35
					needleandthread	15
					prairie sandreed	10
					little bluestem	10
					thickspike wheatgrass	10
					sand sagebrush	5
196:						
Phiferson	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Alice, bedrock substratum	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
197:						
Phiferson	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Mainter	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
198:						
Phiferson	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Treon	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
199:						
Pinelli	Clayey (15-17sp) 067XY204WY	1,700	1,300	600	western wheatgrass	40
					green needlegrass	25
					winterfat	10
					blue grama	5
200:						
Poposhia	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
201:						
Poposhia	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Blazon	Shallow Loamy (15-17sp) 067XY262WY	1,400	1,100	600	bluebunch wheatgrass	25
					little bluestem	20
					western wheatgrass	15
					blue grama	5
					needleandthread	5
202:						
Poposhia	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Blazon, thin solum	Very Shallow (15-17sp) 067XY276WY	600	500	300	bluebunch wheatgrass	35
					little bluestem	20
					Indian ricegrass	15
					needleandthread	5
					Rocky Mountain juniper	5
Rock outcrop.						
203:						
Poposhia	Loamy (10-14se) 034XY322WY	1,400	1,100	600	western wheatgrass	30
					needleandthread	15
					big sagebrush	10
					bluebunch wheatgrass	10
					green needlegrass	5
					muttongrass	5
					Truckee rabbitbrush	5
Chaperton	Loamy (10-14se) 034XY322WY	1,400	1,100	600	western wheatgrass	30
					needleandthread	15
					big sagebrush	10
					bluebunch wheatgrass	10
					green needlegrass	5
					muttongrass	5
					Truckee rabbitbrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
204:						
Poposhia	Loamy (10-14se) 034XY322WY	1,400	1,100	600	western wheatgrass	30
					needleandthread	15
					big sagebrush	10
					bluebunch wheatgrass	10
					green needlegrass	5
					muttongrass	5
					Truckee rabbitbrush	5
Forelle	Loamy (10-14se) 034XY322WY	1,400	1,100	600	blue grama	30
					needleandthread	15
					big sagebrush	10
					bluebunch wheatgrass	10
					green needlegrass	5
					green rabbitbrush	5
					muttongrass	5
205:						
Quarterback	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
206:						
Quarterback, thick surface	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
Albinas	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
207:						
Recluse	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
208:						
Recluse	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
209:						
Recluse	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
210:						
Recluse	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Albinas	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Treon, thin solum	Very Shallow (12-14sp) 067XY176WY	900	600	300	bluebunch wheatgrass	25
					little bluestem	15
					needleandthread	15
					blue grama	10
					threadleaf sedge	5
					western wheatgrass	5
211:						
Recluse	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Cedak	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
212:						
Recluse	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Cedak	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	25
					blue grama	15
					little bluestem	5
					prairie junegrass	5
					threadleaf sedge	5
					winterfat	5
213:						
Recluse	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
213:						
Graystone	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
214:						
Recluse	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Nuncho	Clayey Overflow (15-17sp) 067XY206WY	3,000	2,000	1,500	western wheatgrass	35
					green needlegrass	20
					sideoats grama	10
					fourwing saltbush	5
					prairie junegrass	5
					slender wheatgrass	5
215:						
Rentsac	Rocky Hills (15-17sp) 067XY234WY	1,000	800	450	true mountainmahogany	30
					needleandthread	20
					bluebunch wheatgrass	15
					western wheatgrass	15
					little bluestem	5
Brownsto	Gravelly (15-17sp) 067XY212WY	900	600	400	little bluestem	30
					bluebunch wheatgrass	25
					Indian ricegrass	10
					needleandthread	10
					western wheatgrass	10
					small soapweed	5
Ipson	Coarse Upland (15-17sp) 067XY208WY	1,600	1,300	700	bluebunch wheatgrass	20
					little bluestem	20
					needleandthread	20
					Indian ricegrass	10
					sideoats grama	10
					western wheatgrass	10
216:						
Riverwash.						
217:						
Rock outcrop.						
Blazon, thin solum	Rocky Hills (15-17sp) 067XY234WY	1,000	800	450	true mountainmahogany	30
					needleandthread	20
					bluebunch wheatgrass	15
					western wheatgrass	15
					little bluestem	5
218:						
Rock outcrop.						

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
218:						
Bonjea	Igneous (15-19se) 049XY116WY	700	550	350	bluebunch wheatgrass	35
					slimstem muhly	15
					black sagebrush	10
					threetip sagebrush	10
					Griffith wheatgrass	5
					Idaho fescue	5
219:						
Rock outcrop.						
Cathedral	Igneous (15-19se) 049XY116WY	700	550	350	bluebunch wheatgrass	35
					slimstem muhly	15
					black sagebrush	10
					threetip sagebrush	10
					Griffith wheatgrass	5
					Idaho fescue	5
220:						
Rock outcrop.						
Cathedral	Igneous (15-19se) 049XY116WY	700	550	350	bluebunch wheatgrass	35
					slimstem muhly	15
					black sagebrush	10
					threetip sagebrush	10
					Griffith wheatgrass	5
					Idaho fescue	5
Alderon.						
221:						
Selpats	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
222:						
Selpats	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Forkwood	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
223:						
Selpats	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
223:						
Hiland	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
224:						
Snilloc	Loamy (12-14sp) 067XY122WY	1,800	1,300	600	needleandthread	20
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					threadleaf sedge	5
Chugcity	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
225:						
Snilloc	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Recluse	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
226:						
Spearfish	Shallow Loamy (15-17sp) 067XY262WY	1,400	1,100	600	bluebunch wheatgrass	25
					little bluestem	20
					western wheatgrass	15
					needleandthread	10
					blue grama	5
Sixmile	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Rock outcrop.						
227:						
Storsun	Rocky Hills (15-17sp) 067XY234WY	1,000	800	450	mountainmahogany	30
					needleandthread	20
					bluebunch wheatgrass	15
					western wheatgrass	15
					little bluestem	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
227:						
Sunup----------	Rocky Hills (15-17sp) 067XY234WY	1,000	800	450	true mountainmahogany--------	30
					needleandthread----------	20
					bluebunch wheatgrass---------	15
					western wheatgrass----------	15
					little bluestem----------	5
Rock outcrop.						
228:						
Sunup----------	Very Shallow (10-14np) 058BY176WY	500	350	250	bluebunch wheatgrass---------	50
					little bluestem----------	10
					western wheatgrass----------	10
Rock outcrop.						
229:						
Sunup----------	Shallow Loamy (15-17sp) 067XY262WY	1,400	1,100	600	bluebunch wheatgrass---------	25
					little bluestem----------	20
					western wheatgrass----------	15
					needleandthread----------	10
					blue grama----------	5
Snavee---------	---	300	200	100	bluebunch wheatgrass---------	25
					little bluestem----------	20
					needleandthread----------	10
					Indian ricegrass----------	5
					threadleaf sedge----------	5
					western wheatgrass----------	5
Rock outcrop.						
230:						
Sweatbee-------	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread----------	35
					prairie sandreed----------	10
					thickspike wheatgrass--------	10
					threadleaf sedge----------	10
					blue grama----------	5
					sand bluestem----------	5
					silver sagebrush----------	5
231:						
Sweatbee, wet--	Subirrigated (12-14sp) 067XY174WY	5,000	4,000	3,500	basin wildrye----------	30
					big bluestem----------	15
					little bluestem----------	10
					prairie cordgrass----------	10
					slender wheatgrass----------	10
					switchgrass----------	10
232:						
Sweatbee.						
Numa.						
233:						
Taluce, thin solum---------	Very Shallow (12-14sp) 067XY176WY	900	600	300	bluebunch wheatgrass---------	25
					little bluestem----------	15
					needleandthread----------	15
					blue grama----------	10
					threadleaf sedge----------	5
					western wheatgrass----------	5
Rock outcrop.						

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
234:						
Taluce, thin solum	Very Shallow (15-17sp) 067XY276WY	600	500	300	bluebunch wheatgrass	35
					little bluestem	20
					Indian ricegrass	15
					needleandthread	5
					Rocky Mountain juniper	5
Keeline	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
235:						
Taluce, thin solum	Very Shallow (12-14sp) 067XY176WY	900	600	300	bluebunch wheatgrass	25
					little bluestem	15
					needleandthread	15
					blue grama	10
					threadleaf sedge	5
					western wheatgrass	5
Rock outcrop.						
Turnercrest	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
236:						
Taluce	Shallow Sandy (10-14np) 058BY166WY	1,300	1,000	600	needleandthread	25
					prairie sandreed	25
					little bluestem	10
Rock outcrop.						
Turnercrest	Sandy (10-14np) 058BY150WY	1,600	1,300	750	needleandthread	25
					prairie sandreed	20
					Indian ricegrass	15
237:						
Taluce	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5
Rock outcrop.						
Turnercrest	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
238:						
Taluce	Shallow Sandy (15-17sp) 067XY266WY	1,500	1,200	700	little bluestem	35
					needleandthread	20
					Indian ricegrass	10
					western wheatgrass	10
					small soapweed	5
					threadleaf sedge	5
Taluce, thin solum	Very Shallow (15-17sp) 067XY276WY	600	500	300	bluebunch wheatgrass	35
					little bluestem	20
					Indian ricegrass	15
					needleandthread	5
					Rocky Mountain juniper	5
Rock outcrop.						
239:						
Taluce	Shallow Sandy (15-17sp) 067XY266WY	1,500	1,200	700	little bluestem	35
					needleandthread	20
					Indian ricegrass	10
					western wheatgrass	10
					small soapweed	5
					threadleaf sedge	5
Taluce, thin solum	Very Shallow (15-17sp) 067XY276WY	600	500	300	bluebunch wheatgrass	35
					little bluestem	20
					Indian ricegrass	15
					needleandthread	5
					Rocky Mountain juniper	5
Turnercrest	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
240:						
Taluce, thin solum	Very Shallow (12-14sp) 067XY176WY	900	600	300	bluebunch wheatgrass	25
					little bluestem	15
					needleandthread	15
					blue grama	10
					threadleaf sedge	5
					western wheatgrass	5
Treon, thin solum	Very Shallow (12-14sp) 067XY176WY	900	600	300	bluebunch wheatgrass	25
					little bluestem	15
					needleandthread	15
					blue grama	10
					threadleaf sedge	5
					western wheatgrass	5
241:						
Taluce	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
241:						
Turnercrest	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
242:						
Taluce	Shallow Sandy (10-14np) 058BY166WY	1,300	1,000	600	needleandthread	25
					prairie sandreed	25
					little bluestem	10
Turnercrest	Sandy (10-14np) 058BY150WY	1,600	1,300	750	needleandthread	25
					prairie sandreed	20
					Indian ricegrass	15
Keeline	Sandy (10-14np) 058BY150WY	1,600	1,300	750	needleandthread	25
					prairie sandreed	20
					Indian ricegrass	15
243:						
Torriorthents, gullied	Sandy (12-14sp) 067XY150WY	---	---	---	---	---
Gullied land.						
244:						
Treon	Shallow Sandy (15-17sp) 067XY266WY	1,500	1,200	700	little bluestem	35
					needleandthread	20
					Indian ricegrass	10
					western wheatgrass	10
					small soapweed	5
					threadleaf sedge	5
Aberone	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
245:						
Treon	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5
Alice	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
245:						
Phiferson	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
246:						
Treon	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5
Rock outcrop.						
247:						
Treon, thin solum	Very Shallow (12-14sp) 067XY176WY	900	600	300	bluebunch wheatgrass	25
					little bluestem	15
					needleandthread	15
					blue grama	10
					threadleaf sedge	5
					western wheatgrass	5
Phiferson	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Keeline	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
248:						
Trimad	Rocky Hills (15-17sp) 067XY234WY	1,000	800	450	true mountainmahogany	30
					needleandthread	20
					bluebunch wheatgrass	15
					western wheatgrass	15
					little bluestem	5
Blazon	Shallow Loamy (15-17sp) 067XY262WY	1,400	1,100	600	bluebunch wheatgrass	25
					little bluestem	20
					western wheatgrass	15
					blue grama	5
					needleandthread	5
Rock outcrop.						

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
249:						
Trimad	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Evanston	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
250:						
Trimad	Rocky Hills (15-17sp) 067XY234WY	1,000	800	450	true mountainmahogany	30
					needleandthread	20
					bluebunch wheatgrass	15
					western wheatgrass	15
					little bluestem	5
Weed	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	30
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Blazon	Shallow Loamy (15-17sp) 067XY262WY	1,400	1,100	600	bluebunch wheatgrass	25
					little bluestem	20
					western wheatgrass	15
					blue grama	5
					needleandthread	5
251:						
Turnercrest	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Phiferson	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					sand bluestem	5
					silver sagebrush	5
Taluce	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
252:						
Typic Calciaquolls	Wetland (12-14sp) 067XY178WY	6,000	5,500	5,000	prairie cordgrass	30
					bluejoint	20
					Nebraska sedge	20
					northern reedgrass	10
Whetsoon	Subirrigated (12-14sp) 067XY174WY	5,000	4,000	3,500	basin wildrye	30
					big bluestem	15
					little bluestem	10
					prairie cordgrass	10
					slender wheatgrass	10
					switchgrass	10
253:						
Tyzak	Rocky Hills (15-19se) 049XY134WY	1,150	900	550	mountainmahogany	30
					bluebunch wheatgrass	20
					needleandthread	15
					spike fescue	15
					antelope bitterbrush	10
Tyzak, thin solum	Very Shallow (15-19se) 049XY176WY	600	500	300	bluebunch wheatgrass	30
					antelope bitterbrush	10
					Idaho fescue	10
					needleandthread	10
					Parry danthonia	10
					black sagebrush	5
Rock outcrop.						
254:						
Valent	Sands (15-17sp) 067XY246WY	2,000	1,500	900	prairie sandreed	35
					sand bluestem	35
					Indian ricegrass	5
					needleandthread	5
					sand sagebrush	5
255:						
Vetal	Sandy (15-17sp) 067XY250WY	1,800	1,400	800	needleandthread	35
					little bluestem	20
					prairie sandreed	15
					thickspike wheatgrass	10
					Indian ricegrass	5
					silver sagebrush	5
256:						
Vetal	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Julesburg	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
257:						
Vetal	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
Treon	Shallow Sandy (12-14sp) 067XY166WY	1,300	1,000	600	needleandthread	20
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					small soapweed	5
Phiferson	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
258:						
Vonalee	Sandy (12-14sp) 067XY150WY	1,800	1,300	600	needleandthread	35
					prairie sandreed	10
					thickspike wheatgrass	10
					threadleaf sedge	10
					blue grama	5
					sand bluestem	5
					silver sagebrush	5
259:						
Wagonhound	---	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5
Selpats	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	35
					western wheatgrass	20
					big sagebrush	5
					blue grama	5
					little bluestem	5
					winterfat	5
260:						
Water.						
261:						
Water.						
262:						
Weed	Loamy (15-17sp) 067XY222WY	1,900	1,400	700	needleandthread	30
					western wheatgrass	20
					blue grama	10
					big sagebrush	5
					little bluestem	5
					winterfat	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Maximum rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
263:						
Wendover	Shallow Sandy (15-17sp) 067XY266WY	1,500	1,200	700	little bluestem	35
					needleandthread	20
					Indian ricegrass	10
					western wheatgrass	10
					small soapweed	5
					threadleaf sedge	5
Rock outcrop.						

Table 7.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
100:					
Aberone	Moderate: small stones	Moderate: small stones	Severe: slope, small stones	Slight	Moderate: small stones, droughty
101:					
Aberone	Severe: slope	Severe: slope	Severe: slope, small stones	Moderate: slope	Severe: slope
Cragola	Severe: slope, small stones, depth to rock	Severe: slope, small stones, depth to rock	Severe: slope, small stones, depth to rock	Moderate: slope	Severe: slope, small stones, depth to rock
102:					
Albinas	Slight	Slight	Moderate: slope	Slight	Slight
103:					
Alice	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Bayard	Slight	Slight	Moderate: slope	Slight	Slight
104:					
Alice	Slight	Slight	Severe: slope	Slight	Slight
Phiferson	Slight	Slight	Severe: slope	Slight	Moderate: depth to rock
105:					
Alice	Slight	Slight	Moderate: slope, small stones	Slight	Slight
Recluse	Slight	Slight	Slight	Slight	Slight
Cedak	Slight	Slight	Moderate: slope, depth to rock	Slight	Moderate: depth to rock
106:					
Bayard	Slight	Slight	Slight	Slight	Slight
107:					
Bayard	Slight	Slight	Severe: slope	Slight	Slight
108:					
Bayard	Slight	Slight	Slight	Slight	Slight
Phiferson	Slight	Slight	Moderate: slope, depth to rock	Slight	Moderate: depth to rock

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
108:					
Treon, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: small stones depth to rock	Slight	Severe: depth to rock
109:					
Bayard	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Phiferson	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope depth to rock
Treon, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock
110:					
Blackhall	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Satanka	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope depth to rock
Rock outcrop	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock droughty
111:					
Blazon	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: erodes easily slope	Severe: slope depth to rock
Trimad	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
112:					
Bonjea	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Chugcreek	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope depth to rock
113:					
Bonjea	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty
Chugcreek	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
114:					
Boyle	Severe: depth to rock	Severe: depth to rock	Severe: small stones depth to rock	Slight	Severe: depth to rock

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
114:					
Boyle, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: small stones depth to rock	Slight	Severe: depth to rock
115:					
Boyle, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: slope small stones depth to rock	Moderate: dusty	Severe: depth to rock
Breece	Slight	Slight	Moderate: small stones	Slight	Moderate: droughty
Cathedral	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Moderate: slope	Severe: slope depth to rock
116:					
Boyle	Severe: depth to rock	Severe: depth to rock	Severe: slope small stones depth to rock	Slight	Severe: depth to rock
Lininger	Slight	Slight	Moderate: slope small stones depth to rock	Slight	Moderate: depth to rock
117:					
Boyle	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Moderate: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock droughty
118:					
Boyle	Severe: depth to rock	Severe: depth to rock	Severe: slope small stones depth to rock	Moderate: dusty	Severe: depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty
Cathedral	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Moderate: slope	Severe: slope depth to rock
119:					
Brown	Severe: large stones slope small stones	Severe: large stones slope small stones	Severe: large stones slope small stones	Moderate: large stones slope	Severe: large stones slope small stones
Featherlegs	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
119:					
Recluse	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
120:					
Byrnie	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
Byrnie, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty
121:					
Byrnie	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
Coocreek	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
Byrnie, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Slight	Severe: depth to rock
122:					
Cascajo	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: slope	Severe: slope droughty
Taluce	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock droughty
123:					
Cathedral	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Severe: slope	Severe: slope depth to rock
Spinekop	Slight	Slight	Moderate: slope	Slight	Slight
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock droughty
124:					
Cedak	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: depth to rock
Bayard	Slight	Slight	Slight	Slight	Slight

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
124:					
Treon, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: small stones depth to rock	Slight	Severe: depth to rock
125:					
Cedak	Moderate: dusty	Moderate: dusty	Moderate: dusty slope depth to rock	Moderate: dusty	Moderate: depth to rock
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
126:					
Cedak	Moderate: dusty	Moderate: dusty	Moderate: dusty slope depth to rock	Moderate: dusty	Moderate: depth to rock
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
Treon	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Moderate: dusty	Severe: depth to rock
127:					
Cedak	Slight	Slight	Moderate: slope depth to rock	Slight	Moderate: depth to rock
Treon	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Severe: depth to rock
128:					
Chaperton, moderately saline	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Moderate: dusty	Moderate: slope depth to rock
Blazon	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: erodes easily	Severe: depth to rock
129:					
Claprych	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones droughty
130:					
Claprych	Severe: small stones	Severe: small stones	Severe: small stones	Slight	Severe: small stones
Luman	Severe: small stones	Severe: small stones	Severe: small stones	Slight	Severe: small stones
131:					
Claprych	Slight	Slight	Slight	Slight	Moderate: droughty
Selpats	Slight	Slight	Slight	Slight	Slight

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
132:					
Claprych	Severe: small stones	Severe: small stones	Severe: slope, small stones	Slight	Severe: small stones, droughty
Sweatbee	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
133:					
Clarkelen	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
Quarterback	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
134:					
Clarkelen, wet	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
Anvil	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: droughty
135:					
Coaliams	Severe: flooding	Slight	Slight	Slight	Slight
Haverdad	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
136:					
Cowestglen	Severe: flooding	Slight	Moderate: flooding	Slight	Moderate: flooding
137:					
Creighton	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight
138:					
Curabith	Severe: large stones	Severe: large stones	Severe: large stones, small stones	Moderate: large stones	Severe: large stones
139:					
Cushool	Slight	Slight	Severe: slope	Slight	Moderate: depth to rock
Cutback	Slight	Slight	Severe: slope	Slight	Moderate: depth to rock
140:					
Dalecreek	Severe: flooding	Slight	Moderate: slope	Slight	Slight
Kovich	Severe: flooding, wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
141:					
Deight	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
Thirtynine	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
141:					
Glendo	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
142:					
Diamonkit	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope depth to rock
Stylite	Slight	Slight	Moderate: slope	Slight	Slight
143:					
Embry	Slight	Slight	Moderate: slope small stones	Slight	Slight
144:					
Evanston	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
145:					
Evanston	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Moderate: dusty	Moderate: slope
Ipson	Severe: large stones	Severe: large stones	Severe: large stones slope small stones	Moderate: dusty large stones	Severe: large stones
146:					
Evanston	Severe: slope	Severe: slope	Severe: slope	Moderate: dusty slope	Severe: slope
Ipson	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope small stones	Severe: slope	Severe: large stones slope
Brownsto	Severe: slope	Severe: slope	Severe: large stones slope small stones	Severe: slope	Severe: slope
147:					
Evanston	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: slope	Severe: slope
Weed	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
148:					
Evanston	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Moderate: dusty	Moderate: slope
Weed	Slight	Slight	Moderate: slope	Slight	Slight

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
148:					
Trimad	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope droughty
149:					
Featherlegs, wet	Moderate: wetness	Moderate: wetness	Moderate: wetness	Slight	Slight
150:					
Featherlegs	Slight	Slight	Moderate: slope	Slight	Slight
Bayard	Slight	Slight	Moderate: slope	Slight	Slight
151:					
Featherlegs	Slight	Slight	Slight	Slight	Slight
Curabith	Slight	Slight	Slight	Slight	Moderate: droughty
152:					
Featherlegs	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope droughty
Greenhope	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Curabith	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope droughty
153:					
Featherlegs	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
154:					
Featherlegs	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
155:					
Featherlegs	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope
Recluse	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope
156:					
Fluvaquentic Endoaquolls	Severe: flooding wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
156:					
Whetsoon	Severe: flooding	Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness
157:					
Forelle	Moderate: dusty	Moderate: dusty	Moderate: dusty slope small stones	Moderate: dusty	Slight
158:					
Forelle	Slight	Slight	Moderate: slope small stones	Slight	Slight
Diamondville	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope depth to rock
159:					
Forkwood	Slight	Slight	Slight	Slight	Slight
160:					
Forkwood	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
161:					
Forkwood, wet	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
162:					
Glendo	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
163:					
Graystone	Slight	Slight	Moderate: slope	Slight	Slight
Alice	Slight	Slight	Moderate: slope small stones	Slight	Slight
164:					
Graystone	Slight	Slight	Moderate: slope	Slight	Slight
Greenhope	Slight	Slight	Moderate: slope	Slight	Moderate: droughty
Bayard	Slight	Slight	Moderate: slope	Slight	Slight
165:					
Graystone	Slight	Slight	Moderate: slope	Slight	Slight
Mainter	Slight	Slight	Moderate: slope	Slight	Slight
166:					
Graystone	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
166:					
Phiferson	Moderate: dusty	Moderate: dusty	Moderate: dusty slope depth to rock	Moderate: dusty	Moderate: depth to rock
Treon	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Moderate: dusty	Severe: depth to rock
167:					
Greenhope	Slight	Slight	Moderate: slope	Slight	Moderate: droughty
Featherlegs	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones droughty
168:					
Hiland	Slight	Slight	Slight	Slight	Slight
169:					
Hiland	Slight	Slight	Moderate: slope	Slight	Slight
Cambria	Slight	Slight	Moderate: slope	Slight	Slight
170:					
Ipson	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: dusty slope	Severe: slope
Evanston	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Moderate: dusty	Moderate: slope
171:					
Ipson	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: dusty slope	Severe: slope
Evanston	Moderate: dusty	Moderate: dusty	Severe: slope	Moderate: dusty	Slight
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock droughty
172:					
Jayem	Slight	Slight	Moderate: slope	Slight	Slight
Mainter	Slight	Slight	Moderate: slope	Slight	Slight
Moskee	Slight	Slight	Moderate: slope	Slight	Slight
173:					
Julesburg	Slight	Slight	Moderate: slope	Slight	Slight
Jayem	Slight	Slight	Moderate: slope	Slight	Slight

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
173:					
Phiferson	Slight	Slight	Moderate: slope, depth to rock	Slight	Moderate: depth to rock
174:					
Keeline	Slight	Slight	Slight	Slight	Slight
175:					
Keeline	Slight	Slight	Moderate: slope	Slight	Slight
176:					
Keeline	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
177:					
Keeline	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight
Mainter	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight
178:					
Keeline	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
Nidix	Severe: large stones, slope	Severe: large stones, slope	Severe: large stones, slope, small stones	Severe: large stones, slope	Severe: large stones, slope
Taluce	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: large stones, slope, depth to rock	Severe: slope	Severe: slope, depth to rock
179:					
Keeline	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Taluce	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: slope	Severe: slope, depth to rock
Turnercrest	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
180:					
Keeline	Slight	Slight	Moderate: slope	Slight	Slight
Turnercrest	Slight	Slight	Moderate: slope, depth to rock	Slight	Moderate: depth to rock
181:					
Keeline	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Turnercrest	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope, depth to rock

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
182:					
Kishona	Slight	Slight	Moderate: slope, small stones	Slight	Slight
183:					
Livan	Severe: flooding	Moderate: small stones	Severe: small stones	Slight	Severe: droughty
Clarkelen	Severe: flooding	Slight	Slight	Slight	Moderate: droughty
184:					
Livan	Severe: flooding	Slight	Slight	Slight	Moderate: droughty
Riverwash	Severe: flooding, too sandy, wetness	Severe: too sandy, wetness	Severe: flooding, too sandy, wetness	Severe: too sandy, wetness	Severe: flooding, wetness, droughty
185:					
Mainter	Slight	Slight	Moderate: slope	Slight	Slight
186:					
Mainter, wet	Severe: flooding	Slight	Slight	Slight	Slight
187:					
Mainter	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Keeline	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
188:					
McFadden	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones
189:					
Mines.					
Quarries.					
190:					
Mitchell	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight
191:					
Mitchell	Moderate: dusty, slope	Moderate: dusty, slope	Severe: slope	Severe: erodes easily	Moderate: slope
192:					
Moskee	Slight	Slight	Moderate: slope	Slight	Slight
193:					
Moskee	Slight	Slight	Slight	Slight	Slight
194:					
Orpha	Severe: too sandy	Severe: too sandy	Severe: slope, too sandy	Severe: too sandy	Moderate: droughty

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
195:					
Orpha	Moderate: slope, too sandy	Moderate: slope, too sandy	Severe: slope	Moderate: too sandy	Moderate: slope, droughty
Tullock	Moderate: slope, too sandy	Moderate: slope, too sandy	Severe: slope	Moderate: too sandy	Moderate: slope, depth to rock, droughty
196:					
Phiferson	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope, depth to rock	Moderate: dusty	Moderate: depth to rock
Alice, bedrock substratum	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight
197:					
Phiferson	Slight	Slight	Moderate: slope, depth to rock	Slight	Moderate: depth to rock
Mainter	Slight	Slight	Moderate: slope	Slight	Slight
198:					
Phiferson	Slight	Slight	Moderate: slope, depth to rock	Slight	Moderate: depth to rock
Treon	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Severe: depth to rock
199:					
Pinelli	Moderate: dusty	Moderate: dusty	Severe: slope	Moderate: dusty	Slight
200:					
Poposhia	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight
201:					
Poposhia	Moderate: dusty, slope	Moderate: dusty, slope	Severe: slope	Severe: erodes easily	Moderate: slope
Blazon	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: erodes easily	Severe: slope, depth to rock
202:					
Poposhia	Moderate: dusty, slope	Moderate: dusty, slope	Severe: slope	Severe: erodes easily	Moderate: slope
Blazon, thin solum	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: erodes easily, slope	Severe: slope, depth to rock

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
202:					
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: slope	Severe: slope, depth to rock, droughty
203:					
Poposhia	Moderate: dusty	Moderate: dusty	Severe: slope	Moderate: dusty	Slight
Chaperton	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope, depth to rock
204:					
Poposhia	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight
Forelle	Slight	Slight	Moderate: slope, small stones	Slight	Slight
205:					
Quarterback	Severe: flooding	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
206:					
Quarterback, thick surface	Severe: flooding	Slight	Slight	Slight	Moderate: droughty
Albinas	Slight	Slight	Slight	Slight	Slight
207:					
Recluse	Slight	Slight	Moderate: slope	Slight	Slight
208:					
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
209:					
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight
210:					
Recluse	Slight	Slight	Slight	Slight	Slight
Albinas	Slight	Slight	Slight	Slight	Slight
Treon, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: large stones, small stones, depth to rock	Slight	Severe: depth to rock
211:					
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight
Cedak	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope, depth to rock	Moderate: dusty	Moderate: depth to rock

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
212:					
Recluse	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Severe: erodes easily	Moderate: slope
Cedak	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Moderate: dusty	Moderate: slope depth to rock
213:					
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
Graystone	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
214:					
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
Nuncho	Moderate: dusty	Moderate: dusty	Moderate: dusty slope	Moderate: dusty	Slight
215:					
Rentsac	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: slope small stones depth to rock	Severe: slope small stones	Severe: slope small stones depth to rock
Brownsto	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones	Severe: slope	Severe: slope small stones
Ipson	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: dusty slope	Severe: slope
216:					
Riverwash	Severe: flooding wetness	Severe: wetness	Severe: flooding small stones wetness	Severe: wetness	Severe: flooding wetness
217:					
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty
Blazon, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Severe: slope	Severe: slope depth to rock
218:					
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
218:					
Bonjea	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock
219:					
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, droughty
Cathedral	Severe: slope, small stones, depth to rock	Severe: slope, small stones, depth to rock	Severe: large stones, slope, small stones	Severe: slope	Severe: slope, small stones, depth to rock
220:					
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, droughty
Cathedral	Severe: slope, small stones, depth to rock	Severe: slope, small stones, depth to rock	Severe: slope, small stones, depth to rock	Severe: slope, small stones	Severe: slope, small stones, depth to rock
Alderon	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
221:					
Selpats	Slight	Slight	Slight	Slight	Slight
222:					
Selpats	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
Forkwood	Moderate: dusty	Moderate: dusty	Moderate: dusty	Moderate: dusty	Slight
223:					
Selpats	Moderate: small stones	Moderate: small stones	Severe: small stones	Slight	Moderate: small stones, droughty
Hiland	Slight	Slight	Moderate: slope	Slight	Slight
224:					
Snilloc	Slight	Slight	Slight	Slight	Slight
Chugcity	Slight	Slight	Moderate: slope, depth to rock	Slight	Moderate: depth to rock
225:					
Snilloc	Slight	Slight	Moderate: slope	Slight	Slight
Recluse	Moderate: dusty	Moderate: dusty	Moderate: dusty, slope	Moderate: dusty	Slight

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
226:					
Spearfish	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock
Sixmile	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, droughty
227:					
Storsun	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
Sunup	Severe: large stones, slope, depth to rock	Severe: large stones, slope, depth to rock	Severe: large stones, slope, small stones	Severe: slope	Severe: large stones, slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, droughty
228:					
Sunup	Severe: large stones, slope, depth to rock	Severe: large stones, slope, depth to rock	Severe: large stones, slope, small stones	Severe: large stones, slope	Severe: large stones, slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, droughty
229:					
Sunup	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: large stones	Severe: large stones, slope, depth to rock
Snavee	Severe: large stones, slope, small stones	Severe: large stones, slope, small stones	Severe: large stones, slope, small stones	Severe: large stones	Severe: large stones, slope, small stones
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: slope	Severe: slope, depth to rock, droughty
230:					
Sweatbee	Slight	Slight	Slight	Slight	Moderate: droughty
231:					
Sweatbee, wet	Severe: flooding	Slight	Slight	Slight	Slight

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
232:					
Sweatbee	Slight	Slight	Slight	Slight	Moderate: droughty
Numa	Slight	Slight	Slight	Slight	Slight
233:					
Taluce, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty
234:					
Taluce, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Severe: slope	Severe: slope depth to rock
Keeline	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
235:					
Taluce, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty
Turnercrest	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
236:					
Taluce	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty
Turnercrest	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
237:					
Taluce	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty
Turnercrest	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
238:					
Taluce	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Severe: depth to rock
Taluce, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Slight	Severe: depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: slope	Severe: slope, depth to rock, droughty
239:					
Taluce	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Severe: depth to rock
Taluce, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Slight	Severe: depth to rock
Turnercrest	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope, depth to rock
240:					
Taluce, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Slight	Severe: depth to rock
Treon, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Slight	Severe: depth to rock
241:					
Taluce	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Severe: depth to rock
Turnercrest	Slight	Slight	Moderate: slope, depth to rock	Slight	Moderate: depth to rock
242:					
Taluce	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Slight	Severe: depth to rock
Turnercrest	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope, depth to rock
Keeline	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
243:					
Torriorthents, gullied.					
Gullied land.					
244:					
Treon	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: slope	Severe: slope, depth to rock

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
244:					
Aberone	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope droughty
245:					
Treon	Severe: depth to rock	Severe: depth to rock	Severe: small stones depth to rock	Slight	Severe: depth to rock
Alice	Slight	Slight	Moderate: slope small stones	Slight	Slight
Phiferson	Slight	Slight	Moderate: slope depth to rock	Slight	Moderate: depth to rock
246:					
Treon	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: erodes easily slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock droughty
247:					
Treon, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Severe: depth to rock
Phiferson	Slight	Slight	Moderate: slope depth to rock	Slight	Moderate: depth to rock
Keeline	Slight	Slight	Moderate: slope	Slight	Slight
248:					
Trimad	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Blazon	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: erodes easily slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Moderate: slope	Severe: slope depth to rock droughty
249:					
Trimad	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: slope	Severe: slope
Evanston	Moderate: dusty slope	Moderate: dusty slope	Severe: slope	Moderate: dusty	Moderate: slope
250:					
Trimad	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope droughty

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
250:					
Weed	Slight	Slight	Moderate: slope	Slight	Slight
Blazon	Severe: depth to rock	Severe: depth to rock	Severe: slope, small stones, depth to rock	Moderate: dusty	Severe: depth to rock
251:					
Turnercrest	Slight	Slight	Moderate: slope, depth to rock	Slight	Moderate: depth to rock
Phiferson	Slight	Slight	Slight	Slight	Moderate: depth to rock
Taluce	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Severe: depth to rock
252:					
Typic Calciaquolls	Severe: flooding, wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
Whetsoon	Severe: flooding	Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness
253:					
Tyzak	Severe: large stones, slope, small stones	Severe: large stones, slope, small stones	Severe: large stones, slope, small stones	Moderate: large stones, slope	Severe: large stones, slope, small stones
Tyzak, thin solum	Severe: large stones, slope, small stones	Severe: large stones, slope, small stones	Severe: large stones, slope, small stones	Severe: slope	Severe: large stones, slope, small stones
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, droughty
254:					
Valent	Moderate: too sandy	Moderate: too sandy	Moderate: slope, too sandy	Moderate: too sandy	Moderate: droughty
255:					
Vetal	Slight	Slight	Severe: slope	Slight	Slight
256:					
Vetal	Slight	Slight	Slight	Slight	Slight
Julesburg	Slight	Slight	Moderate: slope	Slight	Slight
257:					
Vetal	Slight	Slight	Moderate: slope	Slight	Slight

Table 7.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
258:					
Treon	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Slight	Severe: depth to rock
Phiferson	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope, depth to rock
258:					
Vonalee	Slight	Slight	Moderate: slope	Slight	Slight
259:					
Wagonhound	Moderate: dusty, slope	Moderate: dusty, slope	Severe: slope	Moderate: dusty	Moderate: large stones, slope
Selpats	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
260:					
Water.					
261:					
Water.					
262:					
Weed	Slight	Slight	Moderate: slope	Slight	Slight
263:					
Wendover	Severe: large stones, slope, depth to rock	Severe: large stones, slope, depth to rock	Severe: large stones, slope, small stones	Severe: large stones, slope	Severe: large stones, slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock, droughty

Table 8.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
100:						
Aberone	Slight	Slight	Slight	Moderate: slope	Slight	Moderate: small stones droughty
101:						
Aberone	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Cragola	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope small stones depth to rock
102:						
Albinas	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: low strength shrink-swell	Slight
103:						
Alice	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Bayard	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
104:						
Alice	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Moderate: slope	Moderate: frost action	Moderate: depth to rock
105:						
Alice	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Recluse	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Severe: low strength	Slight
Cedak	Moderate: depth to rock	Moderate: shrink-swell	Moderate: shrink-swell depth to rock	Moderate: shrink-swell	Moderate: frost action shrink-swell	Moderate: depth to rock
106:						
Bayard	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
107:						
Bayard	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
108:						
Bayard	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
108:						
Treon, thin solum	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action depth to rock	Severe: depth to rock
109:						
Bayard	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope
Phiferson	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: frost action slope	Moderate: slope depth to rock
Treon, thin solum	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
110:						
Blackhall	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: slope depth to rock	Severe: depth to rock
Satanka	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: slope	Moderate: slope depth to rock
Rock outcrop	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock droughty
111:						
Blazon	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Trimad	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
112:						
Bonjea	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
Chugcreek	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: low strength shrink-swell depth to rock	Moderate: slope depth to rock
113:						
Bonjea	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty
Chugcreek	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
114:						
Boyle	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock
Boyle, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock
115:						
Boyle, thin solum	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: frost action slope depth to rock	Severe: depth to rock
Breece	Slight	Slight	Slight	Slight	Moderate: frost action	Moderate: droughty
Cathedral	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
116:						
Boyle	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Severe: depth to rock
Lininger	Moderate: depth to rock	Moderate: shrink-swell	Moderate: shrink-swell depth to rock	Moderate: shrink-swell slope	Moderate: frost action shrink-swell	Moderate: depth to rock
117:						
Boyle	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty
118:						
Boyle	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: shrink-swell slope depth to rock	Severe: depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty
Cathedral	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
119:						
Brown	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: large stones slope small stones
Featherlegs	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
119:						
Recluse	Moderate: slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: frost action shrink-swell slope	Moderate: slope
120:						
Byrnie	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Byrnie, thin solum	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock droughty
121:						
Byrnie	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: frost action slope depth to rock	Severe: depth to rock
Coocreek	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: frost action low strength shrink-swell	Slight
Byrnie, thin solum	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: frost action slope depth to rock	Severe: depth to rock
122:						
Cascajo	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope droughty
Taluce	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock droughty
123:						
Cathedral	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
Spinekop	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
124:						
Cedak	Moderate: depth to rock	Moderate: shrink-swell	Moderate: shrink-swell depth to rock	Moderate: shrink-swell	Moderate: frost action shrink-swell	Moderate: depth to rock
Bayard	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Treon, thin solum	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action depth to rock	Severe: depth to rock
125:						
Cedak	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock
Recluse	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: frost action low strength shrink-swell	Slight
126:						
Cedak	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock
Recluse	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Treon	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action depth to rock	Severe: depth to rock
127:						
Cedak	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock
Treon	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action depth to rock	Severe: depth to rock
128:						
Chaperton, moderately saline	Moderate: slope depth to rock	Moderate: shrink-swell slope	Moderate: shrink-swell slope depth to rock	Severe: slope	Moderate: frost action shrink-swell slope	Moderate: slope depth to rock
Blazon	Severe: depth to rock	Moderate: shrink-swell slope depth to rock	Severe: depth to rock	Severe: slope	Severe: low strength	Severe: depth to rock
129:						
Claprych	Slight	Slight	Slight	Slight	Slight	Moderate: small stones droughty
130:						
Claprych	Moderate: large stones	Moderate: large stones	Moderate: large stones	Moderate: large stones slope	Moderate: large stones	Severe: small stones
Luman	Slight	Slight	Slight	Moderate: slope	Slight	Severe: small stones

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
131:						
Claprych	Slight	Slight	Slight	Slight	Slight	Moderate: droughty
Selpats	Slight	Slight	Slight	Slight	Slight	Slight
132:						
Claprych	Severe: cutbanks cave	Moderate: large stones slope	Moderate: large stones slope	Severe: slope	Moderate: large stones slope	Severe: small stones droughty
Sweatbee	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope
133:						
Clarkelen	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding frost action	Slight
Quarterback	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding frost action	Slight
134:						
Clarkelen, wet	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding frost action	Slight
Anvil	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding large stones	Moderate: droughty
135:						
Coaliams	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding low strength shrink-swell	Slight
Haverdad	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding shrink-swell	Slight
136:						
Cowestglen	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
137:						
Creighton	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
138:						
Curabith	Severe: cutbanks cave	Moderate: large stones	Moderate: large stones	Moderate: large stones	Moderate: frost action large stones	Severe: large stones
139:						
Cushool	Moderate: depth to rock	Slight	Moderate: depth to rock	Moderate: slope	Moderate: frost action	Moderate: depth to rock
Cutback	Moderate: depth to rock	Slight	Moderate: depth to rock	Moderate: slope	Slight	Moderate: depth to rock

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
140:						
Dalecreek	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action, shrink-swell	Slight
Kovich	Severe: wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, frost action, wetness	Severe: wetness
141:						
Deight	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Thirtynine	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Glendo	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
142:						
Diamonkit	Moderate: slope, depth to rock	Moderate: shrink-swell, slope	Moderate: shrink-swell, slope, depth to rock	Severe: slope	Moderate: shrink-swell, slope	Moderate: slope, depth to rock
Stylite	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell, slope	Severe: low strength	Slight
143:						
Embry	Slight	Slight	Slight	Moderate: slope	Slight	Slight
144:						
Evanston	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: frost action, shrink-swell	Slight
145:						
Evanston	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action, slope	Moderate: slope
Ipson	Moderate: large stones, slope	Moderate: large stones, slope	Moderate: large stones, slope	Severe: slope	Moderate: frost action, large stones, slope	Severe: large stones
146:						
Evanston	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Ipson	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: large stones, slope
Brownsto	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
147:						
Evanston	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Weed	Moderate: slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope
148:						
Evanston	Moderate: slope	Moderate: shrink-swell slope	Moderate: slope	Severe: slope	Moderate: frost action shrink-swell slope	Moderate: slope
Weed	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: frost action shrink-swell	Slight
Trimad	Moderate: large stones slope	Moderate: large stones slope	Moderate: large stones slope	Severe: slope	Moderate: frost action large stones slope	Moderate: slope droughty
149:						
Featherlegs, wet	Severe: wetness cutbanks cave	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: frost action wetness	Slight
150:						
Featherlegs	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: frost action low strength shrink-swell	Slight
Bayard	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
151:						
Featherlegs	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Slight
Curabith	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Moderate: droughty
152:						
Featherlegs	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope droughty
Greenhope	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope
Curabith	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope droughty
153:						
Featherlegs	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
153:						
Recluse	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: frost action shrink-swell	Slight
154:						
Featherlegs	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell slope	Moderate: frost action low strength shrink-swell	Slight
Recluse	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: frost action shrink-swell	Slight
155:						
Featherlegs	Moderate: slope	Moderate: shrink-swell slope	Moderate: slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope
Recluse	Moderate: slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: frost action shrink-swell slope	Moderate: slope
156:						
Fluvaquentic Endoaquolls	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: frost action wetness	Severe: wetness
Whetsoon	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Moderate: low strength shrink-swell wetness	Moderate: wetness
157:						
Forelle	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: frost action low strength shrink-swell	Slight
158:						
Forelle	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: frost action low strength shrink-swell	Slight
Diamondville	Moderate: slope depth to rock	Moderate: shrink-swell slope	Moderate: shrink-swell slope depth to rock	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope depth to rock
159:						
Forkwood	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
160:						
Forkwood	Slight	Slight	Slight	Slight	Moderate: frost action	Slight

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
161:						
Forkwood, wet	Moderate: wetness	Slight	Moderate: wetness	Slight	Slight	Slight
162:						
Glendo	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
163:						
Graystone	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Alice	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
164:						
Graystone	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Greenhope	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Moderate: droughty
Bayard	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
165:						
Graystone	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Mainter	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
166:						
Graystone	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock
Treon	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action depth to rock	Severe: depth to rock
167:						
Greenhope	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Moderate: droughty
Featherlegs	Slight	Slight	Slight	Slight	Moderate: frost action	Moderate: small stones droughty
168:						
Hiland	Slight	Slight	Slight	Slight	Slight	Slight
169:						
Hiland	Slight	Slight	Slight	Slight	Slight	Slight
Cambria	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Slight
170:						
Ipson	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
170:						
Evanston	Moderate: slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope
171:						
Ipson	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Evanston	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: frost action low strength shrink-swell	Slight
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty
172:						
Jayem	Slight	Slight	Slight	Slight	Slight	Slight
Mainter	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Moskee	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: frost action shrink-swell	Slight
173:						
Julesburg	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Jayem	Slight	Slight	Slight	Slight	Slight	Slight
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock
174:						
Keeline	Slight	Slight	Slight	Slight	Slight	Slight
175:						
Keeline	Slight	Slight	Slight	Moderate: slope	Slight	Slight
176:						
Keeline	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
177:						
Keeline	Slight	Slight	Slight	Slight	Slight	Slight
Mainter	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
178:						
Keeline	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Nidix	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: large stones slope

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
178:						
Taluce	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock
179:						
Keeline	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
Taluce	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock
Turnercrest	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
180:						
Keeline	Slight	Slight	Slight	Slight	Slight	Slight
Turnercrest	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Slight	Moderate: depth to rock
181:						
Keeline	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
Turnercrest	Moderate: slope, depth to rock	Moderate: slope	Moderate: slope, depth to rock	Severe: slope	Moderate: slope	Moderate: slope, depth to rock
182:						
Kishona	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Slight
183:						
Livan	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Severe: droughty
Clarkelen	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Moderate: droughty
184:						
Livan	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Moderate: droughty
Riverwash	Severe: wetness, cutbanks cave	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness, droughty
185:						
Mainter	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
186:						
Mainter, wet	Moderate: wetness	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Slight
187:						
Mainter	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action, slope	Moderate: slope

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
187:						
Keeline	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
188:						
McFadden	Slight	Slight	Slight	Slight	Slight	Moderate: small stones
189:						
Mines.						
Quarries.						
190:						
Mitchell	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
191:						
Mitchell	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope
192:						
Moskee	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: frost action shrink-swell	Slight
193:						
Moskee	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
194:						
Orpha	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Slight	Moderate: droughty
195:						
Orpha	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope droughty
Tullock	Severe: cutbanks cave	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: slope	Moderate: slope depth to rock droughty
196:						
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock
Alice, bedrock substratum	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
197:						
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock
Mainter	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
198:						
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
198:						
Treon	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action depth to rock	Severe: depth to rock
199:						
Pinelli	Moderate: too clayey	Severe: shrink-swell	Moderate: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Slight
200:						
Poposhia	Slight	Slight	Slight	Slight	Severe: low strength	Slight
201:						
Poposhia	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Severe: low strength	Moderate: slope
Blazon	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
202:						
Poposhia	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Severe: low strength	Moderate: slope
Blazon, thin solum	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock droughty
203:						
Poposhia	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: frost action low strength shrink-swell	Slight
Chaperton	Moderate: slope depth to rock	Moderate: shrink-swell slope	Moderate: shrink-swell slope depth to rock	Severe: slope	Moderate: frost action shrink-swell slope	Moderate: slope depth to rock
204:						
Poposhia	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: frost action low strength shrink-swell	Slight
Forelle	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: frost action low strength shrink-swell	Slight
205:						
Quarterback	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding frost action	Slight

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
206:						
Quarterback, thick surface	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding frost action	Moderate: droughty
Albinas	Slight	Slight	Slight	Slight	Slight	Slight
207:						
Recluse	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: low strength	Slight
208:						
Recluse	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
209:						
Recluse	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
210:						
Recluse	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
Albinas	Slight	Slight	Slight	Slight	Slight	Slight
Treon, thin solum	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action depth to rock	Severe: depth to rock
211:						
Recluse	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: frost action low strength shrink-swell	Slight
Cedak	Moderate: depth to rock	Moderate: shrink-swell	Moderate: shrink-swell depth to rock	Moderate: shrink-swell	Moderate: frost action shrink-swell	Moderate: depth to rock
212:						
Recluse	Moderate: slope	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: frost action shrink-swell slope	Moderate: slope
Cedak	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: frost action slope	Moderate: slope depth to rock
213:						
Recluse	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Graystone	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
214:						
Recluse	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: frost action low strength shrink-swell	Slight

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
214:						
Nuncho	Slight	Severe: shrink-swell	Moderate: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Slight
215:						
Rentsac	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock
Brownsto	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope small stones
Ipson	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
216:						
Riverwash	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness
217:						
Rock outcrop	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock droughty
Blazon, thin solum	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
218:						
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty
Bonjea	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
219:						
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty
Cathedral	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock
220:						
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty
Cathedral	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
220:						
Alderon	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
221:						
Selpats	Slight	Slight	Slight	Slight	Slight	Slight
222:						
Selpats	Severe: cutbanks cave	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: low strength shrink-swell	Slight
Forkwood	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
223:						
Selpats	Slight	Slight	Slight	Slight	Slight	Moderate: small stones droughty
Hiland	Slight	Slight	Slight	Slight	Slight	Slight
224:						
Snilloc	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Chugcity	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock
225:						
Snilloc	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Recluse	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: frost action shrink-swell	Slight
226:						
Spearfish	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Sixmile	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
Rock outcrop	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock droughty
227:						
Storsun	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Sunup	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
228:						
Sunup	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: large stones, slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock, droughty
229:						
Sunup	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: large stones, slope, depth to rock
Snavee	Severe: large stones, slope	Severe: large stones, slope	Severe: large stones, slope	Severe: large stones, slope	Severe: large stones, slope	Severe: large stones, slope, small stones
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock, droughty
230:						
Sweatbee	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Moderate: droughty
231:						
Sweatbee, wet	Moderate: wetness	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding, frost action	Slight
232:						
Sweatbee	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Moderate: droughty
Numa	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Slight
233:						
Taluce, thin solum	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock, droughty
234:						
Taluce, thin solum	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock
Keeline	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
235:						
Taluce, thin solum	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock droughty
Turnercrest	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
236:						
Taluce	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock droughty
Turnercrest	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
237:						
Taluce	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock droughty
Turnercrest	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
238:						
Taluce	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: slope depth to rock	Moderate: depth to rock	Severe: depth to rock
Taluce, thin solum	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: slope depth to rock	Severe: depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock droughty
239:						
Taluce	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: slope depth to rock	Moderate: depth to rock	Severe: depth to rock
Taluce, thin solum	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: slope depth to rock	Severe: depth to rock

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
239:						
Turnercrest	Moderate: slope, depth to rock	Moderate: slope	Moderate: slope, depth to rock	Severe: slope	Moderate: slope	Moderate: slope, depth to rock
240:						
Taluce, thin solum	Severe: depth to rock	Moderate: slope, depth to rock	Severe: depth to rock	Severe: slope	Moderate: frost action, slope, depth to rock	Severe: depth to rock
Treon, thin solum	Severe: depth to rock	Moderate: slope, depth to rock	Severe: depth to rock	Severe: slope	Moderate: frost action, slope, depth to rock	Severe: depth to rock
241:						
Taluce	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action, depth to rock	Severe: depth to rock
Turnercrest	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Slight	Moderate: depth to rock
242:						
Taluce	Severe: depth to rock	Moderate: slope, depth to rock	Severe: depth to rock	Severe: slope	Moderate: slope, depth to rock	Severe: depth to rock
Turnercrest	Moderate: slope, depth to rock	Moderate: slope	Moderate: slope, depth to rock	Severe: slope	Moderate: slope	Moderate: slope, depth to rock
Keeline	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
243:						
Torriorthents, gullied.						
Gullied land.						
244:						
Treon	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock
Aberone	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope, droughty
245:						
Treon	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action, depth to rock	Severe: depth to rock
Alice	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
246:						
Treon	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock, droughty
247:						
Treon, thin solum	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action, depth to rock	Severe: depth to rock
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock
Keeline	Slight	Slight	Slight	Slight	Slight	Slight
248:						
Trimad	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action, slope	Moderate: slope
Blazon	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock	Severe: slope	Severe: slope	Severe: slope, depth to rock, droughty
249:						
Trimad	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Evanston	Moderate: slope	Moderate: shrink-swell, slope	Moderate: shrink-swell, slope	Severe: slope	Moderate: frost action, shrink-swell, slope	Moderate: slope
250:						
Trimad	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action, slope	Moderate: slope, droughty
Weed	Slight	Moderate: shrink-swell	Slight	Moderate: shrink-swell	Moderate: frost action, low strength, shrink-swell	Slight
Blazon	Severe: depth to rock	Moderate: slope, depth to rock	Severe: depth to rock	Severe: slope	Moderate: low strength, slope, depth to rock	Severe: depth to rock
251:						
Turnercrest	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Slight	Moderate: depth to rock
Phiferson	Moderate: depth to rock	Slight	Moderate: depth to rock	Slight	Moderate: frost action	Moderate: depth to rock

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
251:						
Taluce	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: depth to rock	Moderate: frost action depth to rock	Severe: depth to rock
252:						
Typic Calciaquolls	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: frost action wetness	Severe: wetness
Whetsoon	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Moderate: low strength shrink-swell wetness	Moderate: wetness
253:						
Tyzak	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones slope small stones
Tyzak, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones slope small stones
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty
254:						
Valent	Severe: cutbanks cave	Slight	Slight	Slight	Slight	Moderate: droughty
255:						
Vetal	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
256:						
Vetal	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Julesburg	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
257:						
Vetal	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Treon	Severe: depth to rock	Moderate: depth to rock	Severe: depth to rock	Moderate: slope depth to rock	Moderate: frost action depth to rock	Severe: depth to rock
Phiferson	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: frost action slope	Moderate: slope depth to rock
258:						
Vonalee	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
259:						
Wagonhound	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: large stones slope

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
259:						
Selpats	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope
260:						
Water.						
261:						
Water.						
262:						
Weed	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: frost action low strength shrink-swell	Slight
263:						
Wendover	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock droughty

Table 9.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
100:					
Aberone	Slight	Severe: seepage slope	Moderate: large stones	Slight	Poor: small stones
101:					
Aberone	Severe: slope	Severe: seepage slope	Severe: slope	Severe: slope	Poor: slope small stones
Cragola	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope small stones depth to rock
102:					
Albinas	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
103:					
Alice	Slight	Severe: seepage	Slight	Slight	Good
Bayard	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Good
104:					
Alice	Slight	Severe: seepage	Slight	Slight	Good
Phiferson	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
105:					
Alice	Slight	Severe: seepage	Slight	Slight	Good
Recluse	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
Cedak	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
106:					
Bayard	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Good
107:					
Bayard	Slight	Severe: seepage slope	Severe: seepage	Severe: seepage	Good
108:					
Bayard	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Good

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
108:					
Phiferson	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Treon, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Poor: depth to rock
109:					
Bayard	Moderate: slope	Severe: seepage, slope	Severe: seepage	Severe: seepage	Fair: slope
Phiferson	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Treon, thin solum	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
110:					
Blackhall	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Satanka	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Rock outcrop	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
111:					
Blazon	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Trimad	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: slope, small stones
112:					
Bonjea	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: small stones, depth to rock
Chugcreek	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
113:					
Bonjea	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, small stones, depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
113:					
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Chugcreek	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
114:					
Boyle	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: small stones, depth to rock
Boyle, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
115:					
Boyle, thin solum	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Breece	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Poor: small stones
Cathedral	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Poor: seepage, small stones, depth to rock
116:					
Boyle	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: small stones, depth to rock
Lininger	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
117:					
Boyle	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, small stones, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
118:					
Boyle	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: small stones, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Cathedral	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Poor: seepage, small stones, depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
119:					
Brown	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, small stones, depth to rock
Featherlegs	Severe: slope	Severe: seepage, slope	Severe: slope	Severe: slope	Poor: slope, small stones
Recluse	Moderate: percs slowly, slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
120:					
Byrnie	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Byrnie, thin solum	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
121:					
Byrnie	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Coocreek	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good
Byrnie, thin solum	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
122:					
Cascajo	Severe: slope, poor filter	Severe: seepage, slope	Severe: large stones, slope, too sandy	Severe: slope	Poor: seepage, small stones, too sandy
Taluce	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
123:					
Cathedral	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Poor: seepage, small stones, depth to rock
Spinekop	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
123:					
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
124:					
Cedak	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Bayard	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Good
Treon, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Poor: depth to rock
125:					
Cedak	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Recluse	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
126:					
Cedak	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Recluse	Slight	Severe: seepage	Slight	Slight	Good
Treon	Severe: depth to rock	Severe: seepage, depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Poor: depth to rock
127:					
Cedak	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Treon	Severe: depth to rock	Severe: seepage, depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Poor: depth to rock
128:					
Chaperton, moderately saline	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Blazon	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
129:					
Claprych	Slight	Severe: seepage	Slight	Slight	Poor: small stones
130:					
Claprych	Moderate: large stones	Severe: seepage	Moderate: large stones	Slight	Poor: small stones

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
130:					
Luman	Slight	Severe: seepage	Slight	Slight	Poor: small stones
131:					
Claprych	Severe: poor filter	Severe: seepage	Slight	Slight	Poor: seepage small stones
Selpats	Slight	Severe: seepage	Slight	Slight	Poor: small stones
132:					
Claprych	Severe: poor filter	Severe: seepage slope	Moderate: large stones slope too sandy	Moderate: slope	Poor: small stones
Sweatbee	Severe: poor filter	Severe: seepage slope	Severe: seepage	Severe: seepage	Fair: slope
133:					
Clarkelen	Moderate: flooding	Severe: seepage	Moderate: flooding	Moderate: flooding	Poor: small stones
Quarterback	Moderate: flooding percs slowly	Moderate: seepage	Moderate: flooding too clayey too sandy	Moderate: flooding	Fair: too clayey too sandy
134:					
Clarkelen, wet	Severe: wetness	Severe: seepage wetness	Severe: wetness	Severe: wetness	Fair: thin layer wetness
Anvil	Severe: wetness	Severe: seepage wetness	Severe: seepage too sandy wetness	Severe: seepage wetness	Poor: seepage small stones too sandy
135:					
Coaliams	Severe: wetness	Severe: wetness	Severe: too sandy wetness	Severe: wetness	Poor: too sandy
Haverdad	Moderate: flooding percs slowly	Moderate: seepage	Moderate: flooding	Moderate: flooding	Good
136:					
Cowestglen	Severe: flooding	Severe: flooding seepage	Severe: flooding	Severe: flooding	Good
137:					
Creighton	Slight	Severe: seepage	Slight	Slight	Good
138:					
Curabith	Severe: poor filter	Severe: seepage	Moderate: large stones too sandy	Slight	Poor: small stones

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
139:					
Cushool	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Cutback	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: seepage small stones depth to rock
140:					
Dalecreek	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Fair: too sandy wetness
Kovich	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Poor: wetness
141:					
Deight	Slight	Severe: seepage	Slight	Slight	Good
Thirtynine	Moderate: percs slowly	Moderate: seepage	Slight	Slight	Good
Glendo	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
142:					
Diamonkit	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Stylite	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Poor: thin layer
143:					
Embry	Slight	Severe: seepage	Slight	Slight	Good
144:					
Evanston	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
145:					
Evanston	Moderate: percs slowly slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Ipson	Moderate: large stones slope	Severe: large stones seepage slope	Moderate: large stones slope	Moderate: slope	Poor: small stones
146:					
Evanston	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
146:					
Ipson	Severe: slope	Severe: seepage slope	Severe: slope	Severe: slope	Poor: slope small stones
Brownsto	Severe: slope	Severe: large stones seepage slope	Severe: large stones slope	Severe: slope	Poor: slope small stones
147:					
Evanston	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Weed	Severe: percs slowly	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope small stones
148:					
Evanston	Moderate: percs slowly slope	Severe: seepage slope	Moderate: slope	Moderate: slope	Fair: slope small stones
Weed	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Fair: small stones
Trimad	Moderate: large stones slope	Severe: seepage slope	Severe: seepage	Severe: seepage	Poor: small stones
149:					
Featherlegs, wet	Severe: wetness poor filter	Severe: seepage wetness	Severe: wetness	Severe: wetness	Poor: small stones
150:					
Featherlegs	Moderate: percs slowly	Severe: seepage	Slight	Slight	Poor: small stones
Bayard	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Good
151:					
Featherlegs	Slight	Severe: seepage	Moderate: large stones	Slight	Poor: large stones
Curabith	Severe: poor filter	Severe: seepage	Moderate: large stones too sandy	Slight	Poor: small stones
152:					
Featherlegs	Moderate: slope	Severe: seepage slope	Moderate: slope	Moderate: slope	Poor: small stones
Greenhope	Severe: poor filter	Severe: seepage slope	Moderate: slope	Moderate: slope	Fair: slope
Curabith	Moderate: slope	Severe: seepage slope	Moderate: large stones slope	Moderate: slope	Poor: small stones

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
153:					
Featherlegs	Moderate: percs slowly	Moderate: seepage	Slight	Slight	Poor: small stones
Recluse	Slight	Severe: seepage	Slight	Slight	Good
154:					
Featherlegs	Moderate: percs slowly	Severe: seepage	Slight	Slight	Poor: small stones
Recluse	Slight	Severe: seepage	Slight	Slight	Good
155:					
Featherlegs	Moderate: percs slowly slope	Severe: seepage slope	Moderate: slope	Moderate: slope	Poor: small stones
Recluse	Moderate: percs slowly slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
156:					
Fluvaquentic Endoaquolls	Severe: wetness	Severe: seepage wetness	Severe: wetness	Severe: seepage wetness	Poor: wetness
Whetsoon	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Fair: wetness
157:					
Forelle	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
158:					
Forelle	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
Diamondville	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
159:					
Forkwood	Slight	Severe: seepage	Slight	Slight	Good
160:					
Forkwood	Slight	Severe: seepage	Slight	Slight	Good
161:					
Forkwood, wet	Severe: wetness	Severe: seepage wetness	Severe: wetness	Severe: wetness	Fair: wetness
162:					
Glendo	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
163:					
Graystone	Slight	Severe: seepage	Slight	Slight	Good
Alice	Slight	Severe: seepage	Slight	Slight	Good
164:					
Graystone	Slight	Severe: seepage	Slight	Slight	Good
Greenhope	Severe: poor filter	Severe: seepage	Slight	Slight	Poor: small stones
Bayard	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Good
165:					
Graystone	Slight	Severe: seepage	Slight	Slight	Good
Mainter	Slight	Severe: seepage	Slight	Slight	Good
166:					
Graystone	Slight	Severe: seepage	Slight	Slight	Good
Phiferson	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Treon	Severe: depth to rock	Severe: seepage depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Poor: depth to rock
167:					
Greenhope	Severe: poor filter	Severe: seepage	Slight	Slight	Poor: small stones
Featherlegs	Slight	Severe: seepage	Slight	Slight	Poor: small stones
168:					
Hiland	Slight	Severe: seepage	Slight	Slight	Good
169:					
Hiland	Slight	Severe: seepage	Slight	Slight	Good
Cambria	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
170:					
Ipson	Severe: slope	Severe: seepage slope	Severe: slope	Severe: slope	Poor: seepage slope small stones
Evanston	Moderate: percs slowly slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
171:					
Ipson	Severe: slope	Severe: seepage slope	Severe: slope	Severe: slope	Poor: seepage slope small stones
Evanston	Moderate: percs slowly	Severe: slope	Slight	Slight	Good
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
172:					
Jayem	Slight	Severe: seepage	Slight	Slight	Good
Mainter	Slight	Severe: seepage	Slight	Slight	Good
Moskee	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
173:					
Julesburg	Slight	Severe: seepage	Slight	Slight	Good
Jayem	Slight	Severe: seepage	Slight	Slight	Good
Phiferson	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
174:					
Keeline	Slight	Severe: seepage	Slight	Slight	Good
175:					
Keeline	Slight	Severe: seepage	Slight	Slight	Good
176:					
Keeline	Moderate: slope	Severe: seepage slope	Moderate: slope	Moderate: slope	Fair: slope
177:					
Keeline	Slight	Severe: seepage	Slight	Slight	Good
Mainter	Slight	Severe: seepage	Slight	Slight	Good
178:					
Keeline	Severe: slope	Severe: seepage slope	Severe: slope	Severe: slope	Poor: slope
Nidix	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: large stones slope depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
178:					
Taluce	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
179:					
Keeline	Moderate: slope	Severe: seepage, slope	Moderate: slope	Moderate: slope	Fair: slope
Taluce	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Turnercrest	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
180:					
Keeline	Slight	Severe: seepage	Slight	Slight	Good
Turnercrest	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
181:					
Keeline	Moderate: slope	Severe: seepage, slope	Moderate: slope	Moderate: slope	Fair: slope
Turnercrest	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
182:					
Kishona	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good
183:					
Livan	Severe: poor filter	Severe: seepage	Severe: too sandy	Moderate: flooding	Poor: seepage, small stones, too sandy
Clarkelen	Moderate: flooding	Severe: seepage	Moderate: flooding	Moderate: flooding	Fair: small stones
184:					
Livan	Severe: poor filter	Severe: seepage	Severe: too sandy	Moderate: flooding	Poor: seepage, small stones, too sandy
Riverwash	Severe: flooding, wetness, poor filter	Severe: flooding, seepage, wetness	Severe: flooding, seepage, wetness	Severe: flooding, seepage, wetness	Poor: seepage, too sandy, wetness

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
185:					
Mainter	Slight	Severe: seepage	Slight	Slight	Good
186:					
Mainter, wet	Severe: wetness	Severe: seepage wetness	Severe: wetness	Severe: wetness	Fair: wetness
187:					
Mainter	Moderate: slope	Severe: seepage slope	Moderate: slope	Moderate: slope	Fair: slope
Keeline	Moderate: slope	Severe: seepage slope	Moderate: slope	Moderate: slope	Fair: slope
188:					
McFadden	Slight	Severe: seepage	Slight	Slight	Fair: small stones
189:					
Mines.					
Quarries.					
190:					
Mitchell	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
191:					
Mitchell	Moderate: percs slowly slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
192:					
Moskee	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
193:					
Moskee	Slight	Severe: seepage	Slight	Slight	Good
194:					
Orpha	Severe: poor filter	Severe: seepage slope	Severe: too sandy	Slight	Poor: seepage too sandy
195:					
Orpha	Severe: poor filter	Severe: seepage slope	Severe: too sandy	Moderate: slope	Poor: seepage too sandy
Tullock	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
196:					
Phiferson	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
196:					
Alice, bedrock substratum	Moderate: depth to rock	Severe: seepage	Severe: depth to rock	Slight	Fair: thin layer depth to rock
197:					
Phiferson	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Mainter	Slight	Severe: seepage	Slight	Slight	Good
198:					
Phiferson	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Treon	Severe: depth to rock	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Poor: depth to rock
199:					
Pinelli	Severe: percs slowly	Moderate: slope	Slight	Slight	Good
200:					
Poposhia	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
201:					
Poposhia	Moderate: percs slowly slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Blazon	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope depth to rock
202:					
Poposhia	Moderate: percs slowly slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Blazon, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
203:					
Poposhia	Moderate: percs slowly	Severe: slope	Slight	Slight	Good
Chaperton	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
204:					
Poposhia	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
Forelle	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
205:					
Quarterback	Moderate: flooding	Severe: seepage	Severe: seepage	Severe: seepage	Good
206:					
Quarterback, thick surface	Moderate: flooding	Severe: seepage	Severe: seepage	Severe: seepage	Fair: too sandy
Albinas	Moderate: percs slowly	Moderate: seepage	Slight	Slight	Good
207:					
Recluse	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
208:					
Recluse	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
209:					
Recluse	Slight	Severe: seepage	Slight	Slight	Good
210:					
Recluse	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
Albinas	Moderate: percs slowly	Moderate: seepage	Slight	Slight	Good
Treon, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Poor: depth to rock
211:					
Recluse	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
Cedak	Severe: depth to rock	Severe: seepage depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
212:					
Recluse	Moderate: percs slowly slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
Cedak	Severe: depth to rock	Severe: slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
213:					
Recluse	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
Graystone	Slight	Severe: seepage	Slight	Slight	Good
214:					
Recluse	Moderate: percs slowly	Moderate: seepage slope	Slight	Slight	Good
Nuncho	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
215:					
Rentsac	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope small stones depth to rock
Brownsto	Severe: slope	Severe: seepage slope	Severe: large stones slope	Severe: slope	Poor: slope small stones
Ipson	Severe: slope	Severe: seepage slope	Severe: slope	Severe: slope	Poor: slope small stones
216:					
Riverwash	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Poor: small stones wetness
217:					
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
Blazon, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope depth to rock
218:					
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
Bonjea	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
219:					
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
Cathedral	Severe: slope depth to rock	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
220:					
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Cathedral	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Alderon	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Poor: slope, depth to rock
221:					
Selpats	Slight	Severe: seepage	Slight	Slight	Poor: small stones
222:					
Selpats	Moderate: percs slowly	Severe: seepage	Slight	Slight	Poor: small stones
Forkwood	Slight	Severe: seepage	Slight	Slight	Good
223:					
Selpats	Severe: poor filter	Severe: seepage	Slight	Slight	Poor: small stones
Hiland	Slight	Severe: seepage	Slight	Slight	Good
224:					
Snilloc	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Good
Chugcity	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
225:					
Snilloc	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Good
Recluse	Moderate: percs slowly	Moderate: seepage, slope	Slight	Slight	Good
226:					
Spearfish	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Sixmile	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
227:					
Storsun	Severe: slope	Severe: large stones slope	Severe: large stones slope	Severe: slope	Poor: large stones slope
Sunup	Severe: slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: slope small stones depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
228:					
Sunup	Severe: slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
229:					
Sunup	Severe: slope depth to rock	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: slope	Poor: slope small stones depth to rock
Snavee	Severe: large stones slope	Severe: large stones seepage slope	Severe: large stones slope	Severe: slope	Poor: large stones slope
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
230:					
Sweatbee	Severe: poor filter	Severe: seepage	Severe: seepage	Severe: seepage	Poor: small stones
231:					
Sweatbee, wet	Severe: wetness	Severe: seepage wetness	Severe: seepage wetness	Severe: seepage wetness	Fair: wetness
232:					
Sweatbee	Severe: poor filter	Severe: seepage	Severe: seepage too sandy	Severe: seepage	Poor: small stones too sandy
Numa	Moderate: percs slowly	Severe: seepage	Slight	Slight	Good
233:					
Taluce, thin solum	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Poor: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
234:					
Taluce, thin solum	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Keeline	Severe: slope	Severe: seepage, slope	Severe: slope	Severe: slope	Poor: slope
235:					
Taluce, thin solum	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Turnercrest	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
236:					
Taluce	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Turnercrest	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
237:					
Taluce	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Turnercrest	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
238:					
Taluce	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Taluce, thin solum	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
239:					
Taluce	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Taluce, thin solum	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Turnercrest	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
240:					
Taluce, thin solum	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Treon, thin solum	Severe: depth to rock	Severe: slope, depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Poor: depth to rock
241:					
Taluce	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Turnercrest	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
242:					
Taluce	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Turnercrest	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
Keeline	Moderate: slope	Severe: seepage, slope	Moderate: slope	Moderate: slope	Fair: slope
243:					
Torriorthents, gullied.					
Gullied land.					
244:					
Treon	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Aberone	Severe: slope	Severe: seepage, slope	Severe: large stones, slope	Severe: slope	Poor: seepage, slope, small stones

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
245:					
Treon	Severe: depth to rock	Severe: seepage, depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Poor: depth to rock
Alice	Slight	Severe: seepage	Slight	Slight	Good
Phiferson	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
246:					
Treon	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
247:					
Treon, thin solum	Severe: depth to rock	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Poor: depth to rock
Phiferson	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Keeline	Slight	Severe: seepage	Slight	Slight	Good
248:					
Trimad	Moderate: percs slowly, slope	Severe: seepage, slope	Severe: seepage	Severe: seepage	Poor: small stones
Blazon	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Poor: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
249:					
Trimad	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: slope, small stones
Evanston	Moderate: percs slowly, slope	Severe: slope	Moderate: slope	Moderate: slope	Fair: slope
250:					
Trimad	Moderate: slope	Severe: seepage, slope	Severe: seepage	Severe: seepage	Poor: small stones
Weed	Severe: percs slowly	Moderate: seepage, slope	Slight	Slight	Good

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
250:					
Blazon	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
251:					
Turnercrest	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Phiferson	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
Taluce	Severe: depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Slight	Poor: depth to rock
252:					
Typic Calciaquolls	Severe: wetness	Severe: seepage, wetness	Severe: seepage, wetness	Severe: seepage, wetness	Poor: wetness
Whetsoon	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Fair: wetness
253:					
Tyzak	Severe: slope, depth to rock	Severe: large stones, slope, depth to rock	Severe: large stones, slope, depth to rock	Severe: slope, depth to rock	Poor: slope, small stones, depth to rock
Tyzak, thin solum	Severe: slope, depth to rock	Severe: large stones, slope, depth to rock	Severe: large stones, slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
254:					
Valent	Severe: poor filter	Severe: seepage	Moderate: too sandy	Slight	Fair: too sandy
255:					
Vetal	Slight	Severe: seepage	Slight	Slight	Good
256:					
Vetal	Slight	Severe: seepage	Slight	Slight	Good
Julesburg	Slight	Severe: seepage	Slight	Slight	Good
257:					
Vetal	Slight	Severe: seepage	Slight	Slight	Good
Treon	Severe: depth to rock	Severe: seepage, depth to rock	Severe: seepage, depth to rock	Severe: depth to rock	Poor: depth to rock

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
257:					
Phiferson	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: depth to rock	Moderate: slope	Poor: depth to rock
258:					
Vonalee	Slight	Severe: seepage	Slight	Slight	Good
259:					
Wagonhound	Moderate: slope	Severe: seepage slope	Moderate: slope	Moderate: slope	Fair: slope
Selpats	Moderate: percs slowly slope	Severe: seepage slope	Moderate: slope	Moderate: slope	Fair: slope
260:					
Water.					
261:					
Water.					
262:					
Weed	Severe: percs slowly	Moderate: seepage slope	Slight	Slight	Good
263:					
Wendover	Severe: large stones slope depth to rock	Severe: large stones slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: large stones slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock

Table 10.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
100:				
Aberone	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
101:				
Aberone	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Cragola	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
102:				
Albinas	Good	Improbable: excess fines	Improbable: excess fines	Good
103:				
Alice	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Bayard	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
104:				
Alice	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
105:				
Alice	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Recluse	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
Cedak	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey depth to rock
106:				
Bayard	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
107:				
Bayard	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
108:				
Bayard	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
108:				
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
Treon, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
109:				
Bayard	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
Treon, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
110:				
Blackhall	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Satanka	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: thin layer too clayey depth to rock
Rock outcrop	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
111:				
Blazon	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
Trimad	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
112:				
Bonjea	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Chugcreek	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
113:				
Bonjea	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
113:				
Chugcreek	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones
114:				
Boyle	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, depth to rock
Boyle, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, depth to rock
115:				
Boyle, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, depth to rock
Breece	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
Cathedral	Poor: depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope, small stones, depth to rock
116:				
Boyle	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, depth to rock
Lininger	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
117:				
Boyle	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Rock outcrop	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
118:				
Boyle	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, depth to rock
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Cathedral	Poor: depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope, small stones, depth to rock
119:				
Brown	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
119:				
Featherlegs	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
Recluse	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: slope, small stones, too clayey
120:				
Byrnie	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Byrnie, thin solum	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
121:				
Byrnie	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, depth to rock
Coocreek	Fair: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Byrnie, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, depth to rock
122:				
Cascajo	Fair: large stones, slope	Probable	Probable	Poor: area reclaim, small stones, too sandy
Taluce	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Rock outcrop	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
123:				
Cathedral	Poor: slope, depth to rock	Improbable: thin layer	Improbable: thin layer	Poor: slope, small stones, depth to rock
Spinekop	Good	Improbable: excess fines	Improbable: excess fines	Good

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
123:				
Rock outcrop	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
124:				
Cedak	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones, too clayey, depth to rock
Bayard	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Treon, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, depth to rock
125:				
Cedak	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones, thin layer, depth to rock
Recluse	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
126:				
Cedak	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones, thin layer, depth to rock
Recluse	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Treon	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
127:				
Cedak	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones, thin layer, depth to rock
Treon	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
128:				
Chaperton, moderately saline	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: excess salt, small stones, depth to rock
Blazon	Poor: low strength, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
129:				
Claprych	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
130:				
Claprych	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Luman	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
131:				
Claprych	Good	Improbable: small stones	Probable	Poor: area reclaim small stones
Selpats	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
132:				
Claprych	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Sweatbee	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
133:				
Clarkelen	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Quarterback	Good	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
134:				
Clarkelen, wet	Good	Probable	Improbable: too sandy	Good
Anvil	Fair: large stones	Probable	Probable	Poor: area reclaim small stones too sandy
135:				
Coaliams	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too sandy
Haverdad	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones
136:				
Cowestglen	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
137:				
Creighton	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
138:				
Curabith	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
139:				
Cushool	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Cutback	Poor: depth to rock	Improbable: small stones	Improbable: thin layer	Poor: small stones
140:				
Dalecreek	Fair: low strength, shrink-swell, wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones, too clayey
Kovich	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: small stones, wetness
141:				
Deight	Good	Improbable: excess fines	Improbable: excess fines	Good
Thirtynine	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
Glendo	Good	Improbable: excess fines	Improbable: excess fines	Good
142:				
Diamonkit	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: thin layer
Stylite	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: thin layer, too clayey
143:				
Embry	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
144:				
Evanston	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
145:				
Evanston	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Fair: slope, small stones
Ipson	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
146:				
Evanston	Fair: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
Ipson	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
146:				
Brownsto	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
147:				
Evanston	Fair: shrink-swell slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
Weed	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim small stones too clayey
148:				
Evanston	Good	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim slope small stones
Weed	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim small stones too clayey
Trimad	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
149:				
Featherlegs, wet	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
150:				
Featherlegs	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
Bayard	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
151:				
Featherlegs	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones
Curabith	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
152:				
Featherlegs	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Greenhope	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
Curabith	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
153:				
Featherlegs	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
Recluse	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones
154:				
Featherlegs	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
Recluse	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones
155:				
Featherlegs	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
Recluse	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones
156:				
Fluvaquentic Endoaquolls	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
Whetsoon	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
157:				
Forelle	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
158:				
Forelle	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
Diamondville	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey depth to rock
159:				
Forkwood	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
160:				
Forkwood	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
161:				
Forkwood, wet	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Good
162:				
Glendo	Good	Improbable: excess fines	Improbable: excess fines	Good
163:				
Graystone	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
163:				
Alice	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
164:				
Graystone	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Greenhope	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Bayard	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
165:				
Graystone	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Mainter	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
166:				
Graystone	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: thin layer depth to rock
Treon	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
167:				
Greenhope	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Featherlegs	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
168:				
Hiland	Good	Improbable: excess fines	Improbable: excess fines	Good
169:				
Hiland	Good	Improbable: excess fines	Improbable: excess fines	Good
Cambria	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
170:				
Ipson	Fair: slope	Probable	Probable	Poor: area reclaim slope small stones
Evanston	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
171:				
Ipson	Fair: slope	Probable	Probable	Poor: area reclaim slope small stones
Evanston	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
Rock outcrop	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
172:				
Jayem	Good	Improbable: excess fines	Improbable: excess fines	Good
Mainter	Good	Improbable: excess fines	Improbable: excess fines	Good
Moskee	Good	Improbable: excess fines	Improbable: excess fines	Fair: too clayey
173:				
Julesburg	Good	Improbable: excess fines	Improbable: excess fines	Good
Jayem	Good	Improbable: excess fines	Improbable: excess fines	Good
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
174:				
Keeline	Good	Improbable: excess fines	Improbable: excess fines	Good
175:				
Keeline	Good	Improbable: excess fines	Improbable: excess fines	Good
176:				
Keeline	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope
177:				
Keeline	Good	Improbable: excess fines	Improbable: excess fines	Good
Mainter	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
178:				
Keeline	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
Nidix	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones slope
Taluce	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
179:				
Keeline	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope
Taluce	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope; depth to rock
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
180:				
Keeline	Good	Improbable: excess fines	Improbable: excess fines	Good
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: thin layer; depth to rock
181:				
Keeline	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope; thin layer; depth to rock
182:				
Kishona	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones; too clayey
183:				
Livan	Good	Probable	Probable	Poor: area reclaim; small stones
Clarkelen	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
184:				
Livan	Good	Probable	Probable	Poor: area reclaim; small stones; too sandy
Riverwash	Poor: wetness	Probable	Improbable: too sandy	Poor: small stones; too sandy; wetness
185:				
Mainter	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
186:				
Mainter, wet	Good	Improbable: excess fines	Improbable: excess fines	Good
187:				
Mainter	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope; small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
187: Keeline	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope
188: McFadden	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
189: Mines. Quarries.				
190: Mitchell	Good	Improbable: excess fines	Improbable: excess fines	Good
191: Mitchell	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope
192: Moskee	Good	Improbable: excess fines	Improbable: excess fines	Good
193: Moskee	Good	Improbable: excess fines	Improbable: excess fines	Good
194: Orpha	Good	Probable	Improbable: too sandy	Poor: too sandy
195: Orpha	Good	Probable	Improbable: too sandy	Poor: too sandy
Tullock	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: thin layer too sandy depth to rock
196: Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
Alice, bedrock substratum	Fair: thin layer depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones
197: Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
Mainter	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
198:				
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
Treon	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
199:				
Pinelli	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
200:				
Poposhia	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Good
201:				
Poposhia	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: slope
Blazon	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
202:				
Poposhia	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: slope
Blazon, thin solum	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
Rock outcrop	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
203:				
Poposhia	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
Chaperton	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey depth to rock
204:				
Poposhia	Fair: low strength shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
Forelle	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
205:				
Quarterback	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
206:				
Quarterback, thick surface	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones too sandy
Albinas	Good	Improbable: excess fines	Improbable: excess fines	Good
207:				
Recluse	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
208:				
Recluse	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
209:				
Recluse	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
210:				
Recluse	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Albinas	Good	Improbable: excess fines	Improbable: excess fines	Good
Treon, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
211:				
Recluse	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Cedak	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey depth to rock
212:				
Recluse	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones
Cedak	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
213:				
Recluse	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Graystone	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
214:				
Recluse	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Nuncho	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: too clayey

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
215:				
Rentsac	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Brownsto	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
Ipson	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
216:				
Riverwash	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones, wetness
217:				
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Blazon, thin solum	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
218:				
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Bonjea	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
219:				
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Cathedral	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
220:				
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Cathedral	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Alderon	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
221:				
Selpats	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
222:				
Selpats	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
Forkwood	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
223:				
Selpats	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Hiland	Good	Improbable: excess fines	Improbable: excess fines	Good
224:				
Snilloc	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Chugcity	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
225:				
Snilloc	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Recluse	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones
226:				
Spearfish	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
Sixmile	Poor: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
Rock outcrop	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
227:				
Storsun	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Sunup	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
228:				
Sunup	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
229:				
Sunup	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: large stones, slope, depth to rock
Snavee	Poor: large stones	Improbable: large stones, excess fines	Improbable: large stones, excess fines	Poor: area reclaim, large stones, slope
Rock outcrop	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
230:				
Sweatbee	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
231:				
Sweatbee, wet	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
232:				
Sweatbee	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
Numa	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones, too clayey
233:				
Taluce, thin solum	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
234:				
Taluce, thin solum	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Keeline	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
235:				
Taluce, thin solum	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
236:				
Taluce	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
237:				
Taluce	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
238:				
Taluce	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Taluce, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Rock outcrop	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
239:				
Taluce	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Taluce, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope, thin layer, depth to rock
240:				
Taluce, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
240:				
Treon, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
241:				
Taluce	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: thin layer depth to rock
242:				
Taluce	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope thin layer depth to rock
Keeline	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope
243:				
Torriorthents, gullied.				
Gullied land.				
244:				
Treon	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
Aberone	Fair: large stones slope	Improbable: small stones	Probable	Poor: area reclaim slope small stones
245:				
Treon	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
Alice	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
246:				
Treon	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
247:				
Treon, thin solum	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
Keeline	Good	Improbable: excess fines	Improbable: excess fines	Good
248:				
Trimad	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Blazon	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
Rock outcrop	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
249:				
Trimad	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
Evanston	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: slope too clayey
250:				
Trimad	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Weed	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
Blazon	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
251:				
Turnercrest	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: thin layer depth to rock
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
Taluce	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones depth to rock
252:				
Typic Calciaquolls	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
252:				
Whetsoon	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
253:				
Tyzak	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Tyzak, thin solum	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
254:				
Valent	Good	Improbable: excess fines	Improbable: excess fines	Fair: too sandy
255:				
Vetal	Good	Improbable: excess fines	Improbable: excess fines	Good
256:				
Vetal	Good	Improbable: excess fines	Improbable: excess fines	Good
Julesburg	Good	Improbable: excess fines	Improbable: excess fines	Good
257:				
Vetal	Good	Improbable: excess fines	Improbable: excess fines	Good
Treon	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: depth to rock
Phiferson	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: small stones thin layer depth to rock
258:				
Vonalee	Good	Improbable: excess fines	Improbable: excess fines	Good
259:				
Wagonhound	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones
Selpats	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim
260:				
Water.				
261:				
Water.				

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
262:				
Weed	Fair: shrink-swell	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
263:				
Wendover	Poor: large stones slope depth to rock	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: large stones slope depth to rock
Rock outcrop	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock

Table 11.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
100:							
Aberone	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, droughty	Limitation: large stones	Limitation: large stones, too arid, droughty
101:							
Aberone	Severe: seepage, slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, too arid
Cragola	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, too arid
102:							
Albinas	Moderate: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
103:							
Alice	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Limitation: too arid
Bayard	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
104:							
Alice	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: soil blowing	Limitation: too arid
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
105:							
Alice	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Cedak	Severe: seepage	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
106:							
Bayard	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
107:							
Bayard	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: soil blowing	Limitation: too arid
108:							
Bayard	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Treon, thin solum	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: erodes easily, depth to rock	Limitation: erodes easily, too arid, depth to rock
109:							
Bayard	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, slope, too arid
Phiferson	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
Treon, thin solum	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
110:							
Blackhall	Severe: slope, depth to rock	Severe: seepage, piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
Satanka	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
111:							
Blazon	Severe: slope, depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
Trimad	Severe: seepage, slope	Moderate: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, droughty

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
112:							
Bonjea	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, depth to rock
Chugcreek	Severe: slope	Moderate: piping, thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, depth to rock
113:							
Bonjea	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
Chugcreek	Severe: slope	Moderate: piping, thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, depth to rock
114:							
Boyle	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: depth to rock	Limitation: too arid, depth to rock, droughty
Boyle, thin solum	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: depth to rock	Limitation: too arid, depth to rock, droughty
115:							
Boyle, thin solum	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, too arid, depth to rock
Breece	Severe: seepage	Moderate: seepage, piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing, droughty	Limitation: soil blowing	Limitation: droughty
Cathedral	Severe: slope, depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
116:							
Boyle	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, too arid, droughty

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
116:							
Lininger	Moderate: seepage, slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: depth to rock	Limitation: depth to rock
117:							
Boyle	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, too arid, droughty
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
118:							
Boyle	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, too arid, depth to rock
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
Cathedral	Severe: slope, depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
119:							
Brown	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, too arid
Featherlegs	Severe: seepage, slope	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, droughty	Limitation: slope, soil blowing	Limitation: slope, too arid, droughty
Recluse	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: slope, soil blowing	Limitation: slope, too arid
120:							
Byrnie	Severe: slope, depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
Byrnie, thin solum	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
121:							
Byrnie	Severe: slope, depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
Coocreek	Moderate: seepage	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily, too arid
Byrnie, thin solum	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
122:							
Cascajo	Severe: seepage, slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, too sandy	Limitation: large stones, slope, too arid
Taluce	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, too arid, depth to rock
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
123:							
Cathedral	Severe: slope, depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Spinekop	Moderate: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
124:							
Cedak	Severe: seepage	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Bayard	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Treon, thin solum	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: erodes easily, depth to rock	Limitation: erodes easily, too arid, depth to rock

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
125:							
Cedak	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
126:							
Cedak	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Treon	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
127:							
Cedak	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Treon	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
128:							
Chaperton, moderatly saline	Severe: slope	Moderate: piping, thin layer	Severe: no water	Limitation: deep to water	Limitation: excess salt, slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, too arid, depth to rock
Blazon	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
129:							
Claprych	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: droughty	Favorable	Limitation: too arid, droughty
130:							
Claprych	Severe: seepage	Moderate: large stones, seepage, piping	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones	Limitation: large stones, too arid, droughty
Luman	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, droughty	Favorable	Limitation: too arid, droughty

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
131:							
Claprych	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: erodes easily, droughty	Limitation: erodes easily	Limitation: erodes easily, too arid, droughty
Selpats	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Favorable	Favorable	Limitation: too arid
132:							
Claprych	Severe: seepage, slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, too sandy	Limitation: large stones, slope, too arid
Sweatbee	Severe: seepage, slope	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: slope, soil blowing	Limitation: slope
133:							
Clarkelen	Severe: seepage	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Quarterback	Moderate: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too sandy, soil blowing	Limitation: erodes easily, too arid
134:							
Clarkelen, wet	Severe: seepage	Severe: piping	Moderate: cutbanks cave, deep to water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily, too arid
Anvil	Severe: seepage	Severe: large stones, seepage	Moderate: large stones, cutbanks cave, deep to water	Limitation: deep to water	Limitation: erodes easily, large stones, droughty	Limitation: erodes easily, large stones, too sandy	Limitation: erodes easily, large stones, too arid
135:							
Coaliams	Moderate: seepage	Moderate: piping, wetness	Severe: cutbanks cave	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, too sandy, soil blowing	Limitation: erodes easily, too arid
Haverdad	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
136:							
Cowestglen	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: flooding, soil blowing	Limitation: soil blowing	Limitation: too arid
137:							
Creighton	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
138:							
Curabith	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, too sandy	Limitation: large stones, too arid, droughty

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
139:							
Cushool	Severe: seepage	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: soil blowing, depth to rock	Limitation: too arid, depth to rock
Cutback	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: soil blowing, depth to rock	Limitation: too arid, depth to rock
140:							
Dalecreek	Moderate: seepage, slope	Moderate: piping, wetness	Severe: cutbanks cave	Limitation: slope, cutbanks cave	Limitation: slope, wetness, soil blowing	Limitation: too sandy, wetness, soil blowing	Favorable
Kovich	Moderate: seepage	Severe: wetness	Moderate: slow refill	Limitation: flooding, frost action	Limitation: flooding, wetness	Limitation: wetness	Limitation: wetness
141:							
Deight	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Thirtynine	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Glendo	Moderate: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
142:							
Diamonkit	Severe: seepage, slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
Stylite	Severe: seepage	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: excess salt, slope, soil blowing	Limitation: soil blowing	Limitation: too arid
143:							
Embry	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake, slope, soil blowing	Limitation: soil blowing	Limitation: too arid
144:							
Evanston	Moderate: seepage, slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Limitation: too arid
145:							
Evanston	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope, too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
145:							
Ipson	Severe: seepage slope	Moderate: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope too arid
146:							
Evanston	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope too arid
Ipson	Severe: seepage slope	Moderate: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope too arid
Brownsto	Severe: seepage slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope too arid
147:							
Evanston	Severe: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope too arid
Weed	Severe: slope	Slight	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope soil blowing	Limitation: slope
148:							
Evanston	Severe: seepage slope	Moderate: seepage	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope too arid
Weed	Moderate: seepage slope	Slight	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Trimad	Severe: seepage slope	Moderate: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
149:							
Featherlegs, wet	Severe: seepage	Severe: seepage	Severe: cutbanks cave	Limitation: cutbanks cave	Limitation: wetness soil blowing	Limitation: erodes easily too sandy wetness	Limitation: erodes easily too arid
150:							
Featherlegs	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
Bayard	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
151:							
Featherlegs	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily large stones soil blowing	Limitation: erodes easily large stones too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
151:							
Curabith	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: soil blowing droughty	Limitation: large stones too sandy soil blowing	Limitation: large stones too arid droughty
152:							
Featherlegs	Severe: seepage slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: erodes easily slope soil blowing	Limitation: erodes easily slope too arid
Greenhope	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily slope soil blowing	Limitation: erodes easily slope too arid
Curabith	Severe: seepage slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: large stones slope soil blowing	Limitation: large stones slope too arid
153:							
Featherlegs	Moderate: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily too arid
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily too arid
154:							
Featherlegs	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
155:							
Featherlegs	Severe: seepage slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
Recluse	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
156:							
Fluvaquentic Endoaquolls	Severe: seepage	Severe: wetness	Moderate: slow refill	Limitation: frost action	Limitation: erodes easily wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
Whetsoon	Moderate: seepage	Severe: piping wetness	Moderate: slow refill	Favorable	Limitation: wetness soil blowing	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
157:							
Forelle	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
158:							
Forelle	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
Diamondville	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
159:							
Forkwood	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
160:							
Forkwood	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
161:							
Forkwood, wet	Severe: seepage	Severe: piping	Moderate: slow refill deep to water	Favorable	Limitation: erodes easily wetness	Limitation: erodes easily wetness	Limitation: erodes easily too arid
162:							
Glendo	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
163:							
Graystone	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
Alice	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Limitation: too arid
164:							
Graystone	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
Greenhope	Severe: seepage	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid droughty
Bayard	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
165:							
Graystone	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
165:							
Mainter	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
166:							
Graystone	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Treon	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
167:							
Greenhope	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, droughty	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid, droughty
Featherlegs	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: droughty	Favorable	Limitation: too arid, droughty
168:							
Hiland	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
169:							
Hiland	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Cambria	Moderate: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
170:							
Ipson	Severe: seepage, slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, too arid
Evanston	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope, too arid
171:							
Ipson	Severe: seepage, slope	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, too arid
Evanston	Moderate: seepage, slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Limitation: too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
171:							
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
172:							
Jayem	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Mainter	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Moskee	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
173:							
Julesburg	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Jayem	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
174:							
Keeline	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Limitation: too arid
175:							
Keeline	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: soil blowing	Limitation: too arid
176:							
Keeline	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, slope, too arid
177:							
Keeline	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Mainter	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
178:							
Keeline	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope, too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
178:							
Nidix	Severe: seepage, slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, too arid
Taluce	Severe: slope, depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, too arid, depth to rock
179:							
Keeline	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, slope, too arid
Taluce	Severe: slope, depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
Turnercrest	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
180:							
Keeline	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Turnercrest	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
181:							
Keeline	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, slope, too arid
Turnercrest	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
182:							
Kishona	Moderate: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily, too arid
183:							
Livan	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: droughty	Limitation: large stones, too sandy	Limitation: large stones, too arid, droughty
Clarkelen	Severe: seepage	Moderate: seepage, piping, thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing, droughty	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid, droughty

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
184:							
Livan	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: erodes easily soil blowing droughty	Limitation: erodes easily too sandy soil blowing	Limitation: erodes easily too arid droughty
Riverwash	Severe: seepage	Severe: seepage piping wetness	Moderate: cutbanks cave	Limitation: flooding cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: wetness droughty
185:							
Mainter	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
186:							
Mainter, wet	Severe: seepage	Severe: piping	Moderate: deep to water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
187:							
Mainter	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily slope soil blowing	Limitation: erodes easily slope too arid
Keeline	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope soil blowing	Limitation: slope too arid
188:							
McFadden	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Limitation: too arid
189:							
Mines.							
Quarries.							
190:							
Mitchell	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
191:							
Mitchell	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope soil blowing	Limitation: erodes easily slope soil blowing	Limitation: erodes easily slope too arid
192:							
Moskee	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
193:							
Moskee	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
194:							
Orpha	Severe: seepage	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: too arid droughty
195:							
Orpha	Severe: seepage slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: slope too arid droughty
Tullock	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope soil blowing depth to rock	Limitation: slope too arid droughty
196:							
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily soil blowing depth to rock	Limitation: erodes easily too arid depth to rock
Alice, bedrock substratum	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
197:							
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily soil blowing depth to rock	Limitation: erodes easily too arid depth to rock
Mainter	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
198:							
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily soil blowing depth to rock	Limitation: erodes easily too arid depth to rock
Treon	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily soil blowing depth to rock	Limitation: erodes easily too arid depth to rock
199:							
Pinelli	Moderate: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope	Favorable	Limitation: percs slowly too arid
200:							
Poposhia	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
201:							
Poposhia	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
Blazon	Severe: slope depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
202:							
Poposhia	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
Blazon, thin solum	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
Rock outcrop	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
203:							
Poposhia	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
Chaperton	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
204:							
Poposhia	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
Forelle	Moderate: seepage slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
205:							
Quarterback	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily too arid
206:							
Quarterback, thick surface	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing droughty	Limitation: too sandy soil blowing	Limitation: droughty
Albinas	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
207:							
Recluse	Moderate: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
208:							
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily, too arid
209:							
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope	Limitation: erodes easily	Limitation: erodes easily, too arid
210:							
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Albinas	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily
Treon, thin solum	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: erodes easily, depth to rock	Limitation: erodes easily, too arid, depth to rock
211:							
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope	Limitation: erodes easily	Limitation: erodes easily, too arid
Cedak	Severe: seepage	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
212:							
Recluse	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope	Limitation: erodes easily, slope	Limitation: erodes easily, slope, too arid
Cedak	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
213:							
Recluse	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Graystone	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
214:							
Recluse	Moderate: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope	Limitation: erodes easily	Limitation: erodes easily, too arid
Nuncho	Moderate: seepage, slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope	Limitation: erodes easily	Limitation: erodes easily, too arid
215:							
Rentsac	Severe: slope, depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, too arid, droughty
Brownsto	Severe: seepage, slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, too arid
Ipson	Severe: seepage, slope	Moderate: large stones	Severe: no water	Limitation: deep to water	Limitation: slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, too arid
216:							
Riverwash	Slight	Severe: wetness	Slight	Limitation: flooding	Limitation: flooding, wetness	Limitation: wetness	Limitation: wetness
217:							
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
Blazon, thin solum	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, too arid, depth to rock
218:							
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
Bonjea	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, depth to rock
219:							
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
Cathedral	Severe: slope, depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
220:							
Rock outcrop----	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
Cathedral-------	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Alderon---------	Severe: seepage, slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, droughty	Limitation: slope, soil blowing, depth to rock	Limitation: slope, depth to rock, droughty
221:							
Selpats---------	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
222:							
Selpats---------	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily, too arid
Forkwood--------	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily, too arid
223:							
Selpats---------	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: slope, droughty	Favorable	Limitation: too arid, droughty
Hiland----------	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
224:							
Snilloc---------	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily
Chugcity--------	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
225:							
Snilloc---------	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily
Recluse---------	Moderate: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope	Limitation: erodes easily	Limitation: erodes easily, too arid
226:							
Spearfish-------	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, too arid, depth to rock

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
226:							
Sixmile	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
227:							
Storsun	Severe: slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, too arid
Sunup	Severe: slope, depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, too arid
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
228:							
Sunup	Severe: slope, depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, too arid
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
229:							
Sunup	Severe: slope, depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, too arid
Snavee	Severe: seepage, slope	Severe: large stones, piping	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, too arid
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
230:							
Sweatbee	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: soil blowing, droughty	Limitation: too sandy, soil blowing	Limitation: droughty
231:							
Sweatbee, wet	Severe: seepage	Severe: piping	Moderate: deep to water	Limitation: deep to water	Limitation: erodes easily, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
232:							
Sweatbee	Severe: seepage	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: droughty	Limitation: too sandy	Limitation: droughty
Numa	Severe: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily too arid
233:							
Taluce, thin solum	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope too arid depth to rock
Rock outcrop	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
234:							
Taluce, thin solum	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope too arid depth to rock
Keeline	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope soil blowing	Limitation: slope too arid
235:							
Taluce, thin solum	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope too arid depth to rock
Rock outcrop	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
Turnercrest	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
236:							
Taluce	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: slope soil blowing depth to rock	Limitation: slope too arid depth to rock
Rock outcrop	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
Turnercrest	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
237:							
Taluce	Severe: slope, depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
Turnercrest	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
238:							
Taluce	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: soil blowing, depth to rock	Limitation: too arid, depth to rock
Taluce, thin solum	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
239:							
Taluce	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: soil blowing, depth to rock	Limitation: too arid, depth to rock
Taluce, thin solum	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
Turnercrest	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
240:							
Taluce, thin solum	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
Treon, thin solum	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
241:							
Taluce	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: soil blowing, depth to rock	Limitation: too arid, depth to rock
Turnercrest	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
242:							
Taluce	Severe: slope, depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
Turnercrest	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
Keeline	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: slope, soil blowing	Limitation: slope, too arid
243:							
Torriorthents, gullied.							
Gullied land.							
244:							
Treon	Severe: slope, depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: slope, soil blowing, depth to rock	Limitation: slope, too arid, depth to rock
Aberone	Severe: seepage, slope	Severe: large stones, seepage	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, soil blowing	Limitation: large stones, slope, too arid
245:							
Treon	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: erodes easily, depth to rock	Limitation: erodes easily, too arid, depth to rock
Alice	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
246:							
Treon	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
246:							
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
247:							
Treon, thin solum	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Keeline	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Limitation: too arid
248:							
Trimad	Severe: seepage, slope	Slight	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Blazon	Severe: slope, depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
249:							
Trimad	Severe: seepage, slope	Moderate: large stones	Severe: no water	Limitation: deep to water	Limitation: slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, droughty
Evanston	Severe: slope	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope, too arid
250:							
Trimad	Severe: seepage, slope	Moderate: large stones	Severe: no water	Limitation: deep to water	Limitation: slope, droughty	Limitation: large stones, slope	Limitation: large stones, slope, droughty
Weed	Moderate: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Blazon	Severe: slope, depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
251:							
Turnercrest	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Phiferson	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: soil blowing, depth to rock	Limitation: erodes easily, soil blowing, depth to rock	Limitation: erodes easily, too arid, depth to rock
Taluce	Severe: depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing, depth to rock	Limitation: soil blowing, depth to rock	Limitation: too arid, depth to rock
252:							
Typic Calciaquolls	Severe: seepage	Severe: wetness	Moderate: slow refill	Limitation: frost action	Limitation: wetness	Limitation: erodes easily, wetness	Limitation: erodes easily, wetness
Whetsoon	Moderate: seepage	Severe: piping, wetness	Moderate: slow refill	Favorable	Limitation: wetness, soil blowing	Limitation: erodes easily, wetness, soil blowing	Limitation: erodes easily
253:							
Tyzak	Severe: slope, depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Tyzak, thin solum	Severe: slope, depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty
254:							
Valent	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: fast intake, slope, droughty	Limitation: soil blowing	Limitation: too arid, droughty
255:							
Vetal	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
256:							
Vetal	Severe: seepage	Moderate: thin layer	Severe: no water	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid
Julesburg	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope, soil blowing	Limitation: erodes easily, soil blowing	Limitation: erodes easily, too arid

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
257:							
Vetal	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
Treon	Severe: depth to rock	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily soil blowing depth to rock	Limitation: erodes easily too arid depth to rock
Phiferson	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
258:							
Vonalee	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily too arid
259:							
Wagonhound	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope too arid
Selpats	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope soil blowing	Limitation: slope too arid
260:							
Water.							
261:							
Water.							
262:							
Weed	Moderate: seepage slope	Slight	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
263:							
Wendover	Severe: slope depth to rock	Severe: large stones piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Rock outcrop	Severe: slope depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty

Table 12.--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	
100:												
Aberone	0-7	Gravelly sandy loam	SM	A-2	0	0-5	70-90	65-80	40-50	20-30	15-25	NP-5
	7-10	Gravelly sandy loam	SM	A-2	0	0-5	70-90	65-80	40-50	20-30	15-25	NP-5
	10-60	Very gravelly loam	GM	A-1	0	15-30	50-60	35-50	20-35	15-25	15-25	NP-5
101:												
Aberone	0-8	Gravelly sandy loam	SM	A-2	0	0-5	70-90	65-80	40-50	20-30	15-25	NP-5
	8-60	Very gravelly sandy loam	GM	A-1	0	15-30	50-60	35-50	20-35	15-25	15-25	NP-5
Cragola	0-3	Very gravelly sandy loam	SC-SM, GC-GM	A-1, A-2	0	0-15	50-65	35-50	20-30	10-25	20-25	5-10
	3-18	Very gravelly sandy loam	SC-SM, GC-GM	A-1, A-2	0	0-20	50-65	35-50	20-30	10-25	20-25	5-10
	18-28	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
102:												
Albinas	0-3	Loam	CL-ML, ML	A-4	0	0	100	95-100	80-100	50-75	15-30	NP-10
	3-25	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	80-100	40-80	30-40	10-20
	25-60	Loam	CL-ML	A-4	0	0	100	95-100	60-95	50-75	20-30	5-10
103:												
Alice	0-7	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	7-13	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	13-18	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	18-38	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-55	15-25	NP-10
	38-60	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-55	15-25	NP-10
Bayard	0-8	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-85	35-50	15-25	NP-10
	8-16	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-85	35-50	15-25	NP-10
	16-23	Fine sandy loam	SC-SM, SM	A-4	0	0-5	90-100	85-100	75-85	35-50	15-25	NP-10
	23-60	Fine sandy loam	SC-SM, SM	A-4	0	0-5	90-100	85-100	75-85	35-50	15-25	NP-10
104:												
Alice	0-13	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	13-28	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	28-60	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-55	15-25	NP-10
Phiferson	0-8	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	8-23	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	23-30	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	30-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
105:												
Alice	0-6	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	6-13	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	13-24	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	24-32	Fine sandy loam	SM, SC-SM	A-4	0	0	90-100	85-100	70-85	35-55	15-25	NP-10
	32-60	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-55	15-25	NP-10

Table 12.--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	
105:												
Recluse	0-6	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	35-50	15-25	NP-10
	6-25	Loam	CL	A-6	0	0	95-100	90-100	85-95	60-85	25-35	10-20
	25-39	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	50-70	20-35	5-15
	39-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-70	20-30	NP-10
Cedak	0-6	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	80-90	40-50	15-30	NP-10
	6-20	Loam	CL, SC	A-6	0	0	100	95-100	90-100	40-75	30-35	10-15
	20-30	Loam	CL-ML, SC-SM	A-4	0	0	90-100	85-100	80-95	45-75	20-25	5-10
	30-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
106:												
Bayard	0-13	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-85	35-50	15-25	NP-10
	13-60	Fine sandy loam	SC-SM, SM	A-4	0	0-5	90-100	85-100	75-85	35-50	15-25	NP-10
107:												
Bayard	0-10	Fine sandy loam	SC-SM, SM	A-4	0	0	85-100	80-100	70-85	35-50	15-25	NP-10
	10-29	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	85-100	80-100	70-95	35-60	15-25	NP-10
	29-60	Fine sandy loam	SC-SM, SM	A-4	0	0	85-100	80-100	70-95	35-50	15-25	NP-10
108:												
Bayard	0-13	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-85	35-50	15-25	NP-10
	13-60	Fine sandy loam	SC-SM, SM	A-4	0	0-5	90-100	85-100	75-85	35-50	15-25	NP-10
Phiferson	0-12	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	12-20	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	20-26	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	26-36	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Treon, thin solum	0-5	Gravelly fine sandy loam	GM, SM	A-2, A-4	0	0-5	60-75	55-70	50-60	30-40	---	NP
	5-8	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	8-18	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
109:												
Bayard	0-13	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-85	35-50	15-25	NP-10
	13-60	Fine sandy loam	SC-SM, SM	A-4	0	0-5	90-100	85-100	75-85	35-50	15-25	NP-10
Phiferson	0-3	Sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	3-12	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	12-23	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	23-33	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Treon, thin solum	0-6	Fine sandy loam	SC-SM	A-2, A-4	0	0	90-100	85-100	65-80	30-50	20-25	5-10
	6-16	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
110:												
Blackhall	0-2	Sandy loam	SM	A-2	0	0-5	90-100	90-100	65-90	25-35	15-25	NP-5
	2-16	Sandy loam	SM	A-2	0	0-5	80-100	75-100	60-90	15-25	15-25	NP-5
	16-26	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
110:												
Satanka	0-4	Fine sandy loam	SM	A-4	0	0	95-100	95-100	75-85	35-45	---	NP
	4-9	Sandy clay loam	CL, SC	A-6	0	0	95-100	95-100	75-90	45-60	30-40	10-15
	9-35	Sandy clay loam	CL, CL-ML, SC-SM, SC	A-4, A-6	0	0	95-100	95-100	75-90	35-55	25-35	5-15
	35-45	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
111:												
Blazon	0-4	Silt loam	CL-ML	A-4	0	0	100	100	95-100	85-95	25-30	5-10
	4-12	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	65-80	25-35	5-15
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Trimad	0-10	Loam	CL-ML	A-4	0	0	95-100	90-100	70-85	65-75	20-30	5-10
	10-60	Very gravelly loam	GC-GM, SC-SM	A-1, A-2	0	0-35	40-75	35-50	30-40	20-35	20-30	5-10
112:												
Bonjea	0-3	Sandy loam	SC-SM, SM	A-2, A-4	0	0	90-100	90-100	60-90	30-40	20-30	NP-10
	3-11	Sandy clay loam	SC	A-6	0	0	70-90	65-85	50-75	35-50	30-35	10-15
	11-16	Very gravelly sandy clay loam	SC, GC	A-2	0	0	75-90	35-75	25-45	15-35	30-35	10-15
	16-26	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Chugcreek	0-4	Sandy loam	SC-SM, SM	A-2-4	0	0	90-100	75-100	50-60	25-35	15-25	NP-5
	4-19	Sandy loam	SC, SC-SM	A-4	0	0	90-100	75-100	50-75	35-50	20-25	5-10
	19-29	Sandy clay loam	CL, SC	A-6	0	0	85-100	75-100	65-85	45-70	30-40	10-20
	29-38	Gravelly sandy clay loam	CL, SC	A-6	0	0	70-85	60-75	55-65	35-55	30-40	10-20
	38-48	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
113:												
Bonjea	0-4	Sandy loam	SC-SM, SM	A-2, A-4	0	0	90-100	90-100	60-70	30-40	20-30	NP-10
	4-10	Sandy clay loam	SC	A-6	0	0	70-90	65-85	50-75	35-50	30-35	10-15
	10-15	Gravelly sandy clay loam	SC, GC	A-2	0	0	75-90	35-75	25-45	15-35	30-35	10-15
	15-25	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
Chugcreek	0-5	Sandy loam	SC-SM, SM	A-2-4	0	0	90-100	75-100	50-60	25-35	15-25	NP-5
	5-34	Sandy clay loam	CL, SC	A-6	0	0	85-100	75-100	65-85	45-70	30-40	10-20
	34-36	Gravelly clay loam	CL, SC	A-6	0	0	70-85	60-75	55-65	35-55	30-40	10-20
	36-46	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
114:												
Boyle	0-7	Gravelly loam	GM, SM	A-2, A-4	0	0-5	60-85	55-80	40-60	20-40	15-25	NP-5
	7-15	Very gravelly sandy clay loam	GC	A-2	0	0-15	35-55	30-50	25-45	20-30	30-40	10-20
	15-18	Very gravelly loam	GC	A-2	0	0-15	35-55	30-50	25-45	20-30	30-40	10-20
	18-28	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Boyle, thin solum	0-4	Gravelly loam	GM, SM	A-2, A-4	0	0-5	60-85	55-80	40-60	20-40	15-25	NP-5
	4-7	Very gravelly sandy clay loam	GC	A-2	0	0-15	35-55	30-50	25-45	20-30	30-40	10-20
	7-17	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
115:												
Boyle, thin solum	0-4	Gravelly loam	ML, CL-ML, SC-SM, SM	A-4	0	0-5	90-95	65-80	55-60	40-55	15-30	NP-10
	4-8	Very gravelly sandy clay loam	GC	A-2	0	0-5	40-65	35-55	25-45	15-30	30-35	15-20
	8-18	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Breece	0-5	Sandy loam	SC-SM	A-4	0	0	95-100	85-100	65-80	35-45	25-30	5-10
	5-25	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0-5	70-80	65-75	50-60	30-40	15-30	NP-10
	25-60	Gravelly coarse sandy loam	GM, SC-SM, GC-GM, SM	A-2, A-1-b, A-4	0	0-10	60-80	55-75	35-55	20-40	15-30	NP-10
Cathedral	0-7	Gravelly loam	SC-SM, SM	A-4	0	0-5	85-95	60-70	50-60	40-50	15-30	NP-10
	7-13	Very gravelly sandy loam	GC-GM, GP-GM, GM	A-1, A-2	0	0-10	20-55	15-50	10-35	5-30	15-25	NP-10
	13-23	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
116:												
Boyle	0-8	Gravelly sandy loam	GM, SM	A-2, A-4	0	0-5	60-85	55-80	40-60	20-40	15-25	NP-5
	8-12	Very gravelly sandy clay loam	GC	A-2	0	0-15	35-55	30-50	25-45	20-30	30-40	10-20
	12-18	Very gravelly sandy clay loam	GC	A-2	0	0-15	35-55	30-50	25-45	20-30	30-40	10-20
	18-28	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Lininger	0-8	Loam	CL-ML, SC-SM	A-4	0	0-5	90-100	85-100	60-80	40-60	20-30	5-10
	8-12	Sandy clay loam	CL	A-6	0	0-5	85-100	80-100	75-95	50-65	25-35	10-20
	12-24	Gravelly sandy clay loam	GC, SC	A-6	0	0-5	70-80	65-75	55-65	35-50	25-35	10-20
	24-34	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
117:												
Boyle	0-6	Gravelly sandy loam	GM, SM	A-2, A-4	0	0-5	60-85	55-80	40-60	20-40	15-25	NP-5
	6-12	Very gravelly loam	GC	A-2	0	0-15	35-55	30-50	25-45	20-30	30-40	10-20
	12-22	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
118:												
Boyle	0-7	Gravelly loam	ML, CL-ML, SC-SM, SM	A-4	0	0-5	90-95	65-80	55-60	40-55	15-30	NP-10
	7-15	Very gravelly sandy clay loam	GC	A-2	0	0-5	40-65	35-55	25-45	15-30	30-35	15-20
	15-25	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
Cathedral	0-7	Gravelly loam	SC-SM, SM	A-4	0	0-5	85-95	60-70	50-60	40-50	15-30	NP-10
	7-13	Very gravelly sandy loam	GM, GC-GM, GP-GM	A-1, A-2	0	0-10	20-55	15-50	10-35	5-30	15-25	NP-10
	13-23	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
119:												
Brown	0-4	Very cobbly sandy loam	SC-SM	A-2	0	30-45	50-70	45-65	25-40	20-35	20-30	5-10
	4-19	Very gravelly sandy clay loam	GC	A-2	0	0-10	35-60	30-55	25-50	20-35	30-40	10-20
	19-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Featherlegs	0-5	Fine sandy loam	SC-SM	A-4	0	0-10	95-100	90-100	80-85	40-50	20-25	5-10
	5-16	Gravelly sandy clay loam	GC, SC	A-6	0	0-5	70-85	65-80	60-70	35-50	30-40	10-20
	16-26	Gravelly sandy loam	GC-GM, SC-SM	A-2, A-4	0	0-5	60-75	55-70	45-60	30-40	20-25	5-10
	26-60	Very gravelly sandy loam	GC-GM	A-2	0	0-5	40-55	35-50	30-45	20-30	20-25	5-10
Recluse	0-3	Fine sandy loam	SC-SM	A-4	0	0	90-100	85-100	75-85	40-50	25-30	5-10
	3-10	Sandy clay loam	CL	A-6	0	0	90-100	85-100	80-95	50-60	30-40	10-20
	10-60	Sandy clay loam	CL	A-6	0	0	90-100	85-100	85-95	50-65	30-35	10-15
120:												
Byrnie	0-3	Sandy loam	CL-ML, SM, SC-SM	A-2, A-4	0	0-10	80-100	75-100	55-75	30-55	15-25	NP-10
	3-11	Sandy loam	CL-ML, SM, SC-SM	A-2, A-4	0	0-10	80-100	75-100	55-75	30-55	15-25	NP-10
	11-21	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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:												
Byrnie, thin solum	0-3	Sandy loam	CL-ML, SC-SM, SM	A-2, A-4	0	0-10	80-100	75-100	55-75	30-55	15-25	NP-10
	3-7	Sandy loam	CL-ML, SC-SM, SM	A-2, A-4	0	0-10	80-100	75-100	55-75	30-55	15-25	NP-10
	7-17	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
121:												
Byrnie	0-2	Sandy loam	CL-ML, SC-SM, SM	A-2, A-4	0	0-10	80-100	75-100	55-75	30-55	15-25	NP-10
	2-11	Sandy loam	CL-ML, SC-SM, SM	A-2, A-4	0	0-10	80-100	75-100	55-75	30-55	15-25	NP-10
	11-21	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Coocreek	0-5	Loam	CL	A-6	0	0	95-100	90-100	85-90	55-70	30-35	10-15
	5-12	Loam	CL	A-6	0	0	95-100	90-100	85-90	55-70	30-35	10-15
	12-60	Loam	CL	A-6	0	0	95-100	90-100	85-90	55-70	30-35	10-15
Byrnie, thin solum	0-2	Sandy loam	SC-SM, CL-ML, SM	A-2, A-4	0	0-10	80-100	75-100	55-75	30-55	15-25	NP-10
	2-4	Sandy loam	SC-SM, CL-ML, SM	A-2, A-4	0	0-10	80-100	75-100	55-75	30-55	15-25	NP-10
	4-14	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
122:												
Cascajo	0-9	Gravelly sandy loam	SC-SM, SM	A-2	0	0-5	75-95	65-80	40-65	20-30	15-25	NP-10
	9-19	Very gravelly loamy sand	GM, GP-GM	A-1	0	0-15	35-60	30-50	15-40	5-15	---	NP
	19-60	Very gravelly loamy sand	GM, GP, GP-GM	A-1	0	25-55	35-60	20-50	10-40	0-15	---	NP
Taluce	0-10	Gravelly fine sandy loam	SC-SM, SM	A-1, A-4, A-2	0	0	65-85	60-80	45-65	20-45	15-25	NP-10
	10-16	Gravelly fine sandy loam	SC-SM, SM	A-1, A-2, A-4	0	0	65-85	60-80	45-65	20-45	15-25	NP-10
	16-26	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
123:												
Cathedral	0-3	Gravelly sandy loam	SM	A-1	0	0-5	80-95	50-65	25-35	15-25	15-20	NP-5
	3-14	Very gravelly coarse sandy loam	GP-GM, GM, SM, SP-SM	A-1	0	0-40	20-75	15-50	15-35	5-20	15-20	NP-5
	14-24	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Spinekop	0-3	Sandy loam	SM	A-2	0	0	100	90-100	70-80	25-35	15-25	NP-5
	3-15	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-95	70-85	25-40	5-15
	15-60	Loam	CL-ML, ML	A-4	0	0	100	100	90-95	60-75	20-30	NP-10

Table 12.--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	
123:												
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
124:												
Cedak----------	0-8	Fine sandy loam	CL-ML	A-4	0	0	100	95-100	80-90	55-65	20-25	5-10
	8-30	Loam	CL, SC	A-6	0	0	100	95-100	90-100	40-75	30-35	10-15
	30-37	Very fine sandy loam	CL-ML, SC-SM	A-4	0	0	90-100	85-100	80-95	45-75	20-25	5-10
	37-47	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Bayard---------	0-12	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-85	35-50	15-25	NP-10
	12-60	Fine sandy loam	SC-SM, SM	A-4	0	0-5	90-100	85-100	75-85	35-50	15-25	NP-10
Treon, thin solum----------	0-5	Gravelly fine sandy loam	GM, SM	A-2, A-4	0	0-5	60-75	55-70	50-60	30-40	---	NP
	5-8	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	8-18	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
125:												
Cedak----------	0-9	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	90-100	55-70	20-25	5-10
	9-19	Loam	CL, SC	A-6	0	0	100	95-100	90-100	40-75	30-35	10-15
	19-30	Loam	CL-ML, SC-SM	A-4	0	0	90-100	85-100	80-95	45-75	20-25	5-10
	30-37	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	90-100	85-100	50-85	25-50	15-25	NP-10
	37-47	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Recluse---------	0-9	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-65	15-25	NP-10
	9-20	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	20-35	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	35-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-70	20-30	NP-10
126:												
Cedak----------	0-8	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	90-100	55-70	20-25	5-10
	8-13	Loam	CL, SC	A-6	0	0	100	95-100	90-100	40-75	30-35	10-15
	13-24	Fine sandy loam	CL-ML, SC-SM	A-4	0	0	90-100	85-100	80-95	45-75	20-25	5-10
	24-34	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Recluse---------	0-8	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-65	15-25	NP-10
	8-12	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	12-20	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	20-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-70	20-30	NP-10
Treon----------	0-7	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	85-95	50-65	15-25	NP-5
	7-16	Very fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	16-26	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
127:												
Cedak	0-7	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	80-90	40-50	15-30	NP-10
	7-12	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	90-100	40-75	30-35	10-15
	12-32	Fine sandy loam	CL-ML, SC-SM	A-4	0	0	90-100	85-100	80-95	45-75	20-25	5-10
	32-42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Treon	0-9	Fine sandy loam	SC-SM	A-2, A-4	0	0	90-100	85-100	65-80	30-50	20-25	5-10
	9-19	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	19-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
128:												
Chaperton, moderately saline	0-4	Loam	CL	A-6	0	0-5	95-100	90-100	75-90	50-70	25-30	10-15
	4-16	Loam	CL	A-6	0	0	95-100	90-100	75-90	50-70	25-30	10-15
	16-35	Loam	CL	A-6	0	0	95-100	90-100	75-90	50-70	25-30	10-15
	35-45	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Blazon	0-2	Clay loam	CL	A-6	0	0	90-100	90-100	75-90	60-80	35-40	15-20
	2-16	Clay loam	CL	A-6	0	0	90-100	90-100	75-90	65-80	35-40	15-20
	16-26	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
129:												
Claprych	0-9	Gravelly fine sandy loam	SC-SM, SM	A-2, A-4	0	0-5	65-80	60-75	50-65	25-40	15-25	NP-10
	9-18	Gravelly fine sandy loam	SC-SM, SM	A-2, A-4	0	0-5	65-80	60-75	50-65	25-40	15-25	NP-10
	18-60	Very gravelly sandy loam	GC-GM, GM	A-1, A-2	0	0-10	45-55	40-50	30-40	15-30	15-25	NP-10
130:												
Claprych	0-3	Very gravelly sandy loam	GC-GM, GM	A-1, A-2	0	0-10	45-50	40-45	30-40	20-35	15-25	NP-10
	3-60	Very cobbly sandy loam	GC-GM, GM	A-1, A-2, A-4	0	15-30	55-65	50-60	35-45	20-40	15-25	NP-10
Luman	0-2	Very gravelly sandy loam	GC-GM, GM, SM, SC-SM	A-1, A-2	0	5-25	55-70	45-60	25-40	15-25	15-25	NP-10
	2-8	Gravelly clay loam	CL, SC	A-2, A-6	0	0	75-80	70-75	30-65	30-60	30-40	15-25
	8-12	Gravelly sandy clay loam	CL, CL-ML, SC-SM, SC	A-2, A-6, A-4	0	0	65-75	65-70	25-60	25-55	20-35	5-20
	12-60	Very gravelly sandy loam	GM, GC-GM, SC-SM, SM	A-1	0-5	0-15	50-65	40-55	25-40	10-25	15-25	NP-10
131:												
Claprych	0-8	Sandy clay loam	SC	A-6	0	0	100	95-100	85-95	40-50	30-40	10-20
	8-17	Sandy clay loam	SC	A-6	0	0	100	95-100	85-95	40-50	30-40	10-20
	17-30	Very gravelly fine sandy loam	GC-GM, GM	A-1, A-2	0	0-10	45-55	40-50	30-40	15-30	15-25	NP-10
	30-60	Extremely gravelly sandy loam	GM, GP-GM	A-1	0	0-10	25-40	25-30	15-25	10-15	---	NP

Table 12.--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	
131:												
Selpats	0-10	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	90-95	45-60	30-35	10-15
	10-14	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	90-95	45-60	30-40	10-20
	14-19	Clay loam	CL, SC	A-6	0	0	100	95-100	90-95	45-60	30-40	10-20
	19-24	Loam	CL	A-6	0	0	100	95-100	90-100	55-80	30-40	10-20
	24-60	Very gravelly sandy loam	GC-GM	A-2	0	0-15	35-60	30-55	25-45	10-30	20-30	5-10
132:												
Claprych	0-4	Very gravelly fine sandy loam	GC-GM, GM	A-1, A-2	0	0-10	50-60	45-50	40-45	20-35	15-25	NP-10
	4-30	Very cobbly sandy loam	GC-GM, GM	A-1, A-2, A-4	0	15-30	55-65	50-60	35-45	20-40	15-25	NP-10
	30-60	Very cobbly loamy sand	GM, SM	A-1	0	25-40	55-70	50-65	40-50	15-25	---	NP
Sweatbee	0-7	Fine sandy loam	SC, SC-SM	A-4	0	0	95-100	90-100	80-85	35-45	25-30	5-10
	7-36	Fine sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	70-80	30-45	20-30	5-10
	36-60	Very gravelly sandy loam	GM	A-1	0	5-15	50-60	45-55	35-45	15-25	---	NP
133:												
Clarkelen	0-2	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-95	55-65	15-25	NP-10
	2-8	Loam	CL-ML, ML	A-4	0	0	100	95-100	80-90	75-85	15-25	NP-10
	8-23	Loam	CL-ML, ML	A-4	0	0	100	95-100	80-90	60-70	15-25	NP-10
	23-42	Gravelly sandy loam	GM, SC-SM, GC-GM, SM	A-1, A-2, A-4	0	0-10	60-80	55-75	40-55	20-40	15-25	NP-10
	42-60	Very fine sandy loam	CL-ML	A-4	0	0	100	100	85-95	55-65	20-25	5-10
Quarterback	0-2	Very fine sandy loam	CL, CL-ML, SM, SC-SM	A-4	0	0	100	95-100	85-95	40-60	15-25	NP-10
	2-11	Loam	CL, CL-ML	A-4	0	0	100	95-100	80-95	55-75	20-30	5-10
	11-60	Stratified loamy sand to sandy clay	SC, SC-SM	A-2, A-4	0	0	100	95-100	75-85	25-55	20-30	5-10
134:												
Clarkelen, wet	0-10	Loam	CL-ML	A-4	0	0	100	95-100	85-95	60-70	20-25	5-10
	10-51	Stratified fine sandy loam to loam	SC-SM, CL-ML, SM	A-4	0	0	100	95-100	70-90	40-65	15-25	NP-10
	51-60	Coarse sand	SM, SW-SM	A-2	0	0	100	95-100	50-60	10-20	---	NP
Anvil	0-2	Loam	CL-ML, ML	A-4	0	0	100	95-100	90-95	60-70	20-30	NP-10
	2-5	Gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0	75-90	70-85	50-65	30-40	15-25	NP-10
	5-60	Stratified extremely cobbly coarse sand to fine sandy loam	SC-SM, GW-GM, SM	A-1, A-2	0	30-45	45-70	40-60	25-55	5-35	15-25	NP-10
135:												
Coaliams	0-8	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	75-85	35-50	15-25	NP-10
	8-60	Stratified sand to clay loam	CL	A-6	0	0-5	90-100	75-100	70-90	50-60	30-40	10-20
Haverdad	0-5	Loam	CL-ML, SC-SM	A-4	0	0	100	90-100	60-85	35-55	20-25	5-10
	5-60	Stratified fine sandy loam to silt loam	CL-ML, SC, CL, SC-SM	A-4, A-6	0	0	75-100	75-100	60-90	40-65	25-35	5-15

Table 12.--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	
136:												
Cowestglen------	0-7	Fine sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	95-100	80-85	30-50	20-25	5-10
	7-54	Stratified coarse sandy loam to silty clay loam	SC, SC-SM	A-2-4, A-4	0	0	100	95-100	65-70	25-45	20-25	5-10
	54-60	Stratified loamy sand to clay loam	SC, SC-SM	A-2-4, A-4	0	0	100	95-100	70-75	30-50	20-25	5-10
137:												
Creighton-------	0-10	Very fine sandy loam	CL-ML	A-4	0	0	100	90-100	80-90	50-65	20-25	5-10
	10-20	Very fine sandy loam	CL-ML	A-4	0	0	100	90-100	80-90	50-65	20-25	5-10
	20-60	Very fine sandy loam	CL-ML	A-4	0	0	100	90-100	80-90	50-65	20-25	5-10
138:												
Curabith--------	0-8	Very cobbly sandy loam	SC-SM	A-2	0	30-40	70-75	65-70	50-55	25-35	20-25	5-10
	8-12	Cobbly sandy loam	SC-SM	A-2	0	5-20	75-90	70-85	40-65	20-35	20-25	5-10
	12-35	Very gravelly sandy loam	GC-GM, SM, GM, SC-SM	A-1, A-2	0	15-25	40-65	35-55	25-40	15-25	15-30	NP-10
	35-60	Very gravelly loamy sand	GM	A-1	0	15-40	40-45	35-40	30-35	15-20	---	NP
139:												
Cushool---------	0-3	Sandy loam	SC-SM, SM	A-2, A-4	0	0	90-100	85-100	70-85	30-50	20-30	NP-10
	3-16	Sandy clay loam	SC	A-2, A-6	0	0	90-100	85-100	70-85	30-50	30-40	10-20
	16-32	Gravelly sandy loam	GM, SM, SC-SM	A-1, A-2	0	0	60-80	55-75	40-55	20-35	20-25	NP-5
	32-42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Cutback---------	0-1	Fine sandy loam	SC-SM	A-4	0	0	85-100	75-90	60-75	35-50	20-25	5-10
	1-7	Sandy clay loam	CL, SC	A-6	0	0	90-100	85-95	60-80	40-70	30-35	10-15
	7-17	Clay loam	CL, SC	A-6	0	0	90-100	85-95	60-80	40-70	30-40	10-20
	17-31	Extremely gravelly sandy clay loam	GM, GP-GM	A-1	0	0-5	20-40	10-25	5-20	5-15	10-20	NP-5
	31-41	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
140:												
Dalecreek-------	0-8	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	90-100	70-85	30-40	15-25	NP-10
	8-28	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	75-85	50-65	25-35	5-15
	28-60	Stratified loamy coarse sand to sandy clay loam	CL	A-6	0	0	90-100	90-100	70-85	50-65	30-40	10-20
Kovich----------	0-8	Loam	CL-ML	A-4	0	0	80-100	75-100	65-90	50-70	25-30	5-10
	8-21	Clay loam	CL, SC	A-6	0	0	85-100	75-100	65-85	40-70	25-35	10-20
	21-60	Gravelly clay loam	SC	A-2, A-6	0	0	70-85	60-75	40-60	20-40	25-35	10-20

Table 12.--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	
141:												
Deight	0-8	Very fine sandy loam	CL-ML	A-4	0	0	100	100	80-90	60-70	20-25	5-10
	8-16	Loam	CL-ML	A-4	0	0	100	100	85-95	65-75	20-25	5-10
	16-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-95	80-90	15-25	NP-10
Thirtynine	0-7	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-95	60-75	25-35	5-15
	7-17	Loam	CL	A-6	0	0	100	95-100	90-100	80-95	35-40	15-20
	17-22	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-90	55-70	20-35	5-15
	22-32	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-90	55-70	20-35	5-15
	32-60	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-95	50-65	20-35	5-15
Glendo	0-2	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	95-100	85-95	50-65	20-30	NP-10
	2-7	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	55-85	15-25	NP-10
	7-21	Loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	80-90	20-30	NP-10
	21-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	80-90	20-30	NP-10
142:												
Diamonkit	0-1	Sandy loam	SC-SM	A-2, A-4	0	0	100	90-100	65-80	25-45	25-30	5-10
	1-11	Sandy clay loam	CL, SC	A-6	0	0	100	90-100	80-90	45-65	25-35	10-15
	11-33	Clay loam	CL	A-6	0	0	100	90-100	85-95	65-80	35-40	15-20
	33-43	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Stylite	0-2	Sandy loam	SC-SM, SM	A-4	0	0	100	100	85-90	35-45	15-25	NP-10
	2-14	Loam	CL	A-6	0	0	100	95-100	85-90	60-75	30-35	10-15
	14-31	Clay loam	CL	A-6	0	0	100	95-100	85-90	60-75	35-40	15-20
	31-60	Clay loam	CL	A-6	0	0	100	95-100	85-95	65-80	35-40	15-20
143:												
Embry	0-10	Loamy fine sand	SM	A-2	0	0	75-100	75-100	60-85	15-25	---	NP
	10-60	Fine sandy loam	SM	A-2	0	0	75-100	75-100	55-80	20-35	15-25	NP-5
144:												
Evanston	0-3	Loam	CL-ML	A-4	0	0	95-100	95-100	70-85	50-70	25-30	5-10
	3-15	Clay loam	CL	A-6	0	0	100	95-100	85-95	55-70	25-40	10-20
	15-60	Loam	CL	A-6	0	0	100	95-100	85-95	50-65	25-35	10-15
145:												
Evanston	0-7	Loam	CL	A-6	0	0	100	95-100	90-95	65-75	30-35	10-15
	7-18	Loam	CL	A-6	0	0	100	95-100	90-95	65-75	35-40	15-20
	18-33	Gravelly loam	CL-ML	A-4	0	0-10	65-80	60-75	55-65	40-60	25-30	5-10
	33-60	Loam	CL	A-6	0	0	100	95-100	90-95	55-70	30-35	10-15
Ipson	0-6	Very cobbly loam	GC-GM, SC-SM	A-4	0	30-50	60-90	55-85	50-80	40-50	25-30	5-10
	6-18	Very cobbly sandy clay loam	GC	A-6	0	20-40	50-70	45-65	40-60	35-45	30-40	10-20
	18-60	Very gravelly sandy loam	GC-GM	A-2	0	0-20	35-55	30-50	25-40	20-35	25-30	5-10
146:												
Evanston	0-4	Loam	CL	A-6	0	0	100	95-100	90-95	65-75	30-35	10-15
	4-12	Clay loam	CL	A-6	0	0	100	95-100	90-95	65-75	35-40	15-20
	12-60	Sandy clay loam	CL	A-6	0	0	100	95-100	90-95	55-70	30-35	10-15

Table 12.--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	
146:												
Ipson	0-4	Very cobbly loam	GC-GM, SC-SM	A-4	0	30-50	60-90	55-85	50-80	40-50	25-30	5-10
	4-11	Very cobbly sandy clay loam	GC	A-6	0	20-40	50-70	45-65	40-60	35-45	30-40	10-20
	11-60	Very gravelly sandy loam	GC-GM	A-2	0	0-20	35-55	30-50	25-40	20-35	25-30	5-10
Brownsto	0-4	Cobbly sandy loam	SC-SM	A-4	0	20-30	75-95	70-90	50-65	35-45	25-30	5-10
	4-60	Very cobbly sandy loam	GC-GM	A-2	0	25-40	55-65	50-60	40-45	25-35	25-35	5-10
147:												
Evanston	0-5	Gravelly sandy loam	SC-SM, SM	A-2-4, A-4	0	0	90-100	70-75	55-70	25-40	15-30	NP-10
	5-15	Gravelly clay loam	CL	A-7	0	0	90-100	70-75	55-65	55-60	40-50	20-25
	15-27	Gravelly sandy clay loam	SC	A-2-6, A-6	0	0	90-100	70-75	45-55	30-50	30-35	10-15
	27-60	Gravelly sandy clay loam	SC	A-2-6, A-6	0	0	90-100	70-75	45-55	30-45	30-35	10-15
Weed	0-5	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	65-80	30-50	25-30	5-10
	5-14	Sandy clay loam	CL, SC	A-6, A-7	0	0	90-100	85-95	75-95	45-70	35-45	15-20
	14-28	Clay loam	CL, SC	A-6, A-7	0	0	90-100	85-95	75-95	45-70	35-45	15-20
	28-60	Sandy clay loam	SC	A-6	0	0	75-100	70-90	60-80	35-50	30-40	10-15
148:												
Evanston	0-3	Loam	CL-ML	A-4	0	0	95-100	95-100	70-85	50-70	25-30	5-10
	3-12	Clay loam	CL	A-6	0	0	95-100	95-100	70-90	60-75	25-40	10-20
	12-27	Loam	CL	A-6	0	0	95-100	95-100	85-95	50-65	25-35	10-15
	27-60	Gravelly sandy loam	SC-SM, SM	A-1-b, A-2-4	0	0	80-90	65-75	45-55	20-35	0-30	NP-10
Weed	0-8	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	75-95	55-70	25-35	5-15
	8-18	Clay loam	CL, SC	A-6, A-7	0	0	90-100	85-95	75-95	45-70	35-45	15-20
	18-26	Sandy clay loam	CL, SC	A-6, A-7	0	0	90-100	85-95	75-95	45-70	35-45	15-20
	26-60	Sandy clay loam	SC	A-6	0	0	75-100	70-90	60-80	35-50	30-40	10-15
Trimad	0-8	Loam	CL-ML	A-4	0	0	95-100	90-100	70-85	65-75	20-30	5-10
	8-60	Very gravelly loam	GC-GM, SC-SM	A-1, A-2	0	0-35	40-75	35-50	30-40	20-35	20-30	5-10
149:												
Featherlegs, wet	0-14	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	80-90	40-50	20-25	5-10
	14-18	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	90-95	45-55	30-40	15-20
	18-31	Sandy loam	SM	A-2, A-4	0	0	90-100	85-100	65-75	30-45	15-25	NP-5
	31-60	Very gravelly loamy sand	GM	A-1	0	0-5	45-55	40-50	30-40	15-25	---	NP
150:												
Featherlegs	0-10	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	80-90	40-50	15-25	NP-10
	10-26	Loam	CL	A-6	0	0	100	95-100	90-95	50-70	30-40	10-20
	26-30	Loam	CL, SC	A-6	0	0	90-100	85-100	70-95	40-70	30-35	10-15
	30-60	Very gravelly sandy loam	GC-GM, GM	A-1, A-2	0	0-15	40-55	35-50	25-40	15-30	15-25	NP-10
Bayard	0-12	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-85	35-50	15-25	NP-10
	12-60	Fine sandy loam	SC-SM, SM	A-4	0	0-5	90-100	85-100	75-85	35-50	15-25	NP-10

Table 12.--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	
151:												
Featherlegs-----	0-10	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	80-90	40-50	20-25	5-10
	10-15	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	90-95	45-55	30-40	10-20
	15-45	Very cobbly sandy loam	SC-SM, SM	A-2, A-4	0	20-30	80-100	75-95	55-75	30-45	15-25	NP-10
	45-60	Very cobbly loamy sand	GM	A-1	0	20-30	45-65	40-60	20-40	15-25	---	NP
Curabith--------	0-12	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	35-50	25-30	5-10
	12-30	Very cobbly sandy loam	GC-GM, GM, SM, SC-SM	A-1, A-2	0	15-25	40-65	35-55	25-40	15-25	15-30	NP-10
	30-60	Very cobbly loamy sand	GM	A-1	0	15-40	40-45	35-40	30-35	15-20	---	NP
152:												
Featherlegs-----	0-5	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	80-90	40-50	15-25	NP-10
	5-13	Clay loam	CL	A-6	0	0	100	95-100	90-95	50-70	30-40	10-20
	13-60	Very gravelly sandy loam	GC-GM, GM	A-1, A-2	0	0-15	40-55	35-50	25-40	15-30	15-25	NP-10
Greenhope-------	0-7	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-80	35-50	15-25	NP-10
	7-12	Loam	CL-ML, ML	A-4	0	0	100	95-100	90-95	50-70	15-25	NP-10
	12-36	Sandy loam	SC-SM	A-4	0	0	95-100	90-100	70-80	35-50	20-25	5-10
	36-60	Very gravelly sandy loam	GC-GM, GM, SM, SC-SM	A-1, A-2	0	0-25	40-75	35-70	25-55	15-35	15-25	NP-10
Curabith--------	0-7	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	35-50	25-30	5-10
	7-60	Very gravelly sandy loam	GM, SC-SM, GC-GM, SM	A-1, A-2	0	15-25	40-65	35-55	25-40	15-25	15-30	NP-10
153:												
Featherlegs-----	0-8	Loam	CL	A-6	0	0	100	100	90-95	55-80	25-30	10-15
	8-20	Clay loam	CL	A-6	0	0	100	100	90-95	65-90	35-40	15-20
	20-30	Loam	CL	A-6	0	0	100	90-100	85-95	55-80	25-30	10-15
	30-60	Very gravelly loam	GC	A-6	0	10-25	50-65	45-60	40-55	35-50	25-30	10-15
Recluse---------	0-8	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-30	10-15
	8-22	Clay loam	CL	A-6	0	0	95-100	90-100	85-95	60-85	25-35	10-20
	22-60	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	50-70	20-35	5-15
154:												
Featherlegs-----	0-9	Loam	CL	A-6	0	0	100	95-100	90-95	50-70	25-35	10-15
	9-26	Loam	CL	A-6	0	0	100	95-100	90-95	50-70	30-40	10-20
	26-35	Sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	70-95	40-70	30-35	10-15
	35-60	Very gravelly sandy loam	GC-GM, GM	A-1, A-2	0	0-15	40-55	35-50	25-40	15-30	15-25	NP-10
Recluse---------	0-8	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-30	10-15
	8-22	Loam	CL	A-6	0	0	95-100	90-100	85-95	60-85	25-35	10-20
	22-60	Very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	50-70	20-35	5-15
155:												
Featherlegs-----	0-9	Loam	CL	A-6	0	0	100	95-100	90-95	50-70	25-35	10-15
	9-23	Sandy clay loam	CL	A-6	0	0	100	95-100	90-95	50-70	30-40	10-20
	23-33	Sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	70-95	40-70	30-35	10-15
	33-60	Very gravelly sandy loam	GC-GM, GM	A-1, A-2	0	0-15	40-55	35-50	25-40	15-30	15-25	NP-10

Table 12.--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	
155:												
Recluse	0-5	Loam	CL-ML	A-4	0	0	95-100	90-100	85-95	55-70	20-30	5-10
	5-10	Clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-95	60-80	35-45	15-25
	10-18	Clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-95	60-80	35-45	15-25
	18-60	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	55-70	20-35	5-15
156:												
Fluvaquentic Endoaquolls	0-7	Loam	CL	A-6	0	0	100	100	85-95	65-75	30-35	10-15
	7-36	Sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	70-95	35-65	25-40	10-20
	36-44	Fine sandy loam	SC-SM	A-2, A-4	0	0	90-100	85-100	75-85	30-45	20-30	5-10
	44-60	Sandy clay loam	SC	A-6	0	0	95-100	90-100	85-95	40-50	30-40	10-20
Whetsoon	0-7	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	35-50	15-25	NP-10
	7-13	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-35	10-15
	13-21	Sandy clay loam	CL, SC	A-6	0	0	95-100	90-100	75-90	45-65	30-40	10-20
	21-33	Loam	CL	A-6	0	0	95-100	90-100	80-90	50-70	25-40	10-20
	33-60	Loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-90	50-70	15-25	NP-10
157:												
Forelle	0-4	Loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	80-95	50-70	25-35	5-15
	4-25	Loam	CL, SC	A-6	0	0	90-100	85-100	80-95	40-65	30-40	15-20
	25-60	Loam	CL, SC	A-6	0	0	90-100	85-100	80-95	35-60	30-35	10-15
158:												
Forelle	0-4	Fine sandy loam	SC-SM	A-2, A-4	0	0	90-100	85-100	65-80	30-50	20-30	5-10
	4-25	Loam	CL, SC	A-6	0	0	90-100	85-100	80-95	40-65	30-40	15-20
	25-60	Sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	35-60	30-35	10-15
Diamondville	0-1	Fine sandy loam	ML, SM	A-4	0	0	100	95-100	75-90	40-55	15-25	NP-5
	1-23	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-90	60-75	25-40	5-15
	23-34	Loam	ML, CL-ML, SC-SM, SM	A-4	0	0	100	75-100	65-90	35-55	15-30	NP-10
	34-44	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
159:												
Forkwood	0-9	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	40-50	20-30	5-10
	9-15	Loam	CL, SC	A-6	0	0	95-100	90-100	85-95	40-55	30-40	10-20
	15-39	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	40-50	20-25	5-10
	39-60	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-90	40-50	15-25	NP-10
160:												
Forkwood	0-2	Loam	CL, SC	A-6	0	0	95-100	90-100	85-95	40-55	30-40	10-20
	2-12	Loam	CL, SC	A-6	0	0	95-100	90-100	85-95	40-55	30-40	10-20
	12-60	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	40-50	20-25	5-10
161:												
Forkwood, wet	0-7	Loam	CL-ML	A-4	0	0	100	95-100	90-100	60-70	20-25	5-10
	7-15	Loam	CL	A-6	0	0	100	95-100	90-100	65-75	30-35	10-15
	15-19	Loam	CL	A-6	0	0	100	95-100	90-100	65-75	30-35	10-15
	19-60	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	90-100	40-50	15-25	NP-10
162:												
Glendo	0-3	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	15-25	NP-10
	3-14	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	55-85	15-25	NP-10
	14-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	80-90	20-30	NP-10
163:												
Graystone	0-8	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	90-100	80-90	40-50	15-25	NP-10
	8-24	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	90-100	90-100	70-95	40-70	15-25	NP-10
	24-60	Sandy loam	SM	A-2, A-4	0	0	90-100	90-100	75-85	30-40	---	NP

Table 12.--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	
163:												
Alice	0-8	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	8-36	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	36-60	Sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-55	15-25	NP-10
164:												
Graystone	0-8	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	90-100	80-90	40-50	15-25	NP-10
	8-16	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	90-100	80-90	40-50	15-25	NP-10
	16-36	Fine sandy loam	ML, SC-SM, CL-ML, SM	A-4	0	0	90-100	90-100	70-95	40-70	15-25	NP-10
	36-60	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	90-100	90-100	80-90	40-60	15-25	NP-10
Greenhope	0-9	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-80	35-50	15-25	NP-10
	9-20	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	70-80	35-50	20-25	5-10
	20-23	Gravelly fine sandy loam	SC-SM, SM	A-2	0	0	65-80	60-75	50-60	25-35	15-25	NP-10
	23-35	Very gravelly fine sandy loam	GC-GM, GM, SM, SC-SM	A-1, A-2	0	0-25	40-75	35-70	25-55	15-35	15-25	NP-10
	35-60	Gravelly fine sandy loam	SC-SM, SM	A-2, A-4	0	0-10	70-80	65-75	55-65	30-40	15-25	NP-10
Bayard	0-8	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-85	35-50	15-25	NP-10
	8-60	Fine sandy loam	SC-SM, SM	A-4	0	0-5	90-100	85-100	75-85	35-50	15-25	NP-10
165:												
Graystone	0-8	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	90-100	80-90	40-50	15-25	NP-10
	8-17	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	90-100	80-90	40-50	15-25	NP-10
	17-30	Loam	ML, CL-ML, SC-SM, SM	A-4	0	0	90-100	90-100	70-95	40-70	15-25	NP-10
	30-60	Very fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	90-100	90-100	80-90	40-60	15-25	NP-10
Mainter	0-9	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	80-90	40-50	20-25	5-10
	9-16	Fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	95-100	85-95	45-60	20-25	5-10
	16-28	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	80-90	40-50	15-25	NP-10
	28-60	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-45	15-25	NP-10
166:												
Graystone	0-8	Very fine sandy loam	CL-ML, ML	A-4	0	0	90-100	90-100	85-95	50-65	15-25	NP-10
	8-20	Loam	ML, CL-ML, SC-SM, SM	A-4	0	0	90-100	90-100	70-95	40-70	15-25	NP-10
	20-60	Very fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	90-100	90-100	80-90	40-60	15-25	NP-10
Phiferson	0-9	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	85-95	50-65	20-25	5-10
	9-25	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	85-95	55-70	20-30	5-10
	25-36	Very fine sandy loam	SC-SM	A-4	0	0	100	95-100	75-85	35-50	20-25	5-10
	36-46	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Treon	0-7	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	85-95	50-65	15-25	NP-5
	7-19	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	19-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
167:												
Greenhope	0-9	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-80	35-50	15-25	NP-10
	9-16	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	70-80	35-50	20-25	5-10
	16-25	Gravelly sandy loam	SC-SM, SM	A-2	0	0	65-80	60-75	50-60	25-35	15-25	NP-10
	25-60	Very cobbly sandy loam	GC-GM, GM	A-1, A-2	0	10-30	40-70	35-65	25-50	15-30	15-25	NP-10
Featherlegs	0-7	Gravelly fine sandy loam	GC-GM, SC-SM	A-2, A-4	0	0-5	60-75	55-70	45-60	30-40	20-25	5-10
	7-13	Gravelly sandy clay loam	GC, SC	A-6	0	0-5	70-85	65-80	60-70	35-50	30-40	10-20
	13-17	Gravelly sandy loam	GC-GM, SC-SM	A-2, A-4	0	0-5	60-75	55-70	45-60	30-40	20-25	5-10
	17-60	Very gravelly sandy loam	GC-GM	A-2	0	0-5	40-55	35-50	30-45	20-30	20-25	5-10
168:												
Hiland	0-9	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	65-75	35-45	15-25	NP-10
	9-15	Sandy clay loam	CL, SC	A-6	0	0	95-100	90-100	60-80	40-60	30-40	10-20
	15-18	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	65-75	35-45	15-25	NP-10
	18-38	Loam	CL-ML, ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-10
	38-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	85-90	30-50	15-25	NP-10
169:												
Hiland	0-10	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	90-100	65-75	30-40	15-25	NP-10
	10-15	Sandy clay loam	CL, SC	A-6	0	0	95-100	90-100	60-80	40-60	30-40	10-20
	15-30	Fine sandy loam	CL-ML, ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-10
	30-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	85-90	30-50	15-25	NP-10
Cambria	0-7	Sandy loam	SM	A-4	0	0	95-100	95-100	60-80	35-45	15-25	NP-5
	7-10	Sandy clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	65-80	25-40	5-15
	10-60	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	70-90	40-60	25-35	5-15
170:												
Ipson	0-8	Gravelly loam	SC-SM	A-2, A-4	0	0-5	80-90	50-70	35-50	25-45	20-28	5-10
	8-14	Very gravelly sandy clay loam	GC	A-2-6, A-6	0	0-5	45-65	35-50	30-45	25-40	25-35	10-15
	14-60	Very gravelly sandy loam	GC-GM, SM, GM, GP-GM	A-1, A-2-4	0	0-30	35-75	25-50	15-35	5-20	15-25	NP-10
Evanston	0-7	Loam	CL-ML	A-4	0	0	95-100	95-100	70-85	50-70	25-30	5-10
	7-28	Clay loam	CL	A-6	0	0	100	95-100	85-95	55-70	25-40	10-20
	28-60	Loam	CL	A-6	0	0	100	95-100	85-95	50-65	25-35	10-15
171:												
Ipson	0-8	Gravelly loam	SC-SM	A-2, A-4	0	0-5	80-90	50-70	35-50	25-45	20-28	5-10
	8-14	Very gravelly sandy clay loam	GC	A-2-6, A-6	0	0-5	45-65	35-50	30-45	25-40	25-35	10-15
	14-60	Very gravelly sandy loam	GM, GP-GM, GC-GM, SM	A-1, A-2-4	0	0-30	35-75	25-50	15-35	5-20	15-25	NP-10
Evanston	0-9	Loam	CL-ML	A-4	0	0	95-100	95-100	70-85	50-70	25-30	5-10
	9-26	Clay loam	CL	A-6	0	0	100	95-100	85-95	55-70	25-40	10-20
	26-60	Loam	CL	A-6	0	0	100	95-100	85-95	50-65	25-35	10-15
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---

Table 12.--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	
172:												
Jayem	0-13	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	65-85	35-50	15-25	NP-10
	13-30	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	100	95-100	65-85	35-55	15-25	NP-10
	30-60	Fine sandy loam	CL-ML, SM, ML, SC-SM	A-4	0	0	100	95-100	65-85	35-55	15-25	NP-10
Mainter	0-4	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	80-90	40-50	20-25	5-10
	4-25	Fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	95-100	85-95	45-60	20-25	5-10
	25-60	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	80-90	40-50	15-25	NP-10
Moskee	0-7	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	95-100	95-100	75-80	40-55	15-25	NP-10
	7-28	Sandy clay loam	CL, SC	A-6	0	0	95-100	95-100	85-90	40-55	30-35	15-20
	28-60	Fine sandy loam	ML, SC-SM, CL-ML, SM	A-4	0	0	95-100	95-100	85-90	40-55	15-25	NP-10
173:												
Julesburg	0-7	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	85-90	35-50	15-30	NP-10
	7-14	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	85-90	35-50	15-30	NP-10
	14-39	Fine sandy loam	CL-ML, ML, SM, SC-SM	A-4	0	0	100	95-100	85-90	45-55	20-30	NP-10
	39-54	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	85-90	30-50	---	NP
	54-60	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	85-90	30-50	---	NP
Jayem	0-12	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	65-85	35-50	15-25	NP-10
	12-26	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	100	95-100	65-85	35-55	15-25	NP-10
	26-54	Fine sandy loam	CL-ML, ML, SM, SC-SM	A-4	0	0	100	95-100	65-85	35-55	15-25	NP-10
	54-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	95-100	80-95	50-65	15-25	NP-10
Phiferson	0-10	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	10-17	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	17-25	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	25-35	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
174:												
Keeline	0-12	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	12-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
175:												
Keeline	0-6	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	6-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
176:												
Keeline	0-6	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	6-34	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
	34-60	Very fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	100	95-100	85-95	45-65	15-30	NP-10
177:												
Keeline	0-5	Very fine sandy loam	SM	A-2, A-4	0	0	100	95-100	85-95	30-50	15-25	NP-5
	5-60	Very fine sandy loam	CL-ML, SM, ML, SC-SM	A-4	0	0	100	95-100	85-95	45-65	15-30	NP-10

Table 12.--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	
177:												
Mainter	0-8	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	90-100	55-65	20-25	5-10
	8-16	Very fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	95-100	85-95	45-60	20-25	5-10
	16-22	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	90-100	55-75	20-25	5-10
	22-60	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-45	15-25	NP-10
178:												
Keeline	0-7	Gravelly sandy loam	GM, GC-GM, SC-SM, SM	A-1, A-2	0	0	60-65	55-60	40-45	20-25	15-25	NP-10
	7-60	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
Nidix	0-8	Very cobbly sandy loam	SC-SM	A-2, A-4	0	25-50	65-85	60-80	45-60	25-50	20-25	5-10
	8-20	Very cobbly sandy loam	SC-SM	A-2, A-4	0	25-50	65-85	60-80	45-60	25-50	20-25	5-10
	20-30	Cobbly sandy loam	SC-SM, SM	A-2	0	5-15	60-75	55-70	55-65	25-35	15-20	NP-5
	30-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Taluce	0-4	Cobbly fine sandy loam	SC-SM, SM	A-4	0	5-15	60-75	55-70	55-75	30-40	15-25	NP-10
	4-19	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	19-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
179:												
Keeline	0-6	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	6-39	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
	39-60	Very fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	100	95-100	85-95	45-65	15-30	NP-10
Taluce	0-5	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	5-14	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	90-100	85-95	50-65	15-25	NP-10
	14-18	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	18-28	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Turnercrest	0-4	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	---	NP
	4-11	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	15-25	NP-5
	11-27	Very fine sandy loam	ML, SM	A-4	0	0	100	100	65-90	35-60	15-25	NP-5
	27-37	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
180:												
Keeline	0-4	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	4-9	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
	9-60	Very fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	100	95-100	85-95	45-65	15-30	NP-10
Turnercrest	0-6	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	---	NP
	6-32	Fine sandy loam	ML, SM	A-4	0	0	100	100	65-90	35-60	15-25	NP-5
	32-42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
181:												
Keeline	0-5	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	5-60	Very fine sandy loam	ML, SC-SM, CL-ML, SM	A-4	0	0	100	95-100	85-95	45-65	15-30	NP-10
Turnercrest	0-8	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	---	NP
	8-19	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	15-25	NP-5
	19-36	Sandy loam	ML, SM	A-4	0	0	100	100	65-90	35-60	15-25	NP-5
	36-46	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
182:												
Kishona	0-5	Clay loam	CL	A-6	0	0	85-100	75-100	70-90	70-80	30-40	10-20
	5-60	Clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75-100	70-90	65-85	20-30	5-15
183:												
Livan	0-6	Gravelly coarse sandy loam	SC-SM	A-2	0	0	60-80	55-70	35-45	25-35	20-30	5-10
	6-32	Stratified gravelly loamy sand to very gravelly sandy loam	GM, GW-GM	A-1	0	5-25	40-60	35-55	25-40	5-25	---	NP
	32-60	Stratified very gravelly coarse sand to very gravelly loamy sand	GM, GW-GM	A-1	0	5-25	40-60	35-55	20-40	5-25	---	NP
Clarkelen	0-3	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	80-90	35-50	15-25	NP-10
	3-40	Stratified gravelly sandy loam	SC-SM, SM	A-2, A-4	0	0	75-95	70-90	50-65	20-40	15-25	NP-10
	40-60	Stratified sandy loam to very gravelly loam	SC-SM, SM	A-1, A-2	0	0-10	65-90	60-85	45-65	15-35	15-25	NP-10
184:												
Livan	0-5	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-90	35-50	15-25	NP-10
	5-16	Coarse sandy loam	SC-SM, SM	A-2, A-4	0	0	90-100	85-100	60-70	25-40	15-25	NP-10
	16-60	Stratified very gravelly coarse sand to very gravelly loamy sand	GM, GW-GM	A-1	0	5-25	40-60	35-55	20-40	5-25	---	NP
Riverwash	0-60	Sand	SP-SM, SP, SW, SW-SM	A-1, A-3	---	0-5	80-100	75-100	30-60	0-10	0-14	NP
185:												
Mainter	0-8	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	80-90	40-50	20-25	5-10
	8-21	Fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	95-100	85-95	45-60	20-25	5-10
	21-60	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	80-90	40-50	15-25	NP-10
186:												
Mainter, wet	0-11	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	80-90	40-50	20-25	5-10
	11-17	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	90-100	55-65	25-30	5-10
	17-21	Very fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	95-100	85-95	45-60	25-30	5-10
	21-34	Loam	CL-ML	A-4	0	0	100	95-100	90-100	55-75	25-30	5-10
	34-60	Sandy loam	SM	A-2	0	0	100	95-100	70-80	25-35	---	NP

Table 12.--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	
187:												
Mainter	0-11	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	80-90	40-50	20-25	5-10
	11-20	Fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	95-100	85-95	45-60	20-25	5-10
	20-30	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	80-90	40-50	15-25	NP-10
	30-60	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-45	15-25	NP-10
Keeline	0-5	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	5-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
188:												
McFadden	0-5	Gravelly fine sandy loam	SM	A-2, A-4	0	0	70-80	65-75	50-65	25-40	15-25	NP-5
	5-18	Gravelly fine sandy loam	GM, SM	A-1, A-2	0	0	55-70	50-65	35-55	20-35	15-25	NP-5
	18-60	Loam	ML, SM	A-2-4, A-4	0	0	55-90	50-85	40-70	25-55	15-25	NP-5
189:												
Mines.												
Quarries.												
190:												
Mitchell	0-7	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	80-90	50-65	20-25	5-10
	7-30	Silt loam	CL-ML	A-4	0	0	100	95-100	80-95	60-90	20-25	5-10
	30-60	Very fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	85-90	75-90	15-25	NP-5
191:												
Mitchell	0-12	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	80-90	50-65	20-25	5-10
	12-60	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	85-95	80-90	20-25	5-10
192:												
Moskee	0-11	Sandy loam	CL-ML, SM, ML, SC-SM	A-4	0	0	95-100	95-100	75-80	40-55	15-25	NP-10
	11-21	Sandy clay loam	CL, SC	A-6	0	0	95-100	95-100	85-90	40-55	30-35	15-20
	21-32	Sandy clay loam	CL, SC	A-6	0	0	95-100	95-100	85-90	45-60	25-30	10-15
	32-42	Very fine sandy loam	CL-ML, ML, SM, SC-SM	A-4	0	0	95-100	95-100	85-90	40-55	15-25	NP-10
	42-60	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	95-100	70-75	30-40	15-25	NP-10
193:												
Moskee	0-10	Fine sandy loam	CL-ML, SM, ML, SC-SM	A-4	0	0	95-100	95-100	75-80	40-55	15-25	NP-10
	10-19	Sandy clay loam	CL, SC	A-6	0	0	95-100	95-100	85-90	40-55	30-35	15-20
	19-60	Fine sandy loam	CL-ML, ML, SM, SC-SM	A-4	0	0	95-100	95-100	85-90	40-55	15-25	NP-10
194:												
Orpha	0-5	Fine sand	SM	A-2	0	0	100	95-100	70-80	15-25	0-20	NP
	5-60	Sand	SM, SP-SM	A-2	0	0	100	95-100	60-80	10-30	0-20	NP
195:												
Orpha	0-12	Loamy fine sand	SM	A-2, A-4	0	0	100	95-100	75-100	10-40	0-25	NP-5
	12-60	Loamy sand	SM, SP-SM	A-2	0	0	100	95-100	60-80	10-30	0-20	NP
Tullock	0-12	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	95-100	80-95	25-40	15-25	NP-5
	12-21	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	95-100	80-95	25-40	15-25	NP-5
	21-31	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
196:												
Phiferson	0-9	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	90-100	85-95	50-65	15-25	NP-10
	9-15	Very fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	15-30	Very fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	30-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Alice, bedrock substratum	0-10	Very fine sandy loam	CL-ML	A-4	0	0	100	100	85-95	55-65	20-25	5-10
	10-17	Very fine sandy loam	CL-ML	A-4	0	0	100	100	85-95	55-65	20-25	5-10
	17-50	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-80	40-50	15-25	NP-10
	50-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
197:												
Phiferson	0-9	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	9-16	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	16-36	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	36-46	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Mainter	0-8	Fine sandy loam	SC-SM	A-4	0	0	100	95-100	80-90	40-50	20-25	5-10
	8-20	Fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	95-100	85-95	45-60	20-25	5-10
	20-60	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-45	15-25	NP-10
198:												
Phiferson	0-8	Sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	8-19	Sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	19-30	Sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	30-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Treon	0-7	Fine sandy loam	SC-SM	A-2, A-4	0	0	90-100	85-100	65-80	30-50	20-25	5-10
	7-11	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	11-21	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
199:												
Pinelli	0-3	Loam	CL	A-6	0	0	95-100	95-100	85-95	60-75	25-35	10-15
	3-30	Clay loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	60-85	35-50	15-30
	30-60	Sandy clay loam	CL	A-6	0	0	95-100	95-100	90-95	50-75	30-40	10-20
200:												
Poposhia	0-6	Silt loam	CL	A-6	0	0	95-100	95-100	90-100	70-85	30-35	10-15
	6-60	Silt loam	CL	A-6	0	0	95-100	95-100	90-100	70-85	30-35	10-15
201:												
Poposhia	0-10	Silt loam	CL	A-6	0	0	95-100	95-100	90-100	70-85	30-35	10-15
	10-60	Silt loam	CL	A-6	0	0	95-100	95-100	90-100	70-85	30-35	10-15
Blazon	0-6	Silt loam	CL-ML	A-4	0	0	100	100	95-100	85-95	25-30	5-10
	6-13	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	65-80	25-35	5-15
	13-23	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
202:												
Poposhia	0-4	Silt loam	CL	A-6	0	0	95-100	95-100	90-100	70-85	30-35	10-15
	4-60	Silt loam	CL	A-6	0	0	95-100	95-100	90-100	70-85	30-35	10-15

Table 12.--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	
202:												
Blazon, thin solum	0-3	Silt loam	CL-ML	A-4	0	0	100	100	95-100	85-95	25-30	5-10
	3-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	65-80	25-35	5-15
	9-19	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
203:												
Poposhia	0-5	Loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	25-30	5-10
	5-60	Loam	CL	A-6	0	0	95-100	90-100	80-90	50-70	25-35	10-20
Chaperton	0-3	Clay loam	CL	A-6	0	0	95-100	90-100	75-90	45-70	25-35	10-15
	3-25	Clay loam	CL, SC	A-6	0	0	95-100	90-100	75-90	45-70	25-35	10-15
	25-35	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
204:												
Poposhia	0-2	Loam	CL-ML	A-4	0	0	95-100	90-100	80-90	55-75	25-30	5-10
	2-60	Clay loam	CL	A-6	0	0	95-100	90-100	80-90	50-70	25-35	10-20
Forelle	0-2	Fine sandy loam	SC-SM	A-2, A-4	0	0	90-100	85-100	65-80	30-50	20-30	5-10
	2-34	Sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	40-65	30-40	15-20
	34-60	Sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	35-60	30-35	10-15
205:												
Quarterback	0-1	Loam	CL-ML	A-4	0	0	100	95-100	85-95	60-75	20-30	5-10
	1-12	Sandy loam	SC-SM	A-2, A-4	0	0	100	95-100	60-70	30-40	20-25	5-10
	12-60	Fine sandy loam	SC-SM	A-2, A-4	0	0	100	85-100	65-75	25-50	20-25	5-10
206:												
Quarterback, thick surface	0-4	Sandy loam	SC-SM	A-4	0	0	100	95-100	70-80	35-50	20-25	5-10
	4-16	Coarse sandy loam	SC-SM	A-4	0	0	100	95-100	65-75	35-50	20-25	5-10
	16-60	Stratified very gravelly loamy sand to coarse sandy loam	SC-SM, SM	A-2	0	0	80-100	75-100	60-80	20-35	15-25	NP-5
Albinas	0-5	Fine sandy loam	SM	A-4	0	0	100	95-100	70-85	35-50	---	NP
	5-23	Clay loam	CL, SC	A-6	0	0	100	95-100	80-100	40-80	30-40	10-20
	23-60	Loam	CL-ML, ML	A-4	0	0	100	95-100	60-95	50-75	20-30	NP-10
207:												
Recluse	0-10	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	75-90	35-50	20-30	5-10
	10-16	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	16-30	Clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-95	60-80	35-45	15-25
	30-42	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	55-70	20-35	5-15
	42-60	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	55-70	20-35	5-15
208:												
Recluse	0-5	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-30	10-15
	5-12	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	12-16	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	16-26	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	26-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-70	20-30	NP-10

Table 12.--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	
209:												
Recluse	0-9	Loam	CL-ML	A-4	0	0	95-100	90-100	85-95	55-70	20-30	5-10
	9-20	Clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-95	60-80	35-45	15-25
	20-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-70	20-30	NP-10
210:												
Recluse	0-18	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	35-50	15-25	NP-10
	18-31	Loam	CL	A-6	0	0	95-100	90-100	85-95	60-85	25-35	10-20
	31-49	Very fine sandy loam	CL, CL-ML	A-4	0	0	95-100	90-100	85-95	50-70	20-35	5-15
	49-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-70	20-30	NP-10
Albinas	0-9	Fine sandy loam	SM	A-4	0	0	100	95-100	70-85	35-50	---	NP
	9-22	Loam	CL, SC	A-6	0	0	100	95-100	80-100	40-80	30-40	10-20
	22-60	Loam	CL-ML, ML	A-4	0	0	100	95-100	60-95	50-75	20-30	NP-10
Treon, thin solum	0-6	Cobbly fine sandy loam	SM	A-2, A-4	0	15-20	75-95	70-90	60-80	25-45	---	NP
	6-9	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	9-19	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
211:												
Recluse	0-8	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-30	10-15
	8-23	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	23-28	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	28-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-70	20-30	NP-10
Cedak	0-9	Loam	CL-ML	A-4	0	0	100	95-100	90-100	55-70	20-25	5-10
	9-20	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	90-100	40-75	30-35	10-15
	20-29	Very fine sandy loam	CL-ML, SC-SM	A-4	0	0	90-100	85-100	80-95	45-75	20-25	5-10
	29-39	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
212:												
Recluse	0-13	Loam	CL-ML	A-4	0	0	95-100	90-100	85-95	55-70	20-30	5-10
	13-18	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	18-23	Clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-95	60-80	35-45	15-25
	23-60	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	55-70	20-35	5-15
Cedak	0-8	Loam	CL-ML, CL, SC, SC-SM	A-4	0	0	100	90-100	70-85	45-60	25-30	5-10
	8-19	Clay loam	CL	A-6	0	0	100	90-100	75-95	60-80	30-40	10-20
	19-32	Very fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	90-100	70-85	45-65	20-30	5-10
	32-42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
213:												
Recluse	0-10	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-65	15-25	NP-10
	10-28	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	28-60	Very fine sandy loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-70	20-30	NP-10

Table 12.--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	
213:												
Graystone-------	0-9	Very fine sandy loam	CL-ML, ML	A-4	0	0	90-100	90-100	85-95	50-65	15-25	NP-10
	9-16	Loam	CL-ML, SM, ML, SC-SM	A-4	0	0	90-100	90-100	70-95	40-70	15-25	NP-10
	16-44	Very fine sandy loam	ML, SC-SM, CL-ML, SM	A-4	0	0	90-100	90-100	70-95	40-70	15-25	NP-10
	44-60	Very fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	90-100	90-100	80-90	40-60	15-25	NP-10
214:												
Recluse---------	0-11	Loam	CL-ML	A-4	0	0	95-100	90-100	85-95	55-70	20-30	5-10
	11-28	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	28-60	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	55-70	20-35	5-15
Nuncho----------	0-10	Loam	CL	A-6	0	0	100	95-100	75-95	55-80	25-35	10-20
	10-21	Clay loam	CL	A-7	0	0	100	95-100	85-95	65-80	40-45	20-25
	21-31	Clay loam	CL	A-7	0	0	100	95-100	85-95	65-80	40-45	20-25
	31-60	Silt loam	CL	A-6	0	0	100	95-100	70-85	65-80	25-40	10-20
215:												
Rentsac---------	0-3	Very gravelly sandy loam	GC-GM, GM	A-1, A-2	0	0-15	35-50	30-45	20-35	15-30	15-25	NP-10
	3-15	Very gravelly sandy loam	GC-GM, GM	A-1, A-2	0	0-15	35-50	30-45	20-35	15-30	15-25	NP-10
	15-25	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Brownsto--------	0-4	Very gravelly sandy loam	GC-GM	A-2	0	0-15	50-60	45-55	35-45	25-35	25-30	5-10
	4-60	Very cobbly sandy loam	GC-GM	A-2	0	25-40	55-65	50-60	40-45	25-35	25-35	5-10
Ipson-----------	0-9	Gravelly loam	GC-GM, SC-SM	A-4	0	0-5	55-85	50-80	45-75	35-50	25-30	5-10
	9-23	Very gravelly sandy clay loam	GC	A-6	0	20-40	50-70	45-65	40-60	35-45	30-40	10-20
	23-60	Very gravelly sandy loam	GC-GM	A-2	0	0-20	35-55	30-50	25-40	20-35	25-30	5-10
216:												
Riverwash.												
217:												
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
Blazon, thin solum----------	0-9	Gravelly silt loam	CL-ML	A-4	0	0	65-80	60-75	55-70	50-60	25-30	5-10
	9-19	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
218:												
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
Bonjea----------	0-3	Sandy loam	SC-SM, SM	A-2, A-4	0	0	90-100	90-100	60-90	30-40	20-30	NP-10
	3-13	Sandy clay loam	SC	A-6	0	0	70-90	65-85	50-75	35-50	30-35	10-15
	13-17	Gravelly sandy clay loam	SC, GC	A-2	0	0	75-90	35-75	25-45	15-35	30-35	10-15
	17-27	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
219:												
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
Cathedral-------	0-5	Very stony coarse sandy loam	GC-GM, GM	A-1	40-50	0-15	50-60	35-45	25-30	10-25	15-25	NP-5
	5-11	Very gravelly coarse sandy loam	GC-GM, GM	A-1	0-10	0-20	45-60	30-50	20-35	10-25	15-25	NP-5
	11-21	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
220:												
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	0-14	---
Cathedral-------	0-2	Very gravelly coarse sandy loam	GC-GM, GM	A-1	0-10	0-20	45-60	30-50	25-35	10-25	15-25	NP-5
	2-10	Very gravelly coarse sandy loam	GC-GM, GM	A-1	0-10	0-20	45-60	30-50	20-35	10-25	15-25	NP-5
	10-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Alderon---------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	85-90	55-65	20-40	15-30	NP-10
	3-8	Sandy clay loam	SC	A-2, A-6	0	0	100	85-90	45-60	30-50	30-35	10-15
	8-27	Gravelly sandy clay loam	SC	A-2	0	0	70-80	50-65	30-40	20-35	30-35	10-15
	27-39	Very gravelly coarse sandy loam	GP-GM, SM, GM, SP-SM	A-1	0	0	50-60	35-50	20-35	10-20	15-25	NP-5
	39-49	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
221:												
Selpats---------	0-7	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	95-100	80-90	30-60	25-30	5-10
	7-11	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	90-95	45-60	30-35	10-15
	11-24	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	90-95	40-60	20-30	5-10
	24-38	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	90-95	40-60	20-30	5-10
	38-60	Very gravelly sandy loam	GC-GM, GP-GC	A-1, A-2	0	0-15	35-60	30-55	25-45	10-30	15-25	5-10
222:												
Selpats---------	0-3	Loam	CL	A-6	0	0	100	95-100	90-95	55-75	30-35	10-15
	3-13	Clay loam	CL	A-6, A-7	0	0	100	95-100	90-95	55-75	30-45	10-20
	13-24	Loam	CL	A-6	0	0	100	95-100	90-95	55-75	30-35	10-15
	24-30	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-95	55-75	25-35	5-15
	30-51	Very gravelly sandy loam	GC-GM, GP-GC	A-1, A-2	0	0-15	35-60	30-55	25-45	10-30	20-30	5-10
	51-60	Very gravelly loamy sand	GC-GM, GP-GC	A-1, A-2	0	0-15	35-60	30-55	25-45	5-25	15-25	NP-10
Forkwood--------	0-8	Loam	CL, SC	A-6	0	0	95-100	90-100	85-95	40-55	30-40	10-20
	8-19	Loam	CL, SC	A-6	0	0	95-100	90-100	85-95	40-55	30-40	10-20
	19-36	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	40-50	20-25	5-10
	36-60	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	80-90	40-50	15-25	NP-10

Table 12.--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	
223:												
Selpats	0-6	Gravelly sandy loam	SC-SM	A-2, A-4	0	0-5	70-80	65-75	45-60	25-40	20-25	5-10
	6-13	Gravelly sandy clay loam	SC	A-6	0	0-5	70-80	65-75	60-70	35-45	30-35	10-15
	13-24	Gravelly sandy loam	SC-SM	A-2, A-4	0	0-5	70-80	65-75	45-60	25-40	20-25	5-10
	24-35	Sandy loam	SC-SM	A-4	0	0-5	95-100	90-100	65-80	35-50	20-25	5-10
	35-60	Very gravelly sandy loam	GM	A-1, A-2	0	5-25	40-60	35-55	25-45	15-30	15-25	NP-5
Hiland	0-6	Sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	90-100	65-75	30-40	15-25	NP-10
	6-9	Sandy clay loam	CL, SC	A-6	0	0	95-100	90-100	60-80	40-60	30-40	10-20
	9-60	Loam	CL-ML, ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-10
224:												
Snilloc	0-8	Very fine sandy loam	CL-ML, ML, SC-SM, SC	A-4	0	0	100	90-100	80-90	45-65	15-25	NP-10
	8-30	Loam	CL-ML, ML, SM	A-4	0	0	95-100	80-100	65-85	40-60	15-25	NP-10
	30-60	Sandy loam	CL-ML, ML, SM	A-4	0	0	95-100	85-95	70-85	45-65	15-25	NP-10
Chugcity	0-7	Fine sandy loam	CL-ML, ML	A-4	0	0	100	95-100	90-95	50-65	15-25	NP-10
	7-28	Loam	CL-ML	A-4	0	0	100	80-100	75-95	70-85	25-30	5-10
	28-35	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	80-100	75-95	50-70	15-25	NP-5
	35-45	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
225:												
Snilloc	0-5	Very fine sandy loam	ML, CL-ML, SC, SC-SM	A-4	0	0	100	90-100	80-90	45-65	15-25	NP-10
	5-60	Very fine sandy loam	CL-ML, ML, SM	A-4	0	0	95-100	80-100	70-85	45-65	15-25	NP-10
Recluse	0-6	Loam	CL-ML	A-4	0	0	95-100	90-100	85-95	55-70	20-30	5-10
	6-21	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-40	10-20
	21-60	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	55-70	20-35	5-15
226:												
Spearfish	0-4	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	80-100	75-95	50-65	20-30	5-15
	4-8	Loam	CL	A-6	0	0	95-100	80-100	75-95	50-65	20-30	10-15
	8-16	Loam	CL	A-6	0	0	95-100	80-100	75-95	50-65	20-30	10-15
	16-26	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Sixmile	0-4	Loam	CL	A-6	0	0	100	95-100	90-95	60-80	30-40	10-20
	4-15	Loam	CL	A-6	0	0	100	95-100	90-95	60-80	30-40	10-20
	15-28	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-80	30-40	10-20
	28-38	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
227:												
Storsun	0-4	Very gravelly loam	GC	A-2, A-6	0-5	15-25	40-60	35-50	30-45	25-40	25-30	10-15
	4-8	Very gravelly loam	GC	A-2, A-6	0-5	15-25	40-60	35-50	30-45	25-40	25-30	10-15
	8-25	Very cobbly loam	CL, GC	A-6	0-10	30-45	60-80	55-75	50-70	40-65	25-30	10-15
	25-60	Very cobbly loam	CL, GC	A-6	0-10	30-45	60-80	55-75	50-70	40-65	25-30	10-15

Table 12.--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	
227:												
Sunup	0-5	Very cobbly loam	GC, SC	A-6	0	30-45	65-85	60-80	55-75	30-50	30-35	10-15
	5-11	Very cobbly loam	GC	A-2, A-6	0	20-35	55-65	50-60	45-55	30-45	30-40	10-20
	11-21	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
228:												
Sunup	0-2	Very cobbly fine sandy loam	SC-SM	A-4	0	50-60	75-90	70-85	60-75	35-50	25-30	5-10
	2-10	Very cobbly loam	GC	A-2, A-6	0	20-35	55-65	50-60	45-55	30-45	30-40	10-20
	10-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
229:												
Sunup	0-4	Very channery fine sandy loam	SC-SM	A-4	0	65-75	95-100	90-100	80-90	40-50	25-30	5-10
	4-17	Very channery loam	GC	A-2, A-6	0	20-35	55-65	50-60	45-55	30-45	30-40	10-20
	17-27	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Snavee	0-4	Extremely channery loam	GC-GM, GM	A-2, A-4	0-15	55-70	50-65	45-60	40-55	30-40	15-25	NP-10
	4-9	Extremely flaggy loam	CL-ML	A-4	0-15	65-80	95-100	90-100	85-95	55-70	20-25	5-10
	9-60	Extremely flaggy loam	CL-ML, ML	A-4	0-15	65-80	95-100	90-100	85-95	55-70	15-25	NP-10
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
230:												
Sweatbee	0-11	Fine sandy loam	SC, SC-SM	A-4	0	0	95-100	90-100	80-85	35-45	25-30	5-10
	11-26	Fine sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	70-80	30-45	20-30	5-10
	26-60	Very gravelly sandy loam	GM	A-1	0	5-15	50-60	45-55	35-45	15-25	---	NP
231:												
Sweatbee, wet	0-3	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-90	35-50	20-30	5-10
	3-32	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-95	75-85	35-50	15-30	NP-10
	32-39	Sandy loam	SM	A-2, A-4	0	0	85-95	80-90	60-70	25-40	15-25	NP-5
	39-60	Very gravelly sandy loam	GM, SM	A-1, A-2	0	10-15	45-65	40-60	30-45	15-30	15-25	NP-5
232:												
Sweatbee	0-11	Sandy clay loam	SC	A-6	0	0	95-100	90-100	85-95	40-50	30-40	10-20
	11-17	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	70-80	30-45	20-30	5-10
	17-22	Gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0	60-65	55-60	40-45	20-25	20-30	5-10
	22-35	Very gravelly sandy loam	GM	A-1	0	5-15	50-60	45-55	35-45	15-25	---	NP
	35-60	Very gravelly sand	GM, SM	A-1	0	10-15	50-60	45-55	35-45	15-20	---	NP

Table 12.--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	
232:												
Numa	0-10	Sandy clay loam	CL, SC	A-6	0	0	100	95-100	85-95	45-55	30-35	10-15
	10-30	Sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	40-55	25-35	10-15
	30-60	Fine sandy loam	SC-SM	A-4	0	0	90-100	85-100	75-90	35-50	20-25	5-10
233:												
Taluce, thin solum	0-2	Gravelly fine sandy loam	SC-SM, SM	A-1, A-2, A-4	0	0	65-85	60-80	45-65	20-45	15-25	NP-10
	2-10	Gravelly fine sandy loam	SC-SM, SM	A-1, A-2, A-4	0	0	65-85	60-80	45-65	20-45	15-25	NP-10
	10-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
234:												
Taluce, thin solum	0-1	Gravelly fine sandy loam	SC-SM, SM	A-1, A-4, A-2	0	0	65-85	60-80	45-65	20-45	15-25	NP-10
	1-5	Gravelly fine sandy loam	SC-SM, SM	A-1, A-2, A-4	0	0	65-85	60-80	45-65	20-45	15-25	NP-10
	5-15	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Keeline	0-4	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	4-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
235:												
Taluce, thin solum	0-3	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	3-9	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	9-19	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
Turnercrest	0-12	Very fine sandy loam	CL-ML	A-4	0	0	100	95-100	90-100	55-70	20-25	5-10
	12-25	Very fine sandy loam	ML, SM	A-4	0	0	100	100	65-90	35-60	15-25	NP-5
	25-35	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
236:												
Taluce	0-4	Sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	4-12	Sandy loam	GC-GM, GM, SM, SC-SM	A-2, A-4	0	0	65-85	60-80	45-65	20-45	15-30	NP-10
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
Turnercrest	0-5	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	---	NP
	5-12	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	15-25	NP-5
	12-34	Fine sandy loam	ML, SM	A-4	0	0	100	100	65-90	35-60	15-25	NP-5
	34-44	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
237:												
Taluce	0-6	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	6-11	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	90-100	85-95	50-65	15-25	NP-10
	11-21	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
Turnercrest	0-10	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	---	NP
	10-17	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	15-25	NP-5
	17-36	Fine sandy loam	ML, SM	A-4	0	0	100	100	65-90	35-60	15-25	NP-5
	36-46	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
238:												
Taluce	0-6	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	6-17	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	17-27	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Taluce, thin solum	0-6	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	6-16	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
239:												
Taluce	0-6	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	6-17	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	17-27	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Taluce, thin solum	0-3	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	3-7	Sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	7-17	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Turnercrest	0-6	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	---	NP
	6-28	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	15-25	NP-5
	28-38	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
240:												
Taluce, thin solum	0-5	Sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	5-9	Gravelly sandy loam	GM, SC-SM, GC-GM, SM	A-2, A-4	0	0	65-85	60-80	45-65	20-45	15-30	NP-10
	9-19	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Treon, thin solum	0-5	Fine sandy loam	SC-SM	A-2, A-4	0	0	90-100	85-100	65-80	30-50	20-25	5-10
	5-10	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	10-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
241:												
Taluce	0-8	Sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	8-19	Gravelly sandy loam	GC-GM, SM, GM, SC-SM	A-2, A-4	0	0	65-85	60-80	45-65	20-45	15-30	NP-10
	19-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Turnercrest	0-7	Sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	---	NP
	7-24	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	15-25	NP-5
	24-34	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
242:												
Taluce	0-4	Fine sandy loam	SM	A-4	0	0	95-100	90-100	70-85	35-50	20-30	NP-5
	4-14	Fine sandy loam	CL-ML, ML, SM, SC-SM	A-2, A-4	0	0	95-100	90-100	60-85	25-55	15-25	NP-10
	14-24	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Turnercrest	0-12	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	---	NP
	12-29	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	15-25	NP-5
	29-39	Fine sandy loam	ML, SM	A-4	0	0	100	100	65-90	35-60	15-25	NP-5
	39-49	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Keeline	0-3	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	3-60	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
243:												
Torriorthents, gullied.												
Gullied land.												
244:												
Treon	0-7	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	75-100	75-100	55-95	25-50	20-30	NP-10
	7-19	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	75-100	75-100	55-95	25-50	20-30	NP-10
	19-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Aberone	0-8	Fine sandy loam	SM	A-4	0	0	90-100	90-100	60-80	35-45	---	NP
	8-60	Very gravelly sandy loam	GC-GM, GM, GP-GM	A-1, A-2	0	25-45	30-60	15-50	10-45	5-35	15-30	NP-10
245:												
Treon	0-8	Gravelly fine sandy loam	GM, SM	A-2, A-4	0	0-5	60-75	55-70	50-60	30-40	---	NP
	8-15	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	15-25	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Alice	0-9	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	9-18	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	75-85	40-50	15-25	NP-10
	18-31	Fine sandy loam	SC-SM, SM	A-4	0	0	90-100	85-100	70-85	35-55	15-25	NP-10
	31-60	Very fine sandy loam	CL-ML, SC-SM	A-4	0	0	100	100	70-95	40-65	20-25	5-10
Phiferson	0-6	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	6-11	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	11-23	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	23-33	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 12.--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	
246:												
Treon	0-6	Fine sandy loam	SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	6-19	Gravelly fine sandy loam	SM	A-2, A-4	0	0	65-80	60-75	50-65	25-40	---	NP
	19-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
247:												
Treon, thin solum	0-7	Fine sandy loam	SC-SM	A-2, A-4	0	0	90-100	85-100	65-80	30-50	20-25	5-10
	7-10	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	10-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Phiferson	0-7	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	7-16	Very fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	16-23	Very fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	23-33	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Keeline	0-7	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	60-75	25-40	15-25	NP-5
	7-41	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
	41-60	Very fine sandy loam	ML, SC-SM, CL-ML, SM	A-4	0	0	100	95-100	85-95	45-65	15-30	NP-10
248:												
Trimad	0-7	Loam	CL	A-6	0	0	95-100	90-100	85-90	65-80	30-35	10-15
	7-25	Gravelly loam	SC-SM	A-2, A-4	0	0-5	85-95	50-70	40-55	25-45	20-30	5-10
	25-60	Very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-30	40-75	35-50	30-40	15-25	20-25	5-10
Blazon	0-4	Silt loam	CL-ML	A-4	0	0	100	100	95-100	85-95	25-30	5-10
	4-10	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	65-80	25-35	5-15
	10-20	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
249:												
Trimad	0-8	Gravelly loam	SC-SM	A-2, A-4	0	0-5	85-95	50-70	40-55	25-45	20-30	5-10
	8-60	Very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-30	40-75	35-50	30-40	15-25	20-25	5-10
Evanston	0-8	Loam	CL-ML	A-4	0	0	95-100	95-100	70-85	50-70	25-30	5-10
	8-23	Clay loam	CL	A-6	0	0	100	95-100	85-95	55-70	25-40	10-20
	23-60	Loam	CL	A-6	0	0	100	95-100	85-95	50-65	25-35	10-15
250:												
Trimad	0-8	Loam	CL-ML	A-4	0	0	95-100	90-100	70-85	65-75	20-30	5-10
	8-14	Gravelly loam	SC-SM	A-2, A-4	0	0-5	85-95	50-70	40-55	25-45	20-30	5-10
	14-60	Very gravelly loam	GC-GM, SC-SM	A-1, A-2	0	0-35	40-75	35-50	30-40	20-35	20-30	5-10
Weed	0-3	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	75-95	55-75	25-35	5-15
	3-9	Sandy clay loam	CL, SC	A-6, A-7	0	0	90-100	85-95	75-90	35-60	35-45	15-20
	9-27	Clay loam	CL, SC	A-6, A-7	0	0	90-100	85-95	75-90	45-60	35-45	15-20
	27-60	Sandy loam	CL, CL-ML, SC-SM, SC	A-4, A-6	0	0	95-100	90-100	70-95	40-60	25-35	5-15

Table 12.--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	
250:												
Blazon	0-2	Gravelly silt loam	CL-ML	A-4	0	0	65-80	60-75	55-70	50-60	25-30	5-10
	2-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	65-80	25-35	5-15
	15-25	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
251:												
Turnercrest	0-7	Fine sandy loam	SM	A-2, A-4	0	0	100	100	60-80	30-45	---	NP
	7-38	Fine sandy loam	ML, SM	A-4	0	0	100	100	65-90	35-60	15-25	NP-5
	38-48	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Phiferson	0-10	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	10-18	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	18-34	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	34-44	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Taluce	0-7	Sandy loam	SC-SM, SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-10
	7-18	Sandy loam	GM, GC-GM, SC-SM, SM	A-2, A-4	0	0	65-85	60-80	45-65	20-45	15-30	NP-10
	18-28	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
252:												
Typic Calciaquolls	0-5	Fine sandy loam	SC-SM	A-4	0	0	95-100	90-100	80-85	35-45	25-30	5-10
	5-22	Sandy clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	75-85	65-75	20-30	5-15
	22-60	Fine sandy loam	SC, SC-SM	A-4, A-6	0	0	95-100	90-100	75-85	35-45	20-30	5-15
Whetsoon	0-4	Fine sandy loam	SC-SM, SM	A-4	0	0	95-100	90-100	70-85	35-50	15-25	NP-10
	4-11	Loam	CL	A-6	0	0	95-100	90-100	85-95	55-70	25-35	10-15
	11-27	Clay loam	CL, SC	A-6	0	0	95-100	90-100	75-90	45-65	30-40	10-20
	27-40	Clay loam	CL	A-6	0	0	95-100	90-100	80-90	50-70	25-40	10-20
	40-60	Loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-90	50-70	15-25	NP-10
253:												
Tyzak	0-3	Extremely channery loam	GC, GC-GM	A-2	0-5	45-50	40-50	35-45	30-40	20-35	25-35	5-15
	3-11	Extremely channery loam	GC, GC-GM	A-2	0-5	45-50	40-50	35-45	30-40	20-35	25-35	5-15
	11-21	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Tyzak, thin solum	0-3	Extremely channery loam	GC, GC-GM	A-2	0-5	45-50	40-50	35-45	30-40	20-35	25-35	5-15
	3-7	Extremely channery loam	GC, GC-GM	A-2	0-5	45-50	40-50	35-45	30-40	20-35	25-35	5-15
	7-17	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---
254:												
Valent	0-10	Loamy fine sand	SM	A-2, A-4	0	0	100	100	90-95	30-40	0-14	NP
	10-60	Loamy fine sand	SM	A-2, A-4	0	0	100	100	90-95	30-40	0-14	NP
255:												
Vetal	0-10	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	85-95	30-40	15-25	NP-10
	10-34	Fine sandy loam	SC-SM	A-4	0	0	100	100	85-95	35-45	20-25	5-10
	34-60	Fine sandy loam	SM	A-4	0	0	100	100	85-95	35-45	15-25	NP-5

Table 12.--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	
256:												
Vetal	0-9	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	85-95	30-40	15-25	NP-10
	9-39	Fine sandy loam	SC-SM	A-4	0	0	100	100	85-95	35-45	20-25	5-10
	39-60	Fine sandy loam	SM	A-4	0	0	100	100	85-95	35-45	15-25	NP-5
Julesburg	0-6	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	85-90	35-50	15-30	NP-10
	6-15	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	85-90	35-50	15-30	NP-10
	15-31	Fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0	100	95-100	85-90	45-55	20-30	NP-10
	31-50	Fine sandy loam	SM	A-2, A-4	0	0	100	95-100	85-90	30-50	---	NP
	50-60	Very fine sandy loam	SM	A-2, A-4	0	0	100	95-100	85-90	30-50	---	NP
257:												
Vetal	0-24	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	85-95	30-40	15-25	NP-10
	24-36	Fine sandy loam	SC-SM	A-4	0	0	100	100	85-95	35-45	20-25	5-10
	36-60	Fine sandy loam	SM	A-4	0	0	100	100	85-95	35-45	15-25	NP-5
Treon	0-5	Sandy loam	SM	A-2, A-4	0	0	90-100	85-100	70-75	30-40	---	NP
	5-14	Fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	70-85	35-60	15-25	NP-5
	14-24	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Phiferson	0-10	Fine sandy loam	SC-SM, SM	A-4	0	0	100	90-100	75-95	35-50	15-25	NP-10
	10-24	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	24-33	Sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	90-100	60-95	30-60	20-25	5-10
	33-43	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
258:												
Vonalee	0-6	Fine sandy loam	SM	A-4	0	0	100	95-100	85-90	35-50	15-25	NP-5
	6-18	Fine sandy loam	SC-SM, SM	A-4	0	0	100	95-100	85-90	35-50	15-25	NP-10
	18-60	Fine sandy loam	SM	A-4	0	0	100	95-100	85-90	40-50	15-25	NP-5
259:												
Wagonhound	0-3	Loam	CL-ML	A-4	0	0-15	100	95-100	85-95	60-70	25-30	5-10
	3-15	Sandy clay loam	CL	A-6	0	0	90-100	85-100	80-95	50-60	30-35	10-15
	15-60	Loam	CL-ML	A-4	0	0	90-100	85-100	70-80	50-65	25-30	5-10
Selpats	0-3	Fine sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	100	95-100	80-90	30-60	25-30	5-10
	3-12	Loam	CL	A-6	0	0	100	95-100	90-95	55-75	30-35	10-15
	12-18	Loam	CL	A-6	0	0	100	95-100	90-95	55-75	30-35	10-15
	18-35	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-95	55-75	25-35	5-15
	35-50	Very gravelly sandy loam	GC-GM, GP-GC	A-1, A-2	0	0-15	35-60	30-55	25-45	10-30	20-30	5-10
	50-60	Very gravelly loamy sand	GC-GM, GP-GC	A-1, A-2	0	0-15	35-60	30-55	25-45	5-25	15-25	NP-10
260:												
Water.												
261:												
Water.												
262:												
Weed	0-6	Loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	75-95	55-75	25-35	5-15
	6-14	Sandy clay loam	CL, SC	A-6, A-7	0	0	90-100	85-95	75-90	35-60	35-45	15-20
	14-28	Clay loam	CL, SC	A-6, A-7	0	0	90-100	85-95	75-90	45-60	35-45	15-20
	28-60	Sandy clay loam	CL, SC	A-6, A-7	0	0	90-100	85-95	75-90	35-60	35-45	15-20

Table 12.--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	
263:												
Wendover	0-6	Very cobbly fine sandy loam	SC-SM, SM	A-2	0-1	40-55	75-85	65-75	45-55	25-35	15-25	NP-10
	6-12	Very cobbly loam	CL, SC-SM, CL-ML, SC	A-4, A-6	0-5	40-55	85-95	75-85	65-70	45-55	20-30	5-15
	12-18	Very cobbly loam	CL-ML, SC, CL, SC-SM	A-4, A-6	0-5	40-55	85-95	75-85	65-70	45-55	20-30	5-15
	18-28	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	0-14	---

Table 13.--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.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
100:												
Aberone	0-7	10-15	1.30-1.40	2.00-6.00	0.08-0.10	0.0-2.9	1.0-2.0	.15	.28	3	4	86
	7-10	10-15	1.30-1.40	2.00-6.00	0.08-0.10	0.0-2.9	0.5-1.0	.15	.28			
	10-60	10-18	1.35-1.45	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.10	.32			
101:												
Aberone	0-8	10-15	1.30-1.40	2.00-6.00	0.08-0.10	0.0-2.9	1.0-2.0	.15	.28	3	4	86
	8-60	10-18	1.35-1.45	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.10	.32			
Cragola	0-3	12-18	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.6-1.0	.10	.28	2	5	56
	3-18	10-18	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.10	.28			
	18-28	---	---	0.00-0.01	---	---	---	---	---			
102:												
Albinas	0-3	15-20	1.15-1.25	0.60-2.00	0.16-0.18	0.0-2.9	3.0-6.0	.24	.24	5	5	56
	3-25	20-35	1.25-1.40	0.60-2.00	0.16-0.19	3.0-5.9	2.0-4.0	.24	.24			
	25-60	10-20	1.25-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
103:												
Alice	0-7	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	7-13	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32			
	13-18	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32			
	18-38	6-14	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.24	.24			
	38-60	6-14	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.24	.24			
Bayard	0-8	7-16	1.25-1.35	2.00-6.00	0.13-0.14	0.0-2.9	2.0-3.0	.32	.32	5	3	86
	8-16	7-16	1.25-1.35	2.00-6.00	0.13-0.14	0.0-2.9	2.0-3.0	.32	.32			
	16-23	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
	23-60	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
104:												
Alice	0-13	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	13-28	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32			
	28-60	6-14	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.24	.24			
Phiferson	0-8	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	8-23	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	23-30	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	30-40	---	---	0.00-0.01	---	---	---	---	---			
105:												
Alice	0-6	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	6-13	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32			
	13-24	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32			
	24-32	6-14	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.24	.24			
	32-60	6-14	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.24	.24			
Recluse	0-6	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	6-25	18-30	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
	25-39	10-20	1.40-1.50	2.00-6.00	0.15-0.17	3.0-5.9	0.1-0.5	.49	.49			
	39-60	8-18	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.49	.49			
Cedak	0-6	10-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	6-20	20-30	1.30-1.40	0.60-2.00	0.15-0.18	3.0-5.9	0.0-1.0	.37	.37			
	20-30	13-18	1.30-1.40	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
	30-40	---	---	0.00-0.01	---	---	---	---	---			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
106:												
Bayard	0-13	7-16	1.25-1.35	2.00-6.00	0.13-0.14	0.0-2.9	2.0-3.0	.32	.32	5	3	86
	13-60	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
107:												
Bayard	0-10	10-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-3.0	.28	.28	5	3	86
	10-29	10-18	1.40-1.50	2.00-6.00	0.13-0.16	0.0-2.9	0.5-1.0	.32	.32			
	29-60	8-18	1.40-1.50	2.00-6.00	0.10-0.13	0.0-2.9	0.0-0.5	.32	.32			
108:												
Bayard	0-13	7-16	1.25-1.35	2.00-6.00	0.13-0.14	0.0-2.9	2.0-3.0	.32	.32	5	3	86
	13-60	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
Phiferson	0-12	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	12-20	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	20-26	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	26-36	---	---	0.00-0.01	---	---	---	---	---			
Treon, thin solum	0-5	8-14	1.25-1.35	2.00-6.00	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28	2	4	86
	5-8	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	8-18	---	---	0.00-0.01	---	---	---	---	---			
109:												
Bayard	0-13	7-16	1.25-1.35	2.00-6.00	0.13-0.14	0.0-2.9	2.0-3.0	.32	.32	5	3	86
	13-60	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
Phiferson	0-3	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	3-12	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	12-23	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	23-33	---	---	0.00-0.01	---	---	---	---	---			
Treon, thin solum	0-6	12-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.32	2	3	86
	6-16	---	---	0.00-0.01	---	---	---	---	---			
110:												
Blackhall	0-2	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	2-16	5-15	1.40-1.50	2.00-6.00	0.10-0.14	0.0-2.9	0.0-0.5	.32	.32			
	16-26	---	---	0.00-0.01	---	---	---	---	---			
Satanka	0-4	5-15	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	4-9	20-30	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	9-35	17-25	1.35-1.45	0.60-2.00	0.12-0.14	0.0-2.9	0.5-1.0	.37	.37			
	35-45	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
111:												
Blazon	0-4	18-27	1.05-1.15	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.37	.37	2	4L	86
	4-12	18-27	1.20-1.30	0.60-2.00	0.17-0.20	0.0-2.9	0.0-0.5	.37	.37			
	12-22	---	---	0.00-0.01	---	---	---	---	---			
Trimad	0-10	10-20	1.10-1.20	1.98-5.95	0.16-0.18	0.0-2.9	1.0-3.0	.32	.32	3	4L	86
	10-60	10-20	1.25-1.30	2.00-6.00	0.07-0.10	0.0-2.9	0.0-0.5	.10	.37			
112:												
Bonjea	0-3	10-20	1.25-1.35	2.00-5.99	0.11-0.14	0.0-2.9	2.0-4.0	.24	.24	1	3	86
	3-11	20-30	1.25-1.40	0.60-2.00	0.12-0.14	3.0-5.9	1.0-3.0	.28	.28			
	11-16	20-30	1.25-1.40	0.60-2.00	0.07-0.12	3.0-5.9	0.5-1.0	.17	.37			
	16-26	---	---	0.00-0.00	---	---	---	---	---			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
112:												
Chugcreek-------	0-4	12-15	1.25-1.35	2.00-6.00	0.11-0.12	0.0-2.9	2.0-5.0	.24	.24	2	3	86
	4-19	15-20	1.35-1.45	2.00-6.00	0.11-0.12	0.0-2.9	1.0-2.0	.20	.20			
	19-29	24-35	1.25-1.35	0.60-2.00	0.13-0.19	3.0-5.9	0.5-1.0	.32	.32			
	29-38	24-35	1.25-1.35	0.60-2.00	0.12-0.16	3.0-5.9	0.5-1.0	.17	.28			
	38-48	---	---	0.00-0.00	---	---	---	---	---			
113:												
Bonjea----------	0-4	10-20	1.25-1.35	2.00-5.99	0.11-0.14	0.0-2.9	2.0-4.0	.24	.24	1	3	86
	4-10	20-30	1.25-1.40	0.60-2.00	0.12-0.14	3.0-5.9	1.0-3.0	.28	.28			
	10-15	20-30	1.25-1.40	0.60-2.00	0.07-0.12	3.0-5.9	0.5-1.0	.17	.37			
	15-25	---	---	0.00-0.00	---	---	---	---	---			
Rock outcrop----	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
Chugcreek-------	0-5	12-15	1.25-1.35	2.00-6.00	0.11-0.12	0.0-2.9	2.0-5.0	.24	.24	2	3	86
	5-34	24-35	1.25-1.35	0.60-2.00	0.13-0.19	3.0-5.9	0.5-1.0	.32	.32			
	34-36	24-35	1.25-1.35	0.60-2.00	0.12-0.16	3.0-5.9	0.5-1.0	.17	.28			
	36-46	---	---	0.00-0.00	---	---	---	---	---			
114:												
Boyle-----------	0-7	10-17	1.25-1.35	2.00-6.00	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28	1	4	86
	7-15	20-30	1.30-1.40	0.60-2.00	0.06-0.10	3.0-5.9	1.0-2.0	.10	.32			
	15-18	20-30	1.30-1.40	0.60-2.00	0.06-0.10	3.0-5.9	0.5-1.0	.10	.32			
	18-28	---	---	0.00-0.01	---	---	---	---	---			
Boyle, thin solum----------	0-4	10-17	1.25-1.35	2.00-6.00	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28	1	4	86
	4-7	20-30	1.30-1.40	0.60-2.00	0.06-0.10	3.0-5.9	1.0-2.0	.10	.32			
	7-17	---	---	0.00-0.01	---	---	---	---	---			
115:												
Boyle, thin solum----------	0-4	10-20	1.10-1.25	2.00-6.00	0.13-0.15	0.0-2.9	2.0-4.0	.20	.32	2	7	38
	4-8	22-30	1.30-1.40	0.60-2.00	0.10-0.12	3.0-5.9	2.0-4.0	.10	.37			
	8-18	---	---	0.00-0.01	---	---	---	---	---			
Breece----------	0-5	15-20	1.35-1.40	2.00-6.00	0.11-0.14	0.0-2.9	2.0-5.0	.20	.20	5	3	86
	5-25	13-18	1.40-1.45	2.00-6.00	0.09-0.12	0.0-2.9	2.0-5.0	.17	.28			
	25-60	13-18	1.40-1.45	2.00-6.00	0.07-0.09	0.0-2.9	1.0-2.0	.10	.20			
Cathedral-------	0-7	10-20	1.10-1.20	0.60-2.00	0.12-0.14	0.0-2.9	1.0-2.0	.17	.37	1	7	38
	7-13	12-18	1.35-1.40	2.00-6.00	0.05-0.08	0.0-2.9	1.0-2.0	.05	.20			
	13-23	---	---	0.00-0.00	---	---	---	---	---			
116:												
Boyle-----------	0-8	10-17	1.25-1.35	2.00-6.00	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28	1	4	86
	8-12	20-30	1.30-1.40	0.60-2.00	0.06-0.10	3.0-5.9	1.0-2.0	.10	.32			
	12-18	20-30	1.30-1.40	0.60-2.00	0.06-0.10	3.0-5.9	0.5-1.0	.10	.32			
	18-28	---	---	0.00-0.01	---	---	---	---	---			
Lininger--------	0-8	12-20	1.20-1.30	1.98-5.95	0.16-0.18	0.0-2.9	3.0-5.0	.28	.28	3	5	56
	8-12	20-30	1.25-1.35	0.60-2.00	0.14-0.17	3.0-5.9	2.0-4.0	.28	.28			
	12-24	20-30	1.30-1.40	0.60-2.00	0.11-0.13	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	0.00-0.01	---	---	---	---	---			
117:												
Boyle-----------	0-6	10-17	1.25-1.35	2.00-6.00	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28	1	4	86
	6-12	20-30	1.30-1.40	0.60-2.00	0.06-0.10	3.0-5.9	1.0-2.0	.10	.32			
	12-22	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop----	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
118:												
Boyle	0-7	10-20	1.10-1.25	2.00-6.00	0.13-0.15	0.0-2.9	2.0-4.0	.20	.32	2	7	38
	7-15	22-30	1.30-1.40	0.60-2.00	0.10-0.12	3.0-5.9	2.0-4.0	.10	.37			
	15-25	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
Cathedral	0-7	10-20	1.10-1.20	0.60-2.00	0.12-0.14	0.0-2.9	1.0-2.0	.17	.37	1	7	38
	7-13	12-18	1.35-1.40	2.00-6.00	0.05-0.08	0.0-2.9	1.0-2.0	.05	.20			
	13-23	---	---	0.00-0.00	---	---	---	---	---			
119:												
Brown	0-4	10-20	1.25-1.35	2.00-6.00	0.05-0.07	0.0-2.9	1.0-3.0	.10	.28	2	5	56
	4-19	20-30	1.25-1.40	0.60-2.00	0.08-0.10	3.0-5.9	0.1-0.5	.10	.32			
	19-29	---	---	0.00-0.01	---	---	---	---	---			
Featherlegs	0-5	10-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	5-16	22-30	1.25-1.40	0.60-2.00	0.10-0.12	3.0-5.9	1.0-2.0	.20	.32			
	16-26	10-18	1.35-1.50	2.00-6.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.28			
	26-60	10-18	1.35-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.1-0.5	.10	.28			
Recluse	0-3	16-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	3-10	22-30	1.25-1.40	0.60-2.00	0.14-0.16	3.0-5.9	1.0-2.0	.32	.32			
	10-60	20-25	1.25-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
120:												
Byrnie	0-3	5-18	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	1.0-2.0	.24	.24	2	3	86
	3-11	5-18	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	0.0-1.0	.24	.24			
	11-21	---	---	0.00-0.01	---	---	---	---	---			
Byrnie, thin solum	0-3	5-18	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	1.0-2.0	.24	.24	2	3	86
	3-7	5-18	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	0.0-1.0	.24	.24			
	7-17	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
121:												
Byrnie	0-2	5-18	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	1.0-2.0	.24	.24	2	3	86
	2-11	5-18	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	0.0-1.0	.24	.24			
	11-21	---	---	0.00-0.01	---	---	---	---	---			
Coocreek	0-5	18-25	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	1.0-2.0	.43	.43	5	4L	86
	5-12	18-25	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
	12-60	18-25	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.0-0.5	.43	.43			
Byrnie, thin solum	0-2	5-18	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	1.0-2.0	.24	.24	2	3	86
	2-4	5-18	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	0.0-1.0	.24	.24			
	4-14	---	---	0.00-0.01	---	---	---	---	---			
122:												
Cascajo	0-9	5-15	1.35-1.45	2.00-6.00	0.10-0.12	0.0-2.9	0.5-1.0	.15	.28	5	4	86
	9-19	2-10	1.40-1.50	5.95-19.98	0.02-0.05	0.0-2.9	0.1-0.5	.05	.15			
	19-60	2-10	1.45-1.55	5.95-19.98	0.02-0.05	0.0-2.9	0.1-0.5	.05	.15			
Taluce	0-10	10-16	1.30-1.40	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.20	.32	2	4	86
	10-16	10-16	1.40-1.50	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.20	.32			
	16-26	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
123:												
Cathedral	0-3	5-18	1.20-1.25	1.98-5.95	0.08-0.09	0.0-2.9	2.0-4.0	.17	.28	1	4	86
	3-14	5-18	1.40-1.50	5.95-19.98	0.05-0.07	0.0-2.9	0.5-1.0	.05	.28			
	14-24	---	---	0.00-0.00	---	---	---	---	---			
Spinekop	0-3	10-20	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	3-15	18-35	1.20-1.30	0.60-2.00	0.17-0.20	3.0-5.9	0.5-1.0	.37	.37			
	15-60	16-24	1.30-1.40	0.60-2.00	0.15-0.17	0.0-2.9	0.0-0.5	.37	.37			
Rock outcrop	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
124:												
Cedak	0-8	12-15	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	8-30	20-30	1.30-1.40	0.60-2.00	0.15-0.18	3.0-5.9	0.0-1.0	.37	.37			
	30-37	13-18	1.30-1.40	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
	37-47	---	---	0.00-0.01	---	---	---	---	---			
Bayard	0-12	7-16	1.25-1.35	2.00-6.00	0.13-0.14	0.0-2.9	2.0-3.0	.32	.32	5	3	86
	12-60	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
Treon, thin solum	0-5	8-14	1.25-1.35	2.00-6.00	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28	2	4	86
	5-8	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	8-18	---	---	0.00-0.01	---	---	---	---	---			
125:												
Cedak	0-9	10-18	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-19	20-30	1.30-1.40	0.60-2.00	0.15-0.18	3.0-5.9	0.0-1.0	.37	.37			
	19-30	13-18	1.30-1.40	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
	30-37	5-16	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.0-0.0	.32	.32			
	37-47	---	---	0.00-0.01	---	---	---	---	---			
Recluse	0-9	8-18	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	9-20	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	20-35	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
	35-60	8-18	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.49	.49			
126:												
Cedak	0-8	10-18	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	8-13	20-30	1.30-1.40	0.60-2.00	0.15-0.18	3.0-5.9	0.0-1.0	.37	.37			
	13-24	13-18	1.30-1.40	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
	24-34	---	---	0.00-0.01	---	---	---	---	---			
Recluse	0-8	8-18	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	8-12	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	12-20	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
	20-60	8-18	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.49	.49			
Treon	0-7	10-16	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.37	.37	2	3	86
	7-16	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	16-26	---	---	0.00-0.01	---	---	---	---	---			
127:												
Cedak	0-7	10-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	7-12	20-30	1.30-1.40	0.60-2.00	0.15-0.18	3.0-5.9	0.0-1.0	.37	.37			
	12-32	13-18	1.30-1.40	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
	32-42	---	---	0.00-0.01	---	---	---	---	---			
Treon	0-9	12-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	2	3	86
	9-19	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	19-29	---	---	0.00-0.01	---	---	---	---	---			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
128:												
Chaperton, moderately saline	0-4	18-25	1.15-1.25	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.32	.32	3	5	56
	4-16	18-25	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.32	.32			
	16-35	18-25	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.32	.32			
	35-45	---	---	0.00-0.01	---	---	---	---	---			
Blazon	0-2	27-35	1.20-1.30	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37	2	4L	86
	2-16	27-35	1.25-1.35	0.60-2.00	0.16-0.20	3.0-5.9	0.0-0.5	.37	.37			
	16-26	---	---	0.00-0.01	---	---	---	---	---			
129:												
Claprych	0-9	8-18	1.35-1.45	2.00-6.00	0.10-0.12	0.0-2.9	0.5-1.0	.20	.32	5	4	86
	9-18	8-18	1.35-1.45	2.00-6.00	0.10-0.12	0.0-2.9	0.5-1.0	.20	.32			
	18-60	5-15	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.10	.28			
130:												
Claprych	0-3	8-18	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.5-1.0	.10	.24	5	5	56
	3-60	5-15	1.45-1.55	2.00-6.00	0.05-0.07	0.0-2.9	0.1-0.5	.10	.32			
Luman	0-2	8-15	1.30-1.50	2.00-6.00	0.07-0.10	0.0-2.9	0.5-1.0	.10	.24	5	5	56
	2-8	25-35	1.20-1.40	0.60-2.00	0.12-0.15	3.0-5.9	0.5-1.0	.20	.32			
	8-12	15-25	1.20-1.40	0.60-2.00	0.10-0.13	3.0-5.9	0.1-0.5	.20	.32			
	12-60	8-15	1.30-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.1-0.5	.10	.28			
131:												
Claprych	0-8	20-30	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.28	.28	3	5	56
	8-17	20-30	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	17-30	5-15	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.10	.28			
	30-60	5-12	1.45-1.55	5.95-19.98	0.04-0.06	0.0-2.9	0.1-0.5	.05	.28			
Selpats	0-10	20-26	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.28	.28	4	5	56
	10-14	22-32	1.30-1.40	0.20-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	14-19	22-32	1.30-1.40	0.20-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	19-24	22-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.32	.32			
	24-60	12-18	1.40-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.1-0.5	.10	.28			
132:												
Claprych	0-4	8-18	1.40-1.50	2.00-6.00	0.07-0.09	0.0-2.9	0.5-1.0	.10	.32	4	5	56
	4-30	5-15	1.45-1.55	2.00-6.00	0.05-0.07	0.0-2.9	0.1-0.5	.10	.32			
	30-60	5-10	1.45-1.55	5.95-19.98	0.03-0.05	0.0-2.9	0.1-0.5	.05	.17			
Sweatbee	0-7	12-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	4	3	86
	7-36	12-18	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.32	.32			
	36-60	5-12	1.45-1.55	1.98-5.95	0.04-0.07	0.0-2.9	0.1-0.5	.10	.28			
133:												
Clarkelen	0-2	8-13	1.15-1.25	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	2-8	8-13	1.20-1.30	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.37	.37			
	8-23	8-13	1.25-1.35	2.00-6.00	0.16-0.18	0.0-2.9	0.1-0.5	.37	.37			
	23-42	10-15	1.40-1.50	2.00-6.00	0.07-0.09	0.0-2.9	0.1-0.5	.15	.28			
	42-60	12-17	1.20-1.30	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
Quarterback	0-2	5-15	1.40-1.50	2.00-6.00	0.15-0.16	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	2-11	10-20	1.30-1.40	0.60-2.00	0.16-0.17	0.0-2.9	1.0-2.0	.37	.37			
	11-60	10-18	1.35-1.45	0.60-2.00	0.10-0.14	0.0-2.9	0.5-1.0	.28	.28			
134:												
Clarkelen, wet	0-10	12-17	1.15-1.25	1.98-5.95	0.16-0.18	0.0-2.9	0.5-1.0	.43	.43	4	4L	86
	10-51	8-17	1.35-1.45	2.00-6.00	0.14-0.17	0.0-2.9	0.1-1.0	.37	.37			
	51-60	1-6	1.50-1.60	19.98-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
134:												
Anvil	0-2	10-20	1.15-1.25	1.98-5.95	0.16-0.18	0.0-2.9	0.0-1.0	.43	.43	5	4L	86
	2-5	10-17	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.0-1.0	.20	.28			
	5-60	2-16	1.40-1.50	2.00-6.00	0.06-0.10	0.0-2.9	0.0-1.0	.20	.28			
135:												
Coaliams	0-8	5-15	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	2.0-4.0	.32	.32	5	3	86
	8-60	5-35	1.25-1.35	0.60-2.00	0.16-0.20	3.0-5.9	0.5-2.0	.37	.37			
Haverdad	0-5	12-20	1.25-1.35	1.98-5.95	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37	5	4L	86
	5-60	20-30	1.25-1.40	0.60-2.00	0.14-0.17	3.0-5.9	0.5-1.0	.37	.37			
136:												
Cowestglen	0-7	12-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	7-54	10-20	1.35-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.24	.24			
	54-60	10-18	1.35-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.24	.24			
137:												
Creighton	0-10	5-15	1.30-1.40	2.00-5.99	0.15-0.17	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	10-20	5-15	1.40-1.50	2.00-5.99	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43			
	20-60	5-15	1.40-1.50	2.00-5.99	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
138:												
Curabith	0-8	12-16	1.25-1.35	2.00-6.00	0.06-0.08	0.0-2.9	1.0-2.0	.10	.24	4	5	56
	8-12	10-16	1.25-1.35	2.00-6.00	0.08-0.10	0.0-2.9	1.0-2.0	.15	.28			
	12-35	9-18	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.5-1.0	.10	.32			
	35-60	4-7	1.50-1.60	5.95-19.98	0.03-0.05	0.0-2.9	0.1-0.5	.05	.15			
139:												
Cushool	0-3	10-18	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.28	.28	3	3	86
	3-16	22-30	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	16-32	10-18	1.40-1.50	2.00-6.00	0.08-0.10	0.0-2.9	0.0-0.5	.15	.28			
	32-42	---	---	0.00-0.01	---	---	---	---	---			
Cutback	0-1	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.28	.28	3	3	86
	1-7	20-35	1.15-1.25	0.60-2.00	0.14-0.16	3.0-5.9	1.0-2.0	.32	.32			
	7-17	20-35	1.25-1.35	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.32	.32			
	17-31	5-25	1.30-1.40	2.00-6.00	0.05-0.06	0.0-2.9	0.0-0.5	.10	.28			
	31-41	---	---	---	---	---	---	---	---			
140:												
Dalecreek	0-8	10-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	2.0-3.0	.28	.28	5	3	86
	8-28	18-22	1.25-1.35	0.60-2.00	0.15-0.17	3.0-5.9	1.0-2.0	.32	.32			
	28-60	10-22	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
Kovich	0-8	17-25	1.15-1.25	0.60-2.00	0.15-0.17	0.0-2.9	1.0-3.0	.32	.32	5	5	56
	8-21	24-35	1.30-1.40	0.60-2.00	0.15-0.19	3.0-5.9	1.0-2.0	.28	.28			
	21-60	24-35	1.30-1.40	0.60-2.00	0.11-0.15	3.0-5.9	0.5-1.0	.17	.28			
141:												
Deight	0-8	10-16	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	8-16	12-18	1.30-1.40	2.00-5.99	0.16-0.18	0.0-2.9	0.0-1.0	.43	.43			
	16-60	8-16	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.0-0.0	.49	.49			
Thirtynine	0-7	10-20	1.25-1.35	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	7-17	24-35	1.15-1.25	0.60-2.00	0.19-0.21	3.0-5.9	0.0-1.0	.49	.49			
	17-22	10-27	1.15-1.25	0.60-2.00	0.17-0.19	0.0-2.9	0.0-1.0	.43	.43			
	22-32	10-27	1.15-1.25	0.60-2.00	0.17-0.19	0.0-2.9	0.0-1.0	.43	.43			
	32-60	10-27	1.20-1.30	2.00-5.99	0.14-0.17	0.0-2.9	0.0-0.0	.43	.43			
Glendo	0-2	8-18	1.35-1.45	2.00-5.99	0.15-0.17	0.0-2.9	0.5-1.0	.49	.49	5	3	86
	2-7	8-16	1.20-1.30	2.00-5.99	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	7-21	8-18	1.25-1.35	1.98-5.95	0.16-0.18	0.0-2.9	0.1-0.5	.49	.49			
	21-60	8-18	1.35-1.45	2.00-5.99	0.15-0.17	0.0-2.9	0.1-0.5	.49	.49			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
142:												
Diamonkit	0-1	16-19	1.25-1.35	2.00-6.00	0.10-0.12	0.0-2.9	1.0-2.0	.24	.24	2	3	86
	1-11	24-32	1.25-1.35	0.60-2.00	0.16-0.17	3.0-5.9	0.5-1.0	.37	.37			
	11-33	20-35	1.25-1.35	0.60-2.00	0.12-0.15	3.0-5.9	0.0-0.5	.37	.37			
	33-43	---	---	---	---	---	---	---	---			
Stylite	0-2	10-20	1.15-1.25	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.24	.24	3	3	86
	2-14	20-35	1.25-1.35	0.60-2.00	0.16-0.19	3.0-5.9	0.5-1.0	.32	.32			
	14-31	18-30	1.25-1.35	0.60-2.00	0.17-0.21	3.0-5.9	0.0-0.5	.32	.32			
	31-60	18-30	1.25-1.35	0.60-2.00	0.06-0.10	3.0-5.9	0.0-0.5	.32	.32			
143:												
Embry	0-10	2-8	1.35-1.45	2.00-6.00	0.08-0.11	0.0-2.9	1.0-2.0	.28	.28	5	2	134
	10-60	5-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.32	.32			
144:												
Evanston	0-3	15-27	1.25-1.35	0.60-2.00	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	3-15	18-35	1.30-1.40	0.60-2.00	0.16-0.19	3.0-5.9	1.0-3.0	.28	.28			
	15-60	18-27	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.5-1.0	.28	.28			
145:												
Evanston	0-7	12-20	1.15-1.25	1.98-5.95	0.16-0.18	0.0-2.9	1.0-2.0	.28	.28	5	4L	86
	7-18	24-30	1.25-1.40	0.60-2.00	0.17-0.20	3.0-5.9	0.5-1.0	.32	.32			
	18-33	16-22	1.25-1.40	0.60-2.00	0.13-0.15	0.0-2.9	0.1-0.5	.20	.32			
	33-60	16-25	1.25-1.40	0.60-2.00	0.15-0.17	0.0-2.9	0.1-0.5	.32	.32			
Ipson	0-6	12-20	1.15-1.25	0.60-2.00	0.08-0.10	0.0-2.9	1.0-2.0	.10	.28	5	7	38
	6-18	20-30	1.25-1.35	0.60-2.00	0.07-0.09	3.0-5.9	1.0-2.0	.10	.32			
	18-60	12-20	1.35-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.28			
146:												
Evanston	0-4	12-20	1.15-1.25	1.98-5.95	0.16-0.18	0.0-2.9	1.0-2.0	.28	.28	5	4L	86
	4-12	24-30	1.25-1.40	0.20-0.60	0.17-0.20	3.0-5.9	1.0-2.0	.32	.32			
	12-60	16-25	1.25-1.40	0.60-2.00	0.15-0.17	0.0-2.9	0.1-0.5	.32	.32			
Ipson	0-4	12-20	1.15-1.25	0.60-2.00	0.08-0.10	0.0-2.9	1.0-2.0	.10	.28	5	7	38
	4-11	20-30	1.25-1.35	0.60-2.00	0.07-0.09	3.0-5.9	1.0-2.0	.10	.32			
	11-60	12-20	1.35-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.28			
Brownsto	0-4	12-18	1.25-1.35	2.00-6.00	0.07-0.09	0.0-2.9	0.0-1.0	.15	.28	2	4	86
	4-60	15-18	1.35-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.0-0.0	.10	.28			
147:												
Evanston	0-5	12-20	1.15-1.25	1.98-5.95	0.10-0.12	0.0-2.9	2.0-4.0	.15	.20	5	6	48
	5-15	28-35	1.15-1.25	0.20-0.60	0.16-0.18	3.0-5.9	1.0-2.0	.20	.32			
	15-27	20-35	1.25-1.35	0.60-2.00	0.10-0.12	3.0-5.9	0.5-1.0	.15	.28			
	27-60	20-30	1.25-1.35	0.60-2.00	0.10-0.12	3.0-5.9	0.5-1.0	.15	.28			
Weed	0-5	15-20	1.15-1.20	2.00-5.99	0.16-0.18	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	5-14	27-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.28	.28			
	14-28	27-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.28	.28			
	28-60	25-35	1.25-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.28	.28			
148:												
Evanston	0-3	15-27	1.20-1.30	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	3-12	28-35	1.25-1.35	0.60-2.00	0.19-0.21	3.0-5.9	1.0-3.0	.28	.28			
	12-27	18-27	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.32	.32			
	27-60	8-18	1.30-1.40	2.00-6.00	0.08-0.10	0.0-2.9	0.5-1.0	.15	.24			
Weed	0-8	15-25	1.15-1.20	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.24	.24	5	5	56
	8-18	27-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.28	.28			
	18-26	27-35	1.25-1.40	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.28	.28			
	26-60	25-35	1.25-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.28	.28			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
148:												
Trimad	0-8	10-20	1.10-1.20	1.98-5.95	0.16-0.18	0.0-2.9	1.0-3.0	.32	.32	3	4L	86
	8-60	10-20	1.25-1.30	2.00-6.00	0.07-0.10	0.0-2.9	0.0-0.5	.10	.37			
149:												
Featherlegs, wet	0-14	12-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	4	3	86
	14-18	24-32	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	18-31	6-15	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.1-0.5	.28	.28			
	31-60	4-10	1.45-1.55	5.95-19.98	0.04-0.06	0.0-2.9	0.1-0.5	.10	.28			
150:												
Featherlegs	0-10	10-17	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	4	3	86
	10-26	20-32	1.30-1.40	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.43	.43			
	26-30	20-26	1.35-1.45	0.60-2.00	0.12-0.17	3.0-5.9	0.1-15	.37	.37			
	30-60	8-16	1.45-1.55	2.00-6.00	0.04-0.07	0.0-2.9	0.1-0.5	.10	.28			
Bayard	0-12	7-16	1.25-1.35	2.00-6.00	0.13-0.14	0.0-2.9	2.0-3.0	.32	.32	5	3	86
	12-60	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
151:												
Featherlegs	0-10	12-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	10-15	20-32	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	15-45	8-16	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.3-0.8	.28	.28			
	45-60	4-10	1.45-1.55	5.95-19.98	0.04-0.06	0.0-2.9	0.1-0.5	.10	.28			
Curabith	0-12	12-19	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	12-30	9-18	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.5-1.0	.10	.32			
	30-60	4-7	1.50-1.60	5.95-19.98	0.03-0.05	0.0-2.9	0.1-0.5	.05	.15			
152:												
Featherlegs	0-5	10-17	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	5-13	20-32	1.30-1.40	0.60-2.00	0.15-0.20	3.0-5.9	1.0-2.0	.43	.43			
	13-60	8-16	1.45-1.55	2.00-6.00	0.04-0.07	0.0-2.9	0.1-0.5	.10	.28			
Greenhope	0-7	10-17	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	4	3	86
	7-12	8-17	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43			
	12-36	12-18	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.1-1.0	.37	.37			
	36-60	8-16	1.40-1.50	1.98-5.95	0.06-0.08	0.0-2.9	0.1-0.5	.05	.20			
Curabith	0-7	15-19	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	7-60	9-18	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.5-1.0	.10	.32			
153:												
Featherlegs	0-8	18-26	1.15-1.25	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37	4	6	48
	8-20	27-32	1.25-1.35	0.60-2.00	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	20-30	18-26	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	30-60	18-24	1.30-1.40	0.60-2.00	0.09-0.11	3.0-5.9	0.1-0.5	.17	.37			
Recluse	0-8	18-25	1.15-1.25	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37	5	5	56
	8-22	18-30	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
	22-60	10-20	1.40-1.50	2.00-6.00	0.15-0.17	3.0-5.9	0.1-0.5	.49	.49			
154:												
Featherlegs	0-9	19-26	1.15-1.25	0.60-2.00	0.15-0.17	3.0-5.9	1.0-2.0	.37	.37	4	5	56
	9-26	20-32	1.30-1.40	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.43	.43			
	26-35	20-26	1.35-1.45	0.60-2.00	0.12-0.17	3.0-5.9	0.1-15	.37	.37			
	35-60	8-16	1.45-1.55	2.00-6.00	0.04-0.07	0.0-2.9	0.1-0.5	.10	.28			
Recluse	0-8	18-25	1.15-1.25	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37	5	5	56
	8-22	21-30	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
	22-60	10-20	1.40-1.50	2.00-6.00	0.15-0.17	3.0-5.9	0.1-0.5	.49	.49			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
155:												
Featherlegs-----	0-9	19-26	1.15-1.25	0.60-2.00	0.15-0.17	3.0-5.9	1.0-2.0	.37	.37	4	5	56
	9-23	20-32	1.30-1.40	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.43	.43			
	23-33	20-26	1.35-1.45	0.60-2.00	0.12-0.17	3.0-5.9	0.1-15	.37	.37			
	33-60	8-16	1.45-1.55	2.00-6.00	0.04-0.07	0.0-2.9	0.1-0.5	.10	.28			
Recluse---------	0-5	10-20	1.20-1.30	1.98-5.95	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	5	56
	5-10	27-35	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	1.0-2.0	.37	.37			
	10-18	27-35	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	18-60	10-25	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
156:												
Fluvaquentic Endoaquolls----	0-7	20-27	1.15-1.25	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37	5	6	48
	7-36	15-30	1.25-1.35	0.60-2.00	0.15-0.20	3.0-5.9	0.0-1.0	.37	.37			
	36-44	12-20	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.0-1.0	.37	.37			
	44-60	18-30	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.0-0.0	.37	.37			
Whetsoon--------	0-7	8-16	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	7-13	18-25	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37			
	13-21	20-30	1.30-1.40	0.60-2.00	0.17-0.20	3.0-5.9	0.5-1.0	.32	.32			
	21-33	15-30	1.30-1.40	0.60-2.00	0.17-0.20	3.0-5.9	0.5-1.0	.37	.37			
	33-60	8-18	1.30-1.40	1.98-5.95	0.16-0.18	0.0-2.9	0.1-0.5	.37	.37			
157:												
Forelle---------	0-4	15-25	1.30-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.37	.37	5	4L	86
	4-25	22-32	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	25-60	20-28	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.1-0.5	.37	.37			
158:												
Forelle---------	0-4	12-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	4-25	22-32	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	25-60	20-28	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.1-0.5	.37	.37			
Diamondville----	0-1	7-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	1-23	18-35	1.30-1.40	0.60-2.00	0.16-0.20	3.0-5.9	0.5-1.0	.37	.37			
	23-34	10-25	1.30-1.40	0.60-2.00	0.14-0.17	0.0-2.9	0.0-0.5	.37	.37			
	34-44	---	---	0.00-0.01	---	---	---	---	---			
159:												
Forkwood--------	0-9	12-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	9-15	20-27	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	15-39	12-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
	39-60	10-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
160:												
Forkwood--------	0-2	20-27	1.15-1.25	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37	5	5	56
	2-12	20-27	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	12-60	12-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
161:												
Forkwood, wet---	0-7	15-25	1.15-1.25	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.43	.43	5	5	56
	7-15	20-27	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.43	.43			
	15-19	20-27	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.43	.43			
	19-60	9-15	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
162:												
Glendo----------	0-3	8-16	1.05-1.15	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49	5	4L	86
	3-14	8-16	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-60	8-18	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	0.1-0.5	.49	.49			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
163:												
Graystone-------	0-8	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	8-24	6-16	1.30-1.40	2.00-6.00	0.14-0.17	0.0-2.9	0.5-1.0	.37	.37			
	24-60	6-15	1.45-1.55	2.00-6.00	0.09-0.12	0.0-2.9	0.1-0.5	.32	.32			
Alice-----------	0-8	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	8-36	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32			
	36-60	6-14	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.24	.24			
164:												
Graystone-------	0-8	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	8-16	8-18	1.40-1.50	2.00-6.00	0.13-0.14	0.0-2.9	0.5-1.0	.37	.37			
	16-36	6-16	1.30-1.40	2.00-6.00	0.14-0.17	0.0-2.9	0.5-1.0	.37	.37			
	36-60	6-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
Greenhope-------	0-9	10-17	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	9-20	12-18	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.1-1.0	.37	.37			
	20-23	6-16	1.40-1.50	2.00-6.00	0.09-0.11	0.0-2.9	0.1-1.0	.24	.37			
	23-35	8-16	1.40-1.50	5.95-19.98	0.06-0.08	0.0-2.9	0.1-0.5	.05	.20			
	35-60	8-16	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	0.1-0.5	.24	.43			
Bayard----------	0-8	7-16	1.25-1.35	2.00-6.00	0.13-0.14	0.0-2.9	2.0-3.0	.32	.32	5	3	86
	8-60	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
165:												
Graystone-------	0-8	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	8-17	8-18	1.40-1.50	2.00-6.00	0.13-0.14	0.0-2.9	0.5-1.0	.37	.37			
	17-30	7-16	1.30-1.40	2.00-6.00	0.14-0.17	0.0-2.9	0.5-1.0	.37	.37			
	30-60	6-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
Mainter---------	0-9	10-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	9-16	13-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	16-28	8-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
	28-60	8-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
166:												
Graystone-------	0-8	8-16	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	8-20	7-16	1.30-1.40	2.00-6.00	0.14-0.17	0.0-2.9	0.5-1.0	.37	.37			
	20-60	6-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
Phiferson-------	0-9	10-18	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-25	10-18	1.35-1.45	2.00-6.00	0.16-0.17	0.0-2.9	0.5-1.0	.43	.43			
	25-36	10-16	1.30-1.40	2.00-6.00	0.12-0.16	0.0-2.9	0.5-1.0	.43	.43			
	36-46	---	---	0.00-0.01	---	---	---	---	---			
Treon-----------	0-7	10-16	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	2	3	86
	7-19	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	19-29	---	---	0.00-0.01	---	---	---	---	---			
167:												
Greenhope-------	0-9	10-17	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	9-16	12-18	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.1-1.0	.37	.37			
	16-25	6-16	1.40-1.50	2.00-6.00	0.09-0.11	0.0-2.9	0.1-1.0	.24	.37			
	25-60	8-16	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.05	.20			
Featherlegs-----	0-7	10-18	1.35-1.50	2.00-6.00	0.07-0.09	0.0-2.9	1.0-2.0	.15	.28	5	4	86
	7-13	22-30	1.25-1.40	0.60-2.00	0.10-0.12	3.0-5.9	1.0-2.0	.20	.32			
	13-17	10-18	1.35-1.50	2.00-6.00	0.07-0.09	0.0-2.9	0.5-1.0	.15	.28			
	17-60	10-18	1.35-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.1-0.5	.10	.28			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
168:												
Hiland	0-9	8-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	9-15	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	15-18	8-18	1.30-1.40	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
	18-38	10-18	1.25-1.35	2.00-6.00	0.16-0.18	0.0-2.9	0.1-0.5	.43	.43			
	38-60	10-16	1.30-1.40	2.00-6.00	0.13-0.16	0.0-2.9	0.1-0.5	.43	.43			
169:												
Hiland	0-10	8-16	1.25-1.35	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	10-15	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	15-30	10-18	1.25-1.35	2.00-6.00	0.16-0.18	0.0-2.9	0.1-0.5	.43	.43			
	30-60	10-16	1.30-1.40	2.00-6.00	0.13-0.16	0.0-2.9	0.1-0.5	.43	.43			
Cambria	0-7	5-15	1.25-1.35	2.00-5.99	0.10-0.12	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	7-10	20-30	1.25-1.40	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.37	.37			
	10-60	16-27	1.25-1.40	0.60-2.00	0.17-0.20	3.0-5.9	0.1-0.5	.37	.37			
170:												
Ipson	0-8	10-20	1.30-1.40	0.60-2.00	0.12-0.14	0.0-2.9	2.0-4.0	.20	.32	5	7	38
	8-14	18-27	1.30-1.40	0.60-2.00	0.06-0.09	3.0-5.9	1.0-2.0	.10	.32			
	14-60	5-18	1.25-1.35	2.00-6.00	0.05-0.08	0.0-2.9	0.5-1.0	.10	.24			
Evanston	0-7	15-27	1.25-1.35	0.60-2.00	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	7-28	18-35	1.30-1.40	0.60-2.00	0.16-0.19	3.0-5.9	1.0-3.0	.28	.28			
	28-60	18-27	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.5-1.0	.28	.28			
171:												
Ipson	0-8	10-20	1.30-1.40	0.60-2.00	0.12-0.14	0.0-2.9	2.0-4.0	.20	.32	5	7	38
	8-14	18-27	1.30-1.40	0.60-2.00	0.06-0.09	3.0-5.9	1.0-2.0	.10	.32			
	14-60	5-18	1.25-1.35	2.00-6.00	0.05-0.08	0.0-2.9	0.5-1.0	.10	.24			
Evanston	0-9	15-27	1.25-1.35	0.60-2.00	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	9-26	18-35	1.30-1.40	0.60-2.00	0.16-0.19	3.0-5.9	1.0-3.0	.28	.28			
	26-60	18-27	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.5-1.0	.28	.28			
Rock outcrop	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
172:												
Jayem	0-13	10-15	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	13-30	10-18	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	30-60	10-18	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
Mainter	0-4	10-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	4-25	13-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	1.0-2.0	.43	.43			
	25-60	8-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
Moskee	0-7	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	7-28	20-30	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	28-60	8-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
173:												
Julesburg	0-7	10-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	7-14	10-18	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37			
	14-39	12-18	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
	39-54	10-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	54-60	10-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
Jayem	0-12	10-15	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	12-26	10-18	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	26-54	10-18	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
	54-60	10-18	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
173:												
Phiferson	0-10	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	10-17	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	17-25	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	25-35	---	---	0.00-0.01	---	---	---	---	---			
174:												
Keeline	0-12	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	12-60	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
175:												
Keeline	0-6	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	6-60	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
176:												
Keeline	0-6	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	6-34	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
	34-60	5-18	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
177:												
Keeline	0-5	5-15	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.5-2.0	.43	.43	5	3	86
	5-60	5-18	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
Mainter	0-8	12-16	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	8-16	13-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	16-22	11-16	1.35-1.45	2.00-6.00	0.16-0.18	0.0-2.9	0.1-0.5	.43	.43			
	22-60	8-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
178:												
Keeline	0-7	5-15	1.40-1.50	2.00-6.00	0.08-0.10	0.0-2.9	0.5-2.0	.15	.24	5	4	86
	7-60	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
Nidix	0-8	10-16	1.45-1.55	2.00-6.00	0.05-0.07	0.0-2.9	1.0-2.0	.10	.24	3	5	56
	8-20	10-16	1.45-1.55	2.00-6.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.24			
	20-30	8-14	1.35-1.45	2.00-6.00	0.10-0.12	0.0-2.9	0.1-0.5	.17	.24			
	30-40	---	---	0.00-0.01	---	---	---	---	---			
Taluce	0-4	10-16	1.40-1.50	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.15	.32	2	4	86
	4-19	10-16	1.30-1.40	2.00-6.00	0.13-0.16	0.0-2.9	0.5-1.0	.32	.32			
	19-29	---	---	0.00-0.01	---	---	---	---	---			
179:												
Keeline	0-6	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	6-39	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
	39-60	5-18	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
Taluce	0-5	10-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	5-14	10-16	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
	14-18	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.28	.28			
	18-28	---	---	0.00-0.01	---	---	---	---	---			
Turnercrest	0-4	5-12	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	4-11	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.37	.37			
	11-27	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.37	.37			
	27-37	---	---	0.00-0.01	---	---	---	---	---			
180:												
Keeline	0-4	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	4-9	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
	9-60	5-18	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
180:												
Turnercrest-----	0-6	5-12	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	6-32	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.37	.37			
	32-42	---	---	0.00-0.01	---	---	---	---	---			
181:												
Keeline---------	0-5	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	5-60	5-18	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
Turnercrest-----	0-8	5-12	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	8-19	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.37	.37			
	19-36	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.37	.37			
	36-46	---	---	0.00-0.01	---	---	---	---	---			
182:												
Kishona---------	0-5	27-35	1.10-1.20	0.60-2.00	0.19-0.21	3.0-5.9	0.5-1.0	.32	.32	5	4L	86
	5-60	20-35	1.15-1.25	0.60-2.00	0.10-0.17	3.0-5.9	0.5-1.0	.37	.37			
183:												
Livan-----------	0-6	10-18	1.35-1.50	2.00-6.00	0.08-0.10	0.0-2.9	0.5-1.0	.10	.20	5	4	86
	6-32	2-10	1.50-1.60	5.95-19.98	0.02-0.04	0.0-2.9	0.1-0.5	.05	.20			
	32-60	2-8	1.50-1.60	19.98-19.98	0.02-0.04	0.0-2.9	0.1-0.5	.05	.20			
Clarkelen-------	0-3	10-18	1.35-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	4	86
	3-40	8-16	1.35-1.50	2.00-6.00	0.09-0.13	0.0-2.9	0.5-1.0	.17	.28			
	40-60	8-16	1.35-1.50	2.00-6.00	0.07-0.13	0.0-2.9	0.5-1.0	.15	.24			
184:												
Livan-----------	0-5	7-17	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	3	3	86
	5-16	8-14	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.1-0.5	.20	.20			
	16-60	2-8	1.50-1.60	19.98-19.98	0.02-0.04	0.0-2.9	0.1-0.5	.05	.20			
Riverwash-------	0-60	0-8	---	5.95-19.98	0.03-0.04	0.0-2.9	0.0-0.1	---	---	-	1	180
185:												
Mainter---------	0-8	10-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	8-21	13-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	21-60	8-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
186:												
Mainter, wet----	0-11	12-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	11-17	14-18	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43			
	17-21	14-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	21-34	15-19	1.35-1.45	2.00-6.00	0.16-0.18	0.0-2.9	0.1-0.5	.43	.43			
	34-60	5-12	1.50-1.60	2.00-6.00	0.11-0.13	0.0-2.9	0.1-0.5	.28	.28			
187:												
Mainter---------	0-11	10-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	11-20	13-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	20-30	8-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
	30-60	8-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
Keeline---------	0-5	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	5-60	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
188:												
McFadden--------	0-5	10-17	1.30-1.40	2.00-6.00	0.10-0.12	0.0-2.9	1.0-2.0	.17	.28	5	4	86
	5-18	10-17	1.30-1.40	2.00-6.00	0.08-0.11	0.0-2.9	0.5-1.0	.15	.32			
	18-60	10-17	1.25-1.35	2.00-6.00	0.12-0.15	0.0-2.9	0.0-0.5	.28	.28			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
189:												
Mines.												
Quarries.												
190:												
Mitchell	0-7	12-18	1.20-1.30	2.00-5.99	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	7-30	12-18	1.20-1.30	0.60-2.00	0.17-0.20	0.0-2.9	0.1-0.5	.49	.49			
	30-60	8-15	1.35-1.45	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
191:												
Mitchell	0-12	12-18	1.20-1.30	2.00-5.99	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	12-60	12-18	1.20-1.30	2.00-5.99	0.17-0.20	0.0-2.9	0.1-0.5	.49	.49			
192:												
Moskee	0-11	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	11-21	20-30	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	21-32	17-25	1.35-1.45	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.43	.43			
	32-42	8-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
	42-60	8-16	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.1-0.5	.28	.28			
193:												
Moskee	0-10	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	10-19	20-30	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	19-60	8-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
194:												
Orpha	0-5	3-8	1.35-1.45	19.98-19.98	0.05-0.07	0.0-2.9	1.0-2.0	.15	.15	5	1	220
	5-60	3-8	1.45-1.55	5.95-19.98	0.05-0.08	0.0-2.9	0.1-0.5	.20	.20			
195:												
Orpha	0-12	5-12	1.35-1.45	2.00-5.99	0.10-0.12	0.0-2.9	0.1-0.5	.24	.24	5	2	134
	12-60	3-8	1.45-1.55	2.00-5.99	0.05-0.08	0.0-2.9	0.1-0.5	.20	.20			
Tullock	0-12	5-12	1.35-1.45	2.00-5.99	0.07-0.09	0.0-2.9	0.0-0.5	.24	.24	3	2	134
	12-21	5-12	1.35-1.45	2.00-5.99	0.04-0.09	0.0-2.9	0.0-0.5	.37	.37			
	21-31	---	---	---	---	---	---	---	---			
196:												
Phiferson	0-9	8-16	1.20-1.30	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-15	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	15-30	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	30-40	---	---	0.00-0.01	---	---	---	---	---			
Alice, bedrock substratum	0-10	12-16	1.20-1.30	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	4	3	86
	10-17	12-16	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43			
	17-50	8-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
	50-60	---	---	0.00-0.01	---	---	---	---	---			
197:												
Phiferson	0-9	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	9-16	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	16-36	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	36-46	---	---	0.00-0.01	---	---	---	---	---			
Mainter	0-8	10-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	8-20	13-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	20-60	8-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
198:												
Phiferson	0-8	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	8-19	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	19-30	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	30-40	---	---	0.00-0.01	---	---	---	---	---			
Treon	0-7	12-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	2	3	86
	7-11	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	11-21	---	---	0.00-0.01	---	---	---	---	---			
199:												
Pinelli	0-3	19-27	1.20-1.30	0.60-2.00	0.16-0.18	3.0-5.9	1.0-3.0	.32	.32	5	5	56
	3-30	35-45	1.20-1.30	0.06-0.20	0.16-0.19	6.0-8.9	0.5-2.0	.32	.32			
	30-60	30-40	1.25-1.35	0.20-0.60	0.16-0.19	3.0-5.9	0.7-1.0	.32	.32			
200:												
Poposhia	0-6	18-25	1.05-1.15	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.37	.37	5	4L	86
	6-60	18-25	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.0-0.5	.43	.43			
201:												
Poposhia	0-10	18-25	1.05-1.15	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.37	.37	5	4L	86
	10-60	18-25	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43			
Blazon	0-6	18-27	1.05-1.15	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.37	.37	2	4L	86
	6-13	18-27	1.20-1.30	0.60-2.00	0.17-0.20	0.0-2.9	0.0-0.5	.37	.37			
	13-23	---	---	0.00-0.01	---	---	---	---	---			
202:												
Poposhia	0-4	18-25	1.05-1.15	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.37	.37	5	4L	86
	4-60	18-25	1.20-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43			
Blazon, thin solum	0-3	18-27	1.05-1.15	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.37	.37	2	4L	86
	3-9	18-27	1.20-1.30	0.60-2.00	0.17-0.20	0.0-2.9	0.0-0.5	.37	.37			
	9-19	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
203:												
Poposhia	0-5	18-27	1.20-1.40	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.32	.32	5	4L	86
	5-60	18-30	1.30-1.40	0.60-2.00	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
Chaperton	0-3	27-33	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.43	.43	3	4L	86
	3-25	18-30	1.25-1.35	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.43	.43			
	25-35	---	---	0.00-0.01	---	---	---	---	---			
204:												
Poposhia	0-2	18-27	1.20-1.40	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.32	.32	5	4L	86
	2-60	18-30	1.30-1.40	0.60-2.00	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
Forelle	0-2	12-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	2-34	22-32	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	34-60	20-28	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.1-0.5	.37	.37			
205:												
Quarterback	0-1	10-20	1.15-1.25	1.98-5.95	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	5	56
	1-12	10-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24			
	12-60	10-16	1.40-1.50	2.00-6.00	0.12-0.16	0.0-2.9	0.5-1.0	.32	.32			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
206:												
Quarterback.												
thick surface--	0-4	10-15	1.25-1.45	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	3	3	86
	4-16	10-15	1.35-1.50	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.17	.17			
	16-60	8-13	1.35-1.50	2.00-6.00	0.04-0.11	0.0-2.9	0.5-1.0	.10	.17			
Albinas---------	0-5	5-15	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	3.0-6.0	.32	.32	5	3	86
	5-23	20-35	1.30-1.40	0.60-2.00	0.15-0.20	3.0-5.9	1.0-3.0	.37	.37			
	23-60	10-20	1.35-1.45	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.43	.43			
207:												
Recluse---------	0-10	8-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	10-16	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	16-30	27-35	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	30-42	10-25	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
	42-60	10-25	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
208:												
Recluse---------	0-5	18-25	1.15-1.25	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37	5	5	56
	5-12	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37			
	12-16	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	16-26	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
	26-60	8-18	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.49	.49			
209:												
Recluse---------	0-9	10-20	1.20-1.30	1.98-5.95	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	5	56
	9-20	27-35	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	20-60	8-18	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
210:												
Recluse---------	0-18	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	18-31	18-30	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
	31-49	10-20	1.40-1.50	2.00-6.00	0.15-0.17	3.0-5.9	0.1-0.5	.49	.49			
	49-60	8-18	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.49	.49			
Albinas---------	0-9	5-15	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	3.0-6.0	.32	.32	5	3	86
	9-22	20-35	1.30-1.40	0.60-2.00	0.15-0.20	3.0-5.9	1.0-3.0	.37	.37			
	22-60	10-20	1.35-1.45	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.43	.43			
Treon, thin												
solum----------	0-6	8-14	1.25-1.35	2.00-6.00	0.10-0.12	0.0-2.9	1.0-2.0	.20	.28	2	4	86
	6-9	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	9-19	---	---	0.00-0.01	---	---	---	---	---			
211:												
Recluse---------	0-8	18-25	1.15-1.25	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37	5	5	56
	8-23	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	23-28	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
	28-60	8-18	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.49	.49			
Cedak-----------	0-9	18-25	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	5	56
	9-20	20-30	1.30-1.40	0.60-2.00	0.15-0.18	3.0-5.9	0.0-1.0	.37	.37			
	20-29	13-18	1.30-1.40	2.00-6.00	0.14-0.16	0.0-2.9	0.0-1.0	.37	.37			
	29-39	---	---	0.00-0.01	---	---	---	---	---			
212:												
Recluse---------	0-13	15-22	1.20-1.30	1.98-5.95	0.16-0.18	0.0-2.9	1.0-2.0	.32	.32	5	5	56
	13-18	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	18-23	27-35	1.30-1.40	0.60-2.00	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	23-60	10-25	1.30-1.40	2.00-5.99	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
212:												
Cedak	0-8	15-22	1.15-1.25	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.32	.32	3	5	56
	8-19	18-35	1.25-1.40	0.60-2.00	0.17-0.20	3.0-5.9	0.5-1.0	.37	.37			
	19-32	12-22	1.25-1.40	0.60-2.00	0.15-0.17	0.0-2.9	0.0-0.5	.43	.43			
	32-42	---	---	0.00-0.01	---	---	---	---	---			
213:												
Recluse	0-10	8-18	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	10-28	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	28-60	8-18	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.49	.49			
Graystone	0-9	6-16	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	9-16	6-16	1.30-1.40	2.00-6.00	0.14-0.17	0.0-2.9	0.5-1.0	.37	.37			
	16-44	6-16	1.30-1.40	2.00-6.00	0.14-0.17	0.0-2.9	0.5-1.0	.37	.37			
	44-60	6-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
214:												
Recluse	0-11	10-20	1.20-1.30	1.98-5.95	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	5	56
	11-28	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	28-60	10-25	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
Nuncho	0-10	18-27	1.15-1.25	0.60-2.00	0.16-0.18	3.0-5.9	1.0-3.0	.37	.37	5	6	48
	10-21	35-40	1.25-1.35	0.20-0.60	0.16-0.20	6.0-8.9	1.0-2.0	.37	.37			
	21-31	35-40	1.25-1.35	0.20-0.60	0.16-0.20	6.0-8.9	0.5-1.0	.37	.37			
	31-60	18-35	1.20-1.30	0.60-2.00	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43			
215:												
Rentsac	0-3	7-15	1.25-1.35	2.00-6.00	0.06-0.08	0.0-2.9	0.5-1.0	.10	.28	1	5	56
	3-15	8-18	1.35-1.45	2.00-6.00	0.06-0.08	0.0-2.9	0.0-0.5	.10	.28			
	15-25	---	---	0.00-0.00	---	---	---	---	---			
Brownsto	0-4	12-18	1.25-1.35	2.00-6.00	0.06-0.08	0.0-2.9	0.0-1.0	.10	.28	2	5	56
	4-60	15-18	1.35-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.0-0.0	.10	.28			
Ipson	0-9	12-20	1.15-1.25	0.60-2.00	0.12-0.14	0.0-2.9	1.0-2.0	.20	.28	5	6	48
	9-23	20-30	1.25-1.35	0.60-2.00	0.07-0.09	3.0-5.9	1.0-2.0	.10	.32			
	23-60	12-20	1.35-1.50	2.00-6.00	0.05-0.07	0.0-2.9	0.5-1.0	.10	.28			
216:												
Riverwash	---	---	---	---	---	---	---	---	---	-	8	0
217:												
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
Blazon, thin solum	0-9	18-27	1.05-1.15	0.60-2.00	0.15-0.17	0.0-2.9	0.5-1.0	.28	.43	2	7	38
	9-19	---	---	0.00-0.01	---	---	---	---	---			
218:												
Rock outcrop	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
Bonjea	0-3	10-20	1.25-1.35	2.00-5.99	0.11-0.14	0.0-2.9	2.0-4.0	.32	.32	1	3	86
	3-13	20-30	1.25-1.40	0.60-2.00	0.12-0.14	3.0-5.9	1.0-3.0	.28	.28			
	13-17	20-30	1.25-1.40	0.60-2.00	0.07-0.12	3.0-5.9	0.5-1.0	.17	.37			
	17-27	---	---	0.00-0.00	---	---	---	---	---			
219:												
Rock outcrop	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
Cathedral	0-5	5-18	1.20-1.30	5.95-19.98	0.05-0.07	0.0-2.9	2.0-4.0	.05	.20	1	5	56
	5-11	5-18	1.20-1.25	5.95-19.98	0.05-0.07	0.0-2.9	0.5-2.0	.05	.20			
	11-21	---	---	0.00-0.00	---	---	---	---	---			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
220:												
Rock outcrop----	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
Cathedral-------	0-2	5-18	1.20-1.25	5.95-19.98	0.05-0.07	0.0-2.9	2.0-4.0	.05	.24	1	8	0
	2-10	5-18	1.20-1.25	5.95-19.98	0.05-0.07	0.0-2.9	0.5-2.0	.05	.20			
	10-20	---	---	0.00-0.00	---	---	---	---	---			
Alderon---------	0-1	---	---	19.98-19.98	---	---	---	---	---	3	5	56
	1-3	12-19	1.25-1.35	2.00-6.00	0.11-0.12	0.0-2.9	1.0-3.0	.24	.24			
	3-8	20-30	1.25-1.35	0.60-2.00	0.13-0.15	3.0-5.9	0.0-1.0	.32	.32			
	8-27	25-35	1.25-1.35	0.60-2.00	0.10-0.12	3.0-5.9	0.0-0.5	.15	.28			
	27-39	10-18	1.35-1.45	5.95-19.98	0.06-0.07	0.0-2.9	0.0-0.5	.10	.24			
	39-49	---	---	0.00-0.01	---	---	---	---	---			
221:												
Selpats---------	0-7	15-20	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	4	3	86
	7-11	20-26	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	11-24	10-20	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.3-0.8	.37	.37			
	24-38	10-20	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.37	.37			
	38-60	5-15	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.10	.28			
222:												
Selpats---------	0-3	20-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.32	.32	4	6	48
	3-13	22-30	1.30-1.40	0.60-2.00	0.17-0.20	3.0-5.9	0.5-1.0	.37	.37			
	13-24	20-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.32	.32			
	24-30	15-25	1.30-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.3-0.8	.32	.32			
	30-51	10-18	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.10	.28			
	51-60	5-15	1.50-1.60	5.95-19.98	0.04-0.05	0.0-2.9	0.1-0.5	.05	.17			
Forkwood--------	0-8	20-27	1.15-1.25	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32	5	5	56
	8-19	23-27	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	19-36	12-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
	36-60	10-18	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
223:												
Selpats---------	0-6	10-16	1.25-1.35	2.00-6.00	0.09-0.11	0.0-2.9	0.5-1.0	.17	.28	4	4	86
	6-13	20-26	1.30-1.40	0.60-2.00	0.11-0.13	3.0-5.9	0.5-1.0	.24	.37			
	13-24	12-18	1.40-1.50	2.00-6.00	0.09-0.11	0.0-2.9	0.1-0.5	.17	.28			
	24-35	10-16	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.1-0.5	.28	.28			
	35-60	8-14	1.40-1.50	1.98-5.95	0.05-0.07	0.0-2.9	0.1-0.5	.10	.32			
Hiland----------	0-6	8-16	1.25-1.35	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.28	.28	5	3	86
	6-9	20-35	1.25-1.35	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.37	.37			
	9-60	10-18	1.25-1.35	2.00-6.00	0.16-0.18	0.0-2.9	0.1-0.5	.43	.43			
224:												
Snilloc---------	0-8	10-18	1.20-1.30	2.00-5.99	0.14-0.16	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	8-30	8-18	1.30-1.50	2.00-6.00	0.13-0.16	0.0-2.9	0.5-1.0	.37	.37			
	30-60	8-18	1.30-1.50	2.00-6.00	0.13-0.16	0.0-2.9	0.1-0.5	.32	.32			
Chugcity--------	0-7	10-18	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.32	.32	3	3	86
	7-28	10-18	1.20-1.30	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	28-35	10-16	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.37	.37			
	35-45	---	---	0.00-0.01	---	---	---	---	---			
225:												
Snilloc---------	0-5	10-18	1.20-1.30	2.00-5.99	0.14-0.16	0.0-2.9	1.0-2.0	.43	.43	5	3	86
	5-60	8-18	1.30-1.50	2.00-6.00	0.13-0.16	0.0-2.9	0.5-1.0	.37	.37			
Recluse---------	0-6	10-20	1.20-1.30	1.98-5.95	0.16-0.18	0.0-2.9	1.0-2.0	.37	.37	5	5	56
	6-21	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	21-60	10-25	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
226:												
Spearfish-------	0-4	10-25	1.30-1.40	1.98-5.95	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37	2	4L	86
	4-8	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37			
	8-16	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-2.0	.37	.37			
	16-26	---	---	0.00-0.01	---	---	---	---	---			
Sixmile---------	0-4	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37	3	4L	86
	4-15	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	15-28	18-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	0.5-1.0	.37	.37			
	28-38	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop----	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
227:												
Storsun---------	0-4	18-25	1.25-1.35	0.60-2.00	0.08-0.10	3.0-5.9	0.5-2.0	.15	.37	3	6	48
	4-8	18-25	1.25-1.35	0.60-2.00	0.08-0.10	3.0-5.9	0.5-2.0	.15	.37			
	8-25	18-25	1.25-1.35	0.60-2.00	0.08-0.10	3.0-5.9	0.5-1.0	.10	.37			
	25-60	18-25	1.25-1.35	0.60-2.00	0.08-0.10	3.0-5.9	0.5-1.0	.10	.37			
Sunup-----------	0-5	20-25	1.25-1.40	0.60-2.00	0.07-0.10	3.0-5.9	1.0-2.0	.15	.43	1	6	48
	5-11	20-27	1.25-1.40	0.60-2.00	0.07-0.10	3.0-5.9	0.5-1.0	.15	.43			
	11-21	---	---	0.00-0.00	---	---	---	---	---			
Rock outcrop----	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
228:												
Sunup-----------	0-2	15-20	1.35-1.50	2.00-6.00	0.06-0.08	0.0-2.9	1.0-2.0	.10	.28	1	5	56
	2-10	20-27	1.25-1.40	0.60-2.00	0.07-0.10	3.0-5.9	0.5-1.0	.15	.28			
	10-20	---	---	0.00-0.00	---	---	---	---	---			
Rock outcrop----	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
229:												
Sunup-----------	0-4	15-20	1.35-1.50	2.00-6.00	0.06-0.08	0.0-2.9	1.0-2.0	.10	.28	1	5	56
	4-17	20-27	1.25-1.40	0.60-2.00	0.07-0.10	3.0-5.9	0.5-1.0	.15	.28			
	17-27	---	---	0.00-0.00	---	---	---	---	---			
Snavee----------	0-4	5-15	1.20-1.30	2.00-6.00	0.06-0.08	0.0-2.9	1.0-2.0	.05	.32	5	7	38
	4-9	10-18	1.25-1.35	2.00-6.00	0.06-0.08	0.0-2.9	0.5-1.0	.05	.32			
	9-60	5-15	1.25-1.35	2.00-6.00	0.06-0.08	0.0-2.9	0.0-0.5	.05	.32			
Rock outcrop----	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
230:												
Sweatbee--------	0-11	15-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	4	3	86
	11-26	12-18	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.32	.32			
	26-60	5-12	1.45-1.55	1.98-5.95	0.04-0.07	0.0-2.9	0.1-0.5	.10	.28			
231:												
Sweatbee, wet---	0-3	12-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	4	3	86
	3-32	12-18	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	32-39	5-15	1.40-1.50	2.00-6.00	0.11-0.13	0.0-2.9	0.1-0.5	.28	.28			
	39-60	5-15	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.10	.32			
232:												
Sweatbee--------	0-11	20-30	1.15-1.25	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32	3	5	56
	11-17	12-18	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.32	.32			
	17-22	10-18	1.40-1.50	2.00-6.00	0.08-0.10	0.0-2.9	0.1-0.5	.17	.32			
	22-35	5-12	1.45-1.55	1.98-5.95	0.04-0.07	0.0-2.9	0.1-0.5	.10	.28			
	35-60	5-10	1.50-1.60	19.98-19.98	0.04-0.05	0.0-2.9	0.1-0.5	.05	.15			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
232:												
Numa	0-10	20-26	1.15-1.25	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32	5	5	56
	10-30	20-25	1.30-1.40	0.60-2.00	0.14-0.16	3.0-5.9	0.5-1.0	.32	.32			
	30-60	11-16	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.1-0.5	.32	.32			
233:												
Taluce, thin solum	0-2	10-16	1.30-1.40	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.20	.32	2	4	86
	2-10	10-16	1.40-1.50	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.20	.32			
	10-20	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
234:												
Taluce, thin solum	0-1	10-16	1.30-1.40	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.20	.32	2	4	86
	1-5	10-16	1.40-1.50	2.00-6.00	0.10-0.13	0.0-2.9	0.5-1.0	.20	.32			
	5-15	---	---	0.00-0.01	---	---	---	---	---			
Keeline	0-4	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	4-60	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
235:												
Taluce, thin solum	0-3	10-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	3-9	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.28	.28			
	9-19	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
Turnercrest	0-12	12-15	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	12-25	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.37	.37			
	25-35	---	---	0.00-0.01	---	---	---	---	---			
236:												
Taluce	0-4	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.24	.24	2	3	86
	4-12	10-18	1.25-1.35	2.00-6.00	0.09-0.12	0.0-2.9	0.1-0.5	.17	.28			
	12-22	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
Turnercrest	0-5	5-12	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	5-12	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.37	.37			
	12-34	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.37	.37			
	34-44	---	---	0.00-0.01	---	---	---	---	---			
237:												
Taluce	0-6	10-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	6-11	10-16	1.25-1.35	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
	11-21	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
Turnercrest	0-10	5-12	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	10-17	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.37	.37			
	17-36	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.37	.37			
	36-46	---	---	0.00-0.01	---	---	---	---	---			
238:												
Taluce	0-6	10-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	6-17	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.28	.28			
	17-27	---	---	0.00-0.01	---	---	---	---	---			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
238:												
Taluce, thin solum	0-6	10-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	6-16	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
239:												
Taluce	0-6	10-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	6-17	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.28	.28			
	17-27	---	---	0.00-0.01	---	---	---	---	---			
Taluce, thin solum	0-3	10-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	3-7	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.28	.28			
	7-17	---	---	0.00-0.01	---	---	---	---	---			
Turnercrest	0-6	5-12	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	6-28	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.37	.37			
	28-38	---	---	0.00-0.01	---	---	---	---	---			
240:												
Talue, thin solum	0-5	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	5-9	10-18	1.25-1.35	2.00-6.00	0.09-0.12	0.0-2.9	0.1-0.5	.17	.28			
	9-19	---	---	0.00-0.01	---	---	---	---	---			
Treon, thin solum	0-5	12-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	2	3	86
	5-10	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	10-20	---	---	0.00-0.01	---	---	---	---	---			
241:												
Taluce	0-8	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.24	.24	2	3	86
	8-19	10-18	1.25-1.35	2.00-6.00	0.09-0.12	0.0-2.9	0.1-0.5	.17	.28			
	19-29	---	---	0.00-0.01	---	---	---	---	---			
Turnercrest	0-7	5-12	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.24	.24	3	3	86
	7-24	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.32	.32			
	24-34	---	---	0.00-0.01	---	---	---	---	---			
242:												
Taluce	0-4	10-15	1.25-1.35	2.00-6.00	0.10-0.12	0.0-2.9	0.5-1.0	.24	.24	2	3	86
	4-14	10-15	1.30-1.40	2.00-6.00	0.10-0.12	0.0-2.9	0.5-1.0	.24	.24			
	14-24	---	---	0.00-0.01	---	---	---	---	---			
Turnercrest	0-12	5-12	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	12-29	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.37	.37			
	29-39	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.37	.37			
	39-49	---	---	0.00-0.01	---	---	---	---	---			
Keeline	0-3	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	3-60	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
243:												
Torriorthents, gullied.												
Gullied land.												

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
244:												
Treon	0-7	10-18	1.30-1.40	2.00-6.00	0.13-0.15	0.0-2.9	2.0-4.0	.24	.24	2	3	86
	7-19	10-18	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24			
	19-29	---	---	0.00-0.01	---	---	---	---	---			
Aberone	0-8	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	2.0-3.0	.24	.24	3	3	86
	8-60	5-18	1.35-1.45	2.00-6.00	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
245:												
Treon	0-8	8-14	1.25-1.35	2.00-6.00	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28	2	4	86
	8-15	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	15-25	---	---	0.00-0.01	---	---	---	---	---			
Alice	0-9	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	9-18	8-14	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32			
	18-31	6-14	1.40-1.50	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.24	.24			
	31-60	12-16	1.40-1.50	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43			
Phiferson	0-6	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	6-11	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	11-23	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	23-33	---	---	0.00-0.01	---	---	---	---	---			
246:												
Treon	0-6	7-16	1.25-1.35	2.00-6.00	0.14-0.16	0.0-2.9	1.0-2.0	.32	.32	2	3	86
	6-19	5-14	1.40-1.50	2.00-6.00	0.10-0.12	0.0-2.9	0.1-0.5	.24	.37			
	19-29	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
247:												
Treon, thin solum	0-7	12-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	2	3	86
	7-10	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	10-20	---	---	0.00-0.01	---	---	---	---	---			
Phiferson	0-7	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	7-16	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	16-23	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	23-33	---	---	0.00-0.01	---	---	---	---	---			
Keeline	0-7	5-15	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	7-41	5-18	1.25-1.35	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32			
	41-60	5-18	1.35-1.45	2.00-6.00	0.15-0.17	0.0-2.9	0.1-0.5	.43	.43			
248:												
Trimad	0-7	20-27	1.10-1.20	0.60-2.00	0.16-0.18	3.0-5.9	1.0-3.0	.32	.32	5	4L	86
	7-25	10-20	1.25-1.30	0.60-2.00	0.12-0.14	0.0-2.9	0.0-0.5	.17	.37			
	25-60	10-18	1.35-1.45	2.00-6.00	0.05-0.07	0.0-2.9	0.0-0.5	.10	.28			
Blazon	0-4	18-27	1.05-1.15	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.37	.37	2	4L	86
	4-10	18-27	1.20-1.30	0.60-2.00	0.17-0.20	0.0-2.9	0.0-0.5	.37	.37			
	10-20	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.01	0.00-0.00	---	---	---	---	-	8	0
249:												
Trimad	0-8	10-20	1.25-1.30	0.60-2.00	0.12-0.14	0.0-2.9	1.0-3.0	.17	.37	3	7	38
	8-60	10-18	1.35-1.45	2.00-6.00	0.05-0.07	0.0-2.9	0.0-0.5	.10	.28			
Evanston	0-8	15-27	1.25-1.35	0.60-2.00	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	8-23	18-35	1.30-1.40	0.60-2.00	0.16-0.19	3.0-5.9	1.0-3.0	.28	.28			
	23-60	18-27	1.30-1.40	0.60-2.00	0.15-0.17	3.0-5.9	0.5-1.0	.28	.28			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
250:												
Trimad	0-8	10-20	1.10-1.20	1.98-5.95	0.16-0.18	0.0-2.9	1.0-3.0	.32	.32	3	4L	86
	8-14	10-20	1.25-1.30	0.60-2.00	0.12-0.14	0.0-2.9	0.0-0.5	.17	.37			
	14-60	10-20	1.25-1.30	2.00-6.00	0.07-0.10	0.0-2.9	0.0-0.5	.10	.37			
Weed	0-3	15-25	1.15-1.20	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.24	.24	5	5	56
	3-9	27-35	1.25-1.40	0.60-2.00	0.15-0.17	3.0-5.9	1.0-2.0	.28	.28			
	9-27	27-35	1.25-1.40	0.20-0.60	0.15-0.19	3.0-5.9	1.0-2.0	.28	.28			
	27-60	15-25	1.15-1.20	2.00-5.99	0.11-0.15	0.0-2.9	0.5-1.0	.24	.24			
Blazon	0-2	18-27	1.05-1.15	0.60-2.00	0.15-0.17	0.0-2.9	0.5-1.0	.28	.43	2	7	38
	2-15	18-27	1.20-1.30	0.60-2.00	0.17-0.20	0.0-2.9	0.0-0.5	.37	.37			
	15-25	---	---	0.00-0.01	---	---	---	---	---			
251:												
Turnercrest	0-7	5-12	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	7-38	7-18	1.35-1.45	2.00-6.00	0.12-0.14	0.0-2.9	0.1-0.5	.37	.37			
	38-48	---	---	0.00-0.01	---	---	---	---	---			
Phiferson	0-10	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	10-18	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	18-34	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	34-44	---	---	0.00-0.01	---	---	---	---	---			
Taluce	0-7	10-16	1.25-1.35	2.00-6.00	0.12-0.14	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	7-18	10-18	1.25-1.35	2.00-6.00	0.09-0.12	0.0-2.9	0.1-0.5	.28	.28			
	18-28	---	---	0.00-0.01	---	---	---	---	---			
252:												
Typic Calciaquolls	0-5	15-20	1.25-1.35	2.00-6.00	0.14-0.16	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	5-22	12-30	1.30-1.40	0.57-5.95	0.13-0.15	0.0-2.9	1.0-2.0	.43	.43			
	22-60	12-30	1.30-1.40	0.57-5.95	0.13-0.15	0.0-2.9	0.1-0.5	.37	.37			
Whetsoon	0-4	8-16	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	4-11	18-25	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.37	.37			
	11-27	20-30	1.30-1.40	0.60-2.00	0.17-0.20	3.0-5.9	0.5-1.0	.32	.32			
	27-40	15-30	1.30-1.40	0.60-2.00	0.17-0.20	3.0-5.9	0.5-1.0	.37	.37			
	40-60	8-18	1.30-1.40	1.98-5.95	0.16-0.18	0.0-2.9	0.1-0.5	.37	.37			
253:												
Tyzak	0-3	18-25	1.20-1.30	0.60-2.00	0.05-0.07	0.0-2.9	1.0-2.0	.05	.32	1	8	0
	3-11	18-25	1.20-1.30	0.60-2.00	0.05-0.07	0.0-2.9	0.5-1.0	.05	.32			
	11-21	---	---	0.00-0.00	---	---	---	---	---			
Tyzak, thin solum	0-3	18-25	1.20-1.30	0.60-2.00	0.05-0.07	0.0-2.9	1.0-2.0	.05	.32	1	8	0
	3-7	18-25	1.20-1.30	0.60-2.00	0.05-0.07	0.0-2.9	0.5-1.0	.05	.32			
	7-17	---	---	0.00-0.00	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0
254:												
Valent	0-10	3-10	1.50-1.60	1.98-5.99	0.08-0.11	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	10-60	3-10	1.50-1.60	2.00-5.99	0.08-0.11	0.0-2.9	0.0-0.5	.20	.20			
255:												
Vetal	0-10	10-15	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-3.0	.32	.32	5	3	86
	10-34	12-16	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-3.0	.37	.37			
	34-60	9-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
256:												
Vetal	0-9	10-15	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-3.0	.32	.32	5	3	86
	9-39	12-16	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-3.0	.37	.37			
	39-60	9-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
Julesburg	0-6	10-18	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	6-15	10-18	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37			
	15-31	12-18	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
	31-50	10-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	50-60	10-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
257:												
Vetal	0-24	10-15	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-3.0	.32	.32	5	3	86
	24-36	12-16	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-3.0	.37	.37			
	36-60	9-14	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
Treon	0-5	10-14	1.25-1.35	2.00-6.00	0.10-0.12	0.0-2.9	1.0-2.0	.32	.32	2	3	86
	5-14	7-16	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.37	.37			
	14-24	---	---	0.00-0.01	---	---	---	---	---			
Phiferson	0-10	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	10-24	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	24-33	10-18	1.20-1.35	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
	33-43	---	---	0.00-0.01	---	---	---	---	---			
258:												
Vonalee	0-6	8-16	1.25-1.35	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	6-18	12-18	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.37	.37			
	18-60	8-15	1.40-1.50	2.00-6.00	0.14-0.16	0.0-2.9	0.1-0.5	.43	.43			
259:												
Wagonhound	0-3	16-22	1.25-1.35	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32	5	5	56
	3-15	20-32	1.25-1.35	0.60-2.00	0.14-0.16	0.0-2.9	0.5-1.0	.32	.32			
	15-60	14-20	1.25-1.45	2.00-6.00	0.12-0.16	0.0-2.9	0.1-0.5	.24	.24			
Selpats	0-3	12-18	1.40-1.50	2.00-6.00	0.13-0.16	0.0-2.9	1.0-2.0	.28	.28	4	3	86
	3-12	20-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.32	.32			
	12-18	20-27	1.30-1.40	0.60-2.00	0.16-0.18	3.0-5.9	1.0-2.0	.32	.32			
	18-35	15-25	1.30-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.3-0.8	.32	.32			
	35-50	10-18	1.40-1.50	2.00-6.00	0.06-0.08	0.0-2.9	0.1-0.5	.10	.28			
	50-60	5-15	1.50-1.60	5.95-19.98	0.04-0.05	0.0-2.9	0.1-0.5	.05	.17			
260:												
Water.												
261:												
Water.												
262:												
Weed	0-6	15-25	1.15-1.20	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.24	.24	5	5	56
	6-14	27-35	1.25-1.40	0.60-2.00	0.15-0.17	3.0-5.9	1.0-2.0	.28	.28			
	14-28	27-35	1.25-1.40	0.20-0.60	0.15-0.19	3.0-5.9	1.0-2.0	.28	.28			
	28-60	20-30	1.25-1.40	0.60-2.00	0.14-0.16	3.0-5.9	1.0-2.0	.28	.28			
263:												
Wendover	0-6	5-20	1.25-1.35	2.00-6.00	0.09-0.11	0.0-2.9	2.0-3.0	.10	.28	1	5	56
	6-12	18-25	1.25-1.40	0.60-2.00	0.06-0.08	0.0-2.9	1.0-2.0	.10	.32			
	12-18	18-25	1.25-1.40	0.60-2.00	0.06-0.08	0.0-2.9	1.0-2.0	.10	.32			
	18-28	---	---	0.00-0.00	---	---	---	---	---			
Rock outcrop	0-60	0-0	---	0.00-0.00	0.00-0.00	---	---	---	---	-	8	0

Table 14.--Chemical Properties of the Soils

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
100:							
Aberone	0-7	7.0-12	7.9-8.4	0-2	0	0.0-2.0	0
	7-10	6.0-10	7.9-8.4	0-2	0	0.0-2.0	0
	10-60	6.0-9.0	7.9-9.0	40-60	0	0.0-2.0	0-3
101:							
Aberone	0-8	7.0-12	7.9-8.4	0-2	0	0.0-2.0	0
	8-60	6.0-9.0	7.9-9.0	40-60	0	0.0-2.0	0-3
Cragola	0-3	7.0-11	7.9-8.4	0-5	0	0.0-2.0	0
	3-18	6.0-9.0	7.9-8.4	1-6	0	0.0-2.0	0
	18-28	---	---	---	---	---	---
102:							
Albinas	0-3	13-22	6.6-7.8	0	0	0.0-2.0	0
	3-25	14-26	6.6-7.8	0	0	0.0-2.0	0
	25-60	7.0-16	7.4-8.4	5-15	0	0.0-2.0	0
103:							
Alice	0-7	6.0-11	6.6-7.8	0-5	0	0.0-2.0	0
	7-13	6.0-11	6.6-7.8	0-5	0	0.0-2.0	0
	13-18	6.0-11	7.4-8.4	0-5	0	0.0-2.0	0
	18-38	4.0-9.0	7.4-8.4	5-10	0	0.0-2.0	0
	38-60	4.0-9.0	7.4-8.4	5-10	0	0.0-2.0	0
Bayard	0-8	8.0-14	6.6-7.8	0	0	0	0
	8-16	8.0-14	6.6-7.8	0	0	0	0
	16-23	6.0-12	7.9-8.4	2-10	0	0.0-2.0	0
	23-60	6.0-12	7.9-8.4	2-10	0	0.0-2.0	0
104:							
Alice	0-13	6.0-11	6.6-7.8	0-5	0	0.0-2.0	0
	13-28	6.0-11	7.4-8.4	0-5	0	0.0-2.0	0
	28-60	4.0-9.0	7.4-8.4	5-10	0	0.0-2.0	0
Phiferson	0-8	6.0-12	6.6-8.4	0-5	0	0	0
	8-23	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	23-30	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
105:							
Alice	0-6	6.0-11	6.6-7.8	0-5	0	0.0-2.0	0
	6-13	6.0-11	6.6-7.8	0-5	0	0.0-2.0	0
	13-24	6.0-11	7.4-8.4	0-5	0	0.0-2.0	0
	24-32	4.0-9.0	7.4-8.4	5-10	0	0.0-2.0	0
	32-60	4.0-9.0	7.4-8.4	5-10	0	0.0-2.0	0
Recluse	0-6	6.0-12	6.6-8.4	0	0	0	0
	6-25	10-17	6.6-8.4	0	0	0	0
	25-39	5.0-15	7.9-9.0	5-15	0	0.0-2.0	0-2
	39-60	4.0-10	7.9-9.0	5-15	0	0.0-2.0	0-2
Cedak	0-6	7.0-13	7.4-8.4	0	0	0.0-2.0	0
	6-20	11-17	7.4-8.4	0	0	0.0-2.0	0
	20-30	7.0-11	7.9-9.0	10-20	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
106:							
Bayard	0-13	8.0-14	6.6-7.8	0	0	0	0
	13-60	6.0-12	7.9-8.4	2-10	0	0.0-2.0	0

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
107:							
Bayard	0-10	7.0-14	7.4-7.8	0	0	0.0-2.0	0
	10-29	6.0-11	7.4-7.8	2-10	0	0.0-2.0	0
	29-60	6.0-11	7.4-8.4	2-10	0	0.0-2.0	0
108:							
Bayard	0-13	8.0-14	6.6-7.8	0	0	0	0
	13-60	6.0-12	7.9-8.4	2-10	0	0.0-2.0	0
Phiferson	0-12	6.0-12	6.6-8.4	0-5	0	0	0
	12-20	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	20-26	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	26-36	---	---	---	---	---	---
Treon, thin solum	0-5	6.0-11	7.4-8.4	0-5	0	0	0
	5-8	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	8-18	---	---	---	---	---	---
109:							
Bayard	0-13	8.0-14	6.6-7.8	0	0	0	0
	13-60	6.0-12	7.9-8.4	2-10	0	0.0-2.0	0
Phiferson	0-3	6.0-12	6.6-8.4	0-5	0	0	0
	3-12	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	12-23	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	23-33	---	---	---	---	---	---
Treon, thin solum	0-6	6.0-11	7.4-8.4	0-5	0	0	0
	6-16	---	---	---	---	---	---
110:							
Blackhall	0-2	5.0-10	7.4-8.4	0-2	0	0.0-2.0	0
	2-16	5.0-10	7.9-8.4	2-5	0	0.0-2.0	0
	16-26	---	---	---	---	---	---
Satanka	0-4	5.0-10	7.4-8.4	0	0	0	0
	4-9	15-20	7.4-8.4	0-5	0	0	0
	9-35	10-15	7.9-9.0	5-15	0	0.0-2.0	0-2
	35-45	---	---	---	---	---	---
Rock outcrop.							
111:							
Blazon	0-4	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	4-12	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	12-22	---	---	---	---	---	---
Trimad	0-10	10-15	7.9-8.4	1-7	0	0.0-2.0	0
	10-60	4.0-12	7.9-8.4	25-35	0	0.0-2.0	0
112:							
Bonjea	0-3	5.0-10	6.6-7.8	0	0	0	0
	3-11	10-15	6.6-7.8	0	0	0	0
	11-16	10-15	6.6-7.8	0	0	0	0
	16-26	---	---	---	---	---	---
Chugcreek	0-4	5.0-10	6.6-7.3	0	0	0	0
	4-19	5.0-10	6.6-7.3	0	0	0	0
	19-29	10-20	6.6-7.8	0	0	0	0
	29-38	10-20	6.6-7.8	0	0	0	0
	38-48	---	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
113:							
Bonjea	0-4	5.0-10	6.6-7.8	0	0	0	0
	4-10	10-15	6.6-7.8	0	0	0	0
	10-15	10-15	6.6-7.8	0	0	0	0
	15-25	---	---	---	---	---	---
Rock outcrop.							
Chugcreek	0-5	5.0-10	6.6-7.3	0	0	0	0
	5-34	10-20	6.6-7.8	0	0	0	0
	34-36	10-20	6.6-7.8	0	0	0	0
	36-46	---	---	---	---	---	---
114:							
Boyle	0-7	3.0-5.0	6.6-7.3	0	0	0	0
	7-15	6.0-9.0	6.6-7.3	0	0	0	0
	15-18	6.0-9.0	6.6-7.3	0	0	0	0
	18-28	---	---	---	---	---	---
Boyle, thin solum	0-4	3.0-5.0	6.6-7.3	0	0	0	0
	4-7	6.0-9.0	6.6-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
115:							
Boyle, thin solum	0-4	5.0-20	6.6-7.3	0	0	0.0-2.0	0
	4-8	5.0-20	6.6-7.3	0	0	0.0-2.0	0
	8-18	---	---	---	---	---	---
Breece	0-5	8.0-23	6.6-7.8	0	0	0.0-2.0	0
	5-25	8.0-20	6.6-7.8	0	0	0.0-2.0	0
	25-60	8.0-13	7.4-7.8	0	0	0.0-2.0	0
Cathedral	0-7	5.0-20	6.6-7.3	0	0	0.0-2.0	0
	7-13	5.0-14	6.6-7.3	0	0	0.0-2.0	0
	13-23	---	---	---	---	---	---
116:							
Boyle	0-8	3.0-5.0	6.6-7.3	0	0	0	0
	8-12	6.0-9.0	6.6-7.3	0	0	0	0
	12-18	6.0-9.0	6.6-7.3	0	0	0	0
	18-28	---	---	---	---	---	---
Lininger	0-8	12-20	6.6-7.8	0	0	0	0
	8-12	13-23	6.6-7.8	0	0	0	0
	12-24	8.0-19	6.6-7.8	0	0	0	0
	24-34	---	---	---	---	---	---
117:							
Boyle	0-6	3.0-5.0	6.6-7.3	0	0	0	0
	6-12	6.0-9.0	6.6-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop.							
118:							
Boyle	0-7	5.0-20	6.6-7.3	0	0	0.0-2.0	0
	7-15	5.0-20	6.6-7.3	0	0	0.0-2.0	0
	15-25	---	---	---	---	---	---
Rock outcrop.							

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
118:							
Cathedral-------	0-7	5.0-20	6.6-7.3	0	0	0.0-2.0	0
	7-13	5.0-14	6.6-7.3	0	0	0.0-2.0	0
	13-23	---	---	---	---	---	---
119:							
Brown-----------	0-4	3.0-6.0	6.6-7.3	0	0	0	0
	4-19	6.0-18	6.6-7.8	0	0	0	0
	19-29	---	---	---	---	---	---
Featherlegs-----	0-5	3.0-6.0	6.6-8.4	0	0	0	0
	5-16	6.0-10	6.6-8.4	0	0	0	0
	16-26	3.0-6.0	7.4-9.0	7-40	0	0	0
	26-60	3.0-6.0	7.4-9.0	7-40	0	0	0-3
Recluse---------	0-3	3.0-6.0	7.4-7.8	0-5	0	0	0
	3-10	6.0-10	7.4-7.8	0-5	0	0	0
	10-60	6.0-10	7.9-8.4	15-25	0	0	0
120:							
Byrnie----------	0-3	3.0-11	7.9-8.4	0-10	0	0.0-2.0	0
	3-11	3.0-11	7.9-8.4	5-20	0	0.0-2.0	0
	11-21	---	---	---	---	---	---
Byrnie, thin solum----------	0-3	3.0-11	7.9-8.4	0-10	0	0.0-2.0	0
	3-7	3.0-11	7.9-8.4	5-15	0	0.0-2.0	0
	7-17	---	---	---	---	---	---
Rock outcrop.							
121:							
Byrnie----------	0-2	3.0-11	7.9-8.4	0-10	0	0.0-2.0	0
	2-11	3.0-11	7.9-8.4	5-20	0	0.0-2.0	0
	11-21	---	---	---	---	---	---
Coocreek--------	0-5	10-17	7.4-7.8	5-10	0	0.0-2.0	0
	5-12	9.0-15	7.4-8.4	5-10	0	0.0-2.0	0
	12-60	8.0-14	7.4-8.4	5-15	0	0.0-2.0	0
Byrnie, thin solum----------	0-2	3.0-11	7.9-8.4	0-10	0	0.0-2.0	0
	2-4	3.0-11	7.9-8.4	5-15	0	0.0-2.0	0
	4-14	---	---	---	---	---	---
122:							
Cascajo---------	0-9	2.0-9.0	7.9-8.4	2-5	0	0	0
	9-19	1.0-6.0	7.9-8.4	10-15	0	0	0
	19-60	1.0-6.0	7.9-8.4	5-10	0	0	0
Taluce----------	0-10	6.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	10-16	6.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	16-26	---	---	---	---	---	---
Rock outcrop.							
123:							
Cathedral-------	0-3	7.0-17	5.6-7.8	0	0	0	0
	3-14	4.0-11	5.6-7.8	0	0	0	0
	14-24	---	---	---	---	---	---
Spinekop--------	0-3	5.0-10	6.6-8.4	0	0	0	0
	3-15	10-20	7.9-9.0	2-10	0	0.0-2.0	0-3
	15-60	5.0-15	7.9-9.0	5-15	0	0.0-2.0	0-3

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
123:							
Rock outcrop.							
124:							
Cedak	0-8	8.0-12	7.4-8.4	0	0	0.0-2.0	0
	8-30	11-17	7.4-8.4	0	0	0.0-2.0	0
	30-37	7.0-11	7.9-9.0	10-20	0	0.0-2.0	0
	37-47	---	---	---	---	---	---
Bayard	0-12	8.0-14	6.6-7.8	0	0	0	0
	12-60	6.0-12	7.9-8.4	2-10	0	0.0-2.0	0
Treon, thin solum	0-5	6.0-11	7.4-8.4	0-5	0	0	0
	5-8	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	8-18	---	---	---	---	---	---
125:							
Cedak	0-9	8.0-12	7.4-8.4	0	0	0.0-2.0	0
	9-19	11-17	7.4-8.4	0	0	0.0-2.0	0
	19-30	7.0-11	7.9-9.0	10-20	0	0.0-2.0	0
	30-37	3.0-9.0	7.9-9.0	5-10	0	0.0-2.0	0
	37-47	---	---	---	---	---	---
Recluse	0-9	6.0-13	6.6-7.8	0	0	0	0
	9-20	7.0-16	6.6-7.8	0	0	0	0
	20-35	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0
	35-60	4.0-10	7.9-8.4	5-15	0	0.0-2.0	0
126:							
Cedak	0-8	8.0-12	7.4-8.4	0	0	0.0-2.0	0
	8-13	11-17	7.4-8.4	0	0	0.0-2.0	0
	13-24	7.0-11	7.9-9.0	10-20	0	0.0-2.0	0
	24-34	---	---	---	---	---	---
Recluse	0-8	6.0-13	6.6-7.8	0	0	0	0
	8-12	7.0-16	6.6-7.8	0	0	0	0
	12-20	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0
	20-60	4.0-10	7.9-8.4	5-15	0	0.0-2.0	0
Treon	0-7	5.0-12	7.4-8.4	0-5	0	0	0
	7-16	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	16-26	---	---	---	---	---	---
127:							
Cedak	0-7	7.0-13	7.4-8.4	0	0	0.0-2.0	0
	7-12	11-17	7.4-8.4	0	0	0.0-2.0	0
	12-32	7.0-11	7.9-9.0	10-20	0	0.0-2.0	0
	32-42	---	---	---	---	---	---
Treon	0-9	6.0-11	7.4-8.4	0-5	0	0	0
	9-19	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
128:							
Chaperton, moderately saline	0-4	10-15	7.9-8.4	0-5	0	0.0-2.0	0
	4-16	10-15	7.9-8.4	0-5	0	0.0-2.0	0
	16-35	10-15	8.5-9.0	4-14	0-3	4.0-8.0	0-10
	35-45	---	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
128:							
Blazon----------	0-2	15-25	7.9-9.0	5-15	0	0.0-2.0	0
	2-16	15-25	7.9-9.0	5-15	0-5	0.0-4.0	0-5
	16-26	---	---	---	---	---	---
129:							
Claprych--------	0-9	5.0-11	7.9-8.4	1-5	0	0.0-2.0	0
	9-18	5.0-11	7.9-8.4	5-10	0	0.0-2.0	0
	18-60	3.0-9.0	7.9-9.0	10-25	0	0.0-2.0	0-3
130:							
Claprych--------	0-3	5.0-11	7.9-8.4	2-5	0	0.0-2.0	0
	3-60	3.0-9.0	7.9-9.0	10-25	0	0.0-2.0	0-3
Luman-----------	0-2	3.0-9.0	7.4-7.8	0-5	0	0.0-2.0	0
	2-8	10-21	7.4-7.8	0-5	0	0.0-2.0	0
	8-12	4.0-18	7.4-7.8	5-10	0	0.0-2.0	0
	12-60	4.0-8.0	7.9-8.4	10-30	0	0.0-2.0	0
131:							
Claprych--------	0-8	11-17	7.9-8.4	1-5	0	0.0-2.0	0
	8-17	11-17	7.9-8.4	1-5	0	0.0-2.0	0
	17-30	3.0-9.0	7.9-9.0	10-25	0	0.0-2.0	0-3
	30-60	3.0-7.0	7.9-9.0	10-25	0	0.0-2.0	0-3
Selpats---------	0-10	11-15	7.4-7.8	0-5	0	0.0-2.0	0
	10-14	12-16	7.4-7.8	0-5	0	0.0-2.0	0
	14-19	12-16	7.4-7.8	0-5	0	0.0-2.0	0
	19-24	12-17	7.9-8.4	5-15	0	0.0-2.0	0
	24-60	6.0-10	7.9-8.4	8-20	0	0.0-2.0	0
132:							
Claprych--------	0-4	5.0-11	7.9-8.4	2-5	0	0.0-2.0	0
	4-30	3.0-9.0	7.9-9.0	10-25	0	0.0-2.0	0-3
	30-60	3.0-5.0	7.9-9.0	10-25	0	0.0-2.0	0-3
Sweatbee--------	0-7	8.0-12	7.9-8.4	0-5	0	0	0
	7-36	7.0-12	7.9-8.4	5-15	0	0	0
	36-60	2.0-7.0	7.9-9.0	20-40	0	0.0-2.0	0
133:							
Clarkelen-------	0-2	5.0-9.0	7.9-8.4	0-5	0	0.0-2.0	0
	2-8	5.0-9.0	7.9-8.4	0-5	0	0.0-2.0	0
	8-23	4.0-8.0	7.9-8.4	0-5	0	0.0-2.0	0
	23-42	5.0-9.0	7.9-8.4	0-5	0	0.0-2.0	0
	42-60	6.0-10	7.9-8.4	5-10	0	0.0-2.0	0
Quarterback-----	0-2	5.0-8.0	7.9-8.4	0-5	0	0.0-2.0	0
	2-11	7.0-11	7.9-8.4	0-5	0	0.0-2.0	0
	11-60	10-16	7.9-8.4	0-5	0	0.0-2.0	0
134:							
Clarkelen, wet--	0-10	8.0-11	7.9-8.4	0-5	0	0.0-2.0	0
	10-51	5.0-11	7.9-8.4	0-5	0	0.0-2.0	0
	51-60	2.0-4.0	7.9-8.4	0-5	0	0.0-2.0	0
Anvil-----------	0-2	6.0-14	7.9-8.4	0-10	0	0.0-2.0	0
	2-5	6.0-11	7.9-8.4	0-10	0	0.0-2.0	0
	5-60	5.0-10	7.9-8.4	0-10	0	0.0-2.0	0
135:							
Coaliams--------	0-8	7.0-16	7.4-8.4	0-5	0	0.0-2.0	0
	8-60	10-22	7.4-9.0	4-15	0	0.0-2.0	0-2

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
135:							
Haverdad--------	0-5	8.0-14	7.4-8.4	0-5	0	0.0-2.0	0
	5-60	9.0-17	7.4-8.4	1-10	0	0.0-2.0	0
136:							
Cowestglen------	0-7	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
	7-54	5.0-10	7.4-8.4	8-10	0	0.0-2.0	0
	54-60	5.0-10	7.4-8.4	8-10	0	0.0-2.0	0
137:							
Creighton-------	0-10	5.0-10	7.4-7.8	0-5	0	0	0
	10-20	4.0-8.0	7.9-8.4	0-5	0	0	0
	20-60	3.0-7.0	7.9-8.4	5-10	0	0.0-2.0	0
138:							
Curabith--------	0-8	8.0-12	7.9-8.4	2-10	0	0.0-2.0	0
	8-12	6.0-12	7.9-8.4	2-10	0	0.0-2.0	0
	12-35	5.0-9.0	7.9-8.4	10-35	0	0.0-2.0	0
	35-60	2.0-5.0	7.9-9.0	10-35	0	0.0-2.0	0-3
139:							
Cushool---------	0-3	5.0-10	6.6-7.8	0	0	0	0
	3-16	10-15	6.6-8.4	0-5	0	0.0-2.0	0
	16-32	5.0-10	7.9-9.0	5-10	0	0.0-2.0	0-2
	32-42	---	---	---	---	---	---
Cutback---------	0-1	5.0-10	6.6-8.4	0	0	0	0
	1-7	15-25	7.4-8.4	0	0	0	0
	7-17	15-25	7.9-9.0	10-20	0	0.0-2.0	0-2
	17-31	5.0-10	7.9-9.0	15-30	0	0.0-2.0	0-2
	31-41	---	---	---	---	---	---
140:							
Dalecreek-------	0-8	10-15	6.6-8.4	0	0	0	0
	8-28	10-20	6.6-8.4	0-5	0	0	0
	28-60	15-25	6.6-8.4	0-5	0	0	0
Kovich----------	0-8	10-15	6.6-7.8	0	0	0.0-2.0	0
	8-21	10-15	6.6-7.8	0	0	0.0-2.0	0
	21-60	10-15	6.6-7.8	0	0	0.0-2.0	0
141:							
Deight----------	0-8	7.0-12	6.6-7.8	0-5	0	0	0
	8-16	8.0-11	7.4-7.8	0-5	0	0	0
	16-60	4.0-9.0	7.9-8.4	10-20	0	0	0
Thirtynine------	0-7	6.0-15	7.4-7.8	0-5	0	0.0-2.0	0
	7-17	15-20	7.4-8.4	0-5	0	0.0-2.0	0
	17-22	6.0-16	7.9-8.4	1-5	0	0.0-2.0	0
	22-32	6.0-16	7.9-8.4	5-10	0	0.0-2.0	0
	32-60	5.0-15	7.9-8.4	1-5	0	0.0-2.0	0
Glendo----------	0-2	5.0-10	7.9-8.4	2-10	0	0.0-2.0	0
	2-7	5.0-10	7.9-8.4	2-10	0	0.0-2.0	0
	7-21	6.0-11	7.9-9.0	2-10	0	0.0-2.0	0-2
	21-60	5.0-8.0	7.9-9.0	2-10	0	0.0-2.0	0-2
142:							
Diamonkit-------	0-1	5.0-10	7.4-8.4	0	0	0.0-2.0	0
	1-11	10-15	7.9-9.0	0-15	0	0.0-2.0	0-5
	11-33	15-20	7.9-9.0	5-15	5-15	0.0-8.0	0-5
	33-43	---	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
142:							
Stylite	0-2	5.0-15	7.4-8.4	0	0	0	0
	2-14	10-15	7.4-8.4	0	0	0.0-2.0	0
	14-31	15-20	7.9-9.0	10-25	0	0.0-4.0	0-3
	31-60	---	7.4-8.4	5-15	15-40	4.0-8.0	3-10
143:							
Embry	0-10	2.0-8.0	6.1-7.8	0	0	0.0-2.0	0
	10-60	3.0-10	6.1-7.8	0	0	0.0-2.0	0
144:							
Evanston	0-3	9.0-16	6.6-7.8	0	0	0	0
	3-15	11-25	7.4-7.8	0	0	0.0-2.0	0
	15-60	10-16	7.4-8.4	3-15	0	0.0-2.0	0
145:							
Evanston	0-7	5.0-8.0	6.6-7.8	0	0	0	0
	7-18	7.0-10	6.6-7.8	0	0	0	0
	18-33	5.0-8.0	7.4-8.4	5-15	0	0.0-2.0	0
	33-60	5.0-8.0	7.4-8.4	5-15	0	0.0-2.0	0
Ipson	0-6	4.0-6.0	6.6-7.8	0	0	0	0
	6-18	6.0-10	7.4-8.4	5-20	0	0	0
	18-60	4.0-6.0	7.4-9.0	5-30	0	0.0-2.0	0-3
146:							
Evanston	0-4	5.0-8.0	6.6-7.8	0	0	0	0
	4-12	7.0-10	6.6-7.8	0	0	0	0
	12-60	5.0-8.0	7.4-8.4	5-15	0	0.0-2.0	0
Ipson	0-4	4.0-6.0	6.6-7.8	0	0	0	0
	4-11	6.0-10	7.4-8.4	5-20	0	0	0
	11-60	4.0-6.0	7.4-9.0	5-30	0	0.0-2.0	0-3
Brownsto	0-4	4.0-6.0	7.9-8.4	1-5	0	0.0-2.0	0
	4-60	5.0-8.0	7.9-8.4	20-35	0	0.0-2.0	0
147:							
Evanston	0-5	4.0-9.0	7.4-7.8	0	0	0	0
	5-15	10-20	7.4-7.8	0	0	0	0
	15-27	8.0-10	7.4-7.8	0	0	0	0
	27-60	8.0-10	7.9-8.4	5-15	0	0.0-2.0	0
Weed	0-5	10-15	7.4-7.8	0	0	0	0
	5-14	15-20	7.4-7.8	0	0	0	0
	14-28	15-20	7.4-7.8	0-5	0	0.0-2.0	0
	28-60	13-17	7.9-8.4	5-10	0	0.0-2.0	0
148:							
Evanston	0-3	10-16	7.4-7.8	0	0	0	0
	3-12	11-25	7.4-7.8	0	0	0.0-2.0	0
	12-27	10-16	7.9-8.4	5-15	0	0.0-2.0	0
	27-60	4.0-9.0	7.9-8.4	5-15	0	0.0-2.0	0
Weed	0-8	10-15	7.4-7.8	0	0	0	0
	8-18	15-20	7.4-7.8	0	0	0	0
	18-26	15-20	7.4-7.8	0-5	0	0.0-2.0	0
	26-60	13-17	7.9-8.4	5-10	0	0.0-2.0	0
Trimad	0-8	10-15	7.9-8.4	1-7	0	0.0-2.0	0
	8-60	4.0-12	7.9-8.4	25-35	0	0.0-2.0	0

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
149:							
Featherlegs, wet	0-14	8.0-13	7.9-8.4	0-10	0	0.0-2.0	0
	14-18	13-18	7.4-7.8	0-5	0	0.0-2.0	0
	18-31	3.0-9.0	7.4-7.8	7-15	0	0.0-2.0	0
	31-60	2.0-6.0	7.9-9.0	5-30	0	0.0-2.0	0-3
150:							
Featherlegs-----	0-10	7.0-13	7.4-8.4	0	0	0	0
	10-26	11-18	7.4-8.4	0-5	0	0	0
	26-30	6.0-14	7.9-9.0	10-40	0	0.0-2.0	0-3
	30-60	1.0-9.0	7.9-9.0	10-40	0	0.0-2.0	0-3
Bayard----------	0-12	8.0-14	6.6-7.8	0	0	0	0
	12-60	6.0-12	7.9-8.4	2-10	0	0.0-2.0	0
151:							
Featherlegs-----	0-10	8.0-13	7.4-8.4	0	0	0	0
	10-15	11-18	7.4-8.4	0-5	0	0	0
	15-45	4.0-10	7.9-8.4	5-10	0	0.0-2.0	0
	45-60	2.0-7.0	7.9-9.0	5-35	0	0.0-2.0	0-3
Curabith--------	0-12	9.0-14	7.4-7.8	2-10	0	0.0-2.0	0
	12-30	5.0-9.0	7.9-8.4	10-35	0	0.0-2.0	0
	30-60	2.0-5.0	7.9-9.0	10-35	0	0.0-2.0	0-3
152:							
Featherlegs-----	0-5	7.0-13	7.4-8.4	0	0	0	0
	5-13	11-18	7.4-8.4	0-5	0	0	0
	13-60	1.0-9.0	7.9-9.0	10-40	0	0.0-2.0	0-3
Greenhope-------	0-7	7.0-13	7.4-8.4	0-5	0	0.0-2.0	0
	7-12	5.0-11	7.9-8.4	10-20	0	0.0-2.0	0
	12-36	6.0-11	7.9-9.0	10-20	0	0.0-2.0	0-3
	36-60	4.0-9.0	7.9-9.0	10-20	0	0.0-2.0	0-3
Curabith--------	0-7	9.0-14	7.4-7.8	2-10	0	0.0-2.0	0
	7-60	5.0-9.0	7.9-8.4	10-35	0	0.0-2.0	0-3
153:							
Featherlegs-----	0-8	11-17	7.4-7.8	0	0	0	0
	8-20	13-20	7.4-7.8	0	0	0	0
	20-30	10-15	7.4-8.4	15-25	0	0	0
	30-60	9.0-14	7.9-9.0	5-20	0	0.0-2.0	0-3
Recluse---------	0-8	11-17	6.6-8.4	0	0	0	0
	8-22	10-17	6.6-8.4	0	0	0	0
	22-60	5.0-15	7.9-9.0	5-15	0	0.0-2.0	0-2
154:							
Featherlegs-----	0-9	12-17	7.4-8.4	0	0	0	0
	9-26	11-18	7.4-8.4	0-5	0	0	0
	26-35	6.0-14	7.9-9.0	10-40	0	0.0-2.0	0-3
	35-60	1.0-9.0	7.9-9.0	10-40	0	0.0-2.0	0-3
Recluse---------	0-8	11-17	6.6-8.4	0	0	0	0
	8-22	10-17	6.6-8.4	0	0	0	0
	22-60	5.0-15	7.9-9.0	5-15	0	0.0-2.0	0-2
155:							
Featherlegs-----	0-9	12-17	7.4-8.4	0	0	0	0
	9-23	11-18	7.4-8.4	0-5	0	0	0
	23-33	6.0-14	7.9-9.0	10-40	0	0.0-2.0	0-3
	33-60	1.0-9.0	7.9-9.0	10-40	0	0.0-2.0	0-3

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
155:							
Recluse	0-5	5.0-14	6.6-7.8	0	0	0	0
	5-10	11-21	6.6-7.8	0	0	0	0
	10-18	11-21	6.6-7.8	1-10	0	0	0
	18-60	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0
156:							
Fluvaquentic Endoaquolls	0-7	12-18	7.4-8.4	0-5	0	0.0-2.0	0
	7-36	11-17	7.4-8.4	0-5	0	0.0-2.0	0
	36-44	7.0-12	7.4-8.4	0-5	0	0.0-2.0	0
	44-60	10-16	7.4-8.4	0-5	0	0.0-2.0	0
Whetsoon	0-7	6.0-12	7.4-8.4	0	0	0	0
	7-13	11-17	7.4-8.4	0-5	0	0	0
	13-21	11-17	7.4-8.4	0-5	0	0	0
	21-33	9.0-17	7.9-8.4	0-5	0	0.0-2.0	0
	33-60	4.0-10	7.9-8.4	0-5	0	0.0-2.0	0
157:							
Forelle	0-4	7.0-17	6.6-7.3	0-5	0	0	0
	4-25	12-18	7.4-7.8	0-10	0	0.0-2.0	0
	25-60	10-15	7.9-8.4	4-14	0	0.0-2.0	0
158:							
Forelle	0-4	7.0-12	6.6-7.3	0-5	0	0	0
	4-25	12-18	7.4-7.8	0-10	0	0.0-2.0	0
	25-60	10-15	7.9-8.4	4-14	0	0.0-2.0	0
Diamondville	0-1	5.0-15	7.4-8.4	0	0	0	0
	1-23	15-20	7.4-8.4	0-5	0	0	0
	23-34	5.0-15	7.9-9.0	5-14	0	0.0-2.0	0-2
	34-44	---	---	---	---	---	---
159:							
Forkwood	0-9	7.0-12	7.9-8.4	0	0	0	0
	9-15	11-17	7.4-8.4	0	0	0.0-2.0	0
	15-39	6.0-10	7.9-9.0	1-5	0	0.0-2.0	0
	39-60	5.0-10	7.9-9.0	1-5	0	0.0-2.0	0-2
160:							
Forkwood	0-2	11-17	7.4-7.8	0	0	0	0
	2-12	11-17	7.4-8.4	0	0	0.0-2.0	0
	12-60	6.0-10	7.9-9.0	1-5	0	0.0-2.0	0
161:							
Forkwood, wet	0-7	7.0-11	7.4-7.8	0-5	0	0	0
	7-15	11-16	7.4-7.8	0-5	0	0	0
	15-19	11-16	7.4-7.8	1-5	0	0	0
	19-60	4.0-9.0	7.9-8.4	5-15	0	0.0-2.0	0
162:							
Glendo	0-3	5.0-10	7.9-8.4	2-10	0	0.0-2.0	0
	3-14	5.0-10	7.9-8.4	2-10	0	0.0-2.0	0
	14-60	6.0-11	7.9-9.0	2-10	0	0.0-2.0	0-2
163:							
Graystone	0-8	6.0-12	7.4-8.4	0-5	0	0	0
	8-24	4.0-10	7.4-8.4	5-25	0	0	0
	24-60	2.0-6.0	7.9-9.0	5-20	0	0.0-2.0	0-3

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
163:							
Alice	0-8	6.0-11	6.6-7.8	0-5	0	0.0-2.0	0
	8-36	6.0-11	7.4-8.4	0-5	0	0.0-2.0	0
	36-60	4.0-9.0	7.4-8.4	5-10	0	0.0-2.0	0
164:							
Graystone	0-8	6.0-12	7.4-8.4	0-5	0	0	0
	8-16	5.0-11	7.9-8.4	5-10	0	0	0
	16-36	4.0-10	7.4-8.4	5-25	0	0	0
	36-60	3.0-9.0	7.4-9.0	5-20	0	0.0-2.0	0-3
Greenhope	0-9	7.0-13	7.4-8.4	0-5	0	0.0-2.0	0
	9-20	6.0-11	7.9-9.0	10-20	0	0.0-2.0	0-3
	20-23	3.0-10	7.9-9.0	10-20	0	0.0-2.0	0-3
	23-35	4.0-9.0	7.9-9.0	10-20	0	0.0-2.0	0-3
	35-60	4.0-9.0	7.9-9.0	10-20	0	0.0-2.0	0-3
Bayard	0-8	8.0-14	6.6-7.8	0	0	0	0
	8-60	6.0-12	7.9-8.4	2-10	0	0.0-2.0	0
165:							
Graystone	0-8	6.0-12	7.4-8.4	0-5	0	0	0
	8-17	5.0-11	7.9-8.4	5-10	0	0	0
	17-30	4.0-10	7.4-8.4	5-25	0	0	0
	30-60	3.0-9.0	7.4-9.0	5-20	0	0.0-2.0	0-3
Mainter	0-9	7.0-11	6.6-7.8	0	0	0.0-2.0	0
	9-16	7.0-11	6.6-8.4	0-5	0	0.0-2.0	0
	16-28	4.0-8.0	7.4-8.4	5-15	0	0.0-2.0	0
	28-60	4.0-8.0	7.4-8.4	5-10	0	0.0-2.0	0
166:							
Graystone	0-8	6.0-12	7.4-8.4	0-5	0	0	0
	8-20	4.0-10	7.4-8.4	5-25	0	0	0
	20-60	3.0-9.0	7.4-9.0	5-20	0	0.0-2.0	0-3
Phiferson	0-9	7.0-13	7.9-8.4	0-5	0	0	0
	9-25	6.0-12	7.9-8.4	0-10	0	0.0-2.0	0
	25-36	6.0-10	7.9-8.4	5-15	0	0.0-2.0	0
	36-46	---	---	---	---	---	---
Treon	0-7	5.0-12	7.4-8.4	0-5	0	0	0
	7-19	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
167:							
Greenhope	0-9	7.0-13	7.4-8.4	0-5	0	0.0-2.0	0
	9-16	6.0-11	7.9-9.0	10-20	0	0.0-2.0	0-3
	16-25	3.0-10	7.9-9.0	5-25	0	0.0-2.0	0-3
	25-60	4.0-9.0	7.9-9.0	5-25	0	0.0-2.0	0-3
Featherlegs	0-7	3.0-6.0	6.6-8.4	0	0	0	0
	7-13	6.0-10	6.6-8.4	0	0	0	0
	13-17	3.0-6.0	7.4-9.0	7-40	0	0	0
	17-60	3.0-6.0	7.4-9.0	7-40	0	0	0-3
168:							
Hiland	0-9	6.0-13	6.6-7.8	0	0	0	0
	9-15	11-20	6.6-8.4	0	0	0.0-2.0	0
	15-18	4.0-10	7.4-8.4	1-5	0	0.0-2.0	0
	18-38	5.0-10	7.9-8.4	5-15	0	0.0-2.0	0-2
	38-60	5.0-9.0	7.9-8.4	0-5	0	0.0-2.0	0-2

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
169:							
Hiland	0-10	6.0-12	6.6-7.8	0	0	0	0
	10-15	11-20	6.6-8.4	0	0	0.0-2.0	0
	15-30	5.0-10	7.9-8.4	5-15	0	0.0-2.0	0-2
	30-60	5.0-9.0	7.9-8.4	0-5	0	0.0-2.0	0-2
Cambria	0-7	4.0-12	6.6-8.4	0-5	0	0	0
	7-10	11-17	7.4-8.4	0-5	0	0	0
	10-60	9.0-16	7.9-9.0	5-15	0	0.0-2.0	0
170:							
Ipson	0-8	4.0-16	6.6-7.8	0	0	0.0-2.0	0
	8-14	11-18	7.4-8.4	0	0	0.0-2.0	0
	14-60	3.0-11	7.9-8.4	5-10	0	0.0-2.0	0
Evanston	0-7	9.0-16	6.6-7.8	0	0	0	0
	7-28	11-25	7.4-7.8	0	0	0.0-2.0	0
	28-60	10-16	7.4-8.4	3-15	0	0.0-2.0	0
171:							
Ipson	0-8	4.0-16	6.6-7.8	0	0	0.0-2.0	0
	8-14	11-18	7.4-8.4	0	0	0.0-2.0	0
	14-60	3.0-11	7.9-8.4	5-10	0	0.0-2.0	0-3
Evanston	0-9	9.0-16	6.6-7.8	0	0	0	0
	9-26	11-25	7.4-7.8	0	0	0.0-2.0	0
	26-60	10-16	7.4-8.4	3-15	0	0.0-2.0	0
Rock outcrop.							
172:							
Jayem	0-13	7.0-14	6.6-7.8	0	0	0	0
	13-30	6.0-11	6.6-7.8	0	0	0	0
	30-60	6.0-11	6.6-7.8	0	0	0	0
Mainter	0-4	7.0-11	6.6-7.8	0	0	0.0-2.0	0
	4-25	7.0-11	6.6-8.4	0-5	0	0.0-2.0	0
	25-60	4.0-8.0	7.4-8.4	5-15	0	0.0-2.0	0
Moskee	0-7	7.0-12	6.6-7.8	0-5	0	0	0
	7-28	12-17	6.6-8.4	0-5	0	0.0-2.0	0
	28-60	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
173:							
Julesburg	0-7	7.0-13	6.6-7.8	0	0	0	0
	7-14	7.0-13	6.6-7.8	0	0	0	0
	14-39	7.0-12	6.6-7.8	0	0	0	0
	39-54	6.0-10	6.6-8.4	0	0	0	0
	54-60	6.0-10	6.6-8.4	0-5	0	0	0
Jayem	0-12	7.0-14	6.6-7.8	0	0	0	0
	12-26	6.0-11	6.6-7.8	0	0	0	0
	26-54	6.0-11	6.6-7.8	0	0	0	0
	54-60	5.0-10	6.6-7.8	0-5	0	0	0
Phiferson	0-10	6.0-12	6.6-8.4	0-5	0	0	0
	10-17	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	17-25	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	25-35	---	---	---	---	---	---
174:							
Keeline	0-12	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	12-60	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
175:							
Keeline	0-6	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	6-60	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2
176:							
Keeline	0-6	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	6-34	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2
	34-60	3.0-10	7.9-9.0	5-15	0	0.0-2.0	0-2
177:							
Keeline	0-5	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	5-60	3.0-10	7.9-9.0	5-15	0	0.0-2.0	0-2
Mainter	0-8	8.0-12	6.6-7.8	0	0	0.0-2.0	0
	8-16	7.0-11	6.6-8.4	0-5	0	0.0-2.0	0
	16-22	5.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	22-60	4.0-8.0	7.4-8.4	5-10	0	0.0-2.0	0
178:							
Keeline	0-7	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	7-60	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2
Nidix	0-8	7.0-12	6.6-7.8	0	0	0.0-2.0	0
	8-20	6.0-10	6.6-7.8	0	0	0.0-2.0	0
	20-30	4.0-8.0	6.6-7.8	0	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
Taluce	0-4	6.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	4-19	6.0-10	7.4-8.4	5-10	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
179:							
Keeline	0-6	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	6-39	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2
	39-60	3.0-10	7.9-9.0	5-15	0	0.0-2.0	0-2
Taluce	0-5	6.0-10	7.4-8.4	1-5	0	0	0
	5-14	5.0-9.0	7.4-8.4	1-5	0	0	0
	14-18	5.0-9.0	7.4-8.4	1-10	0	0.0-2.0	0
	18-28	---	---	---	---	---	---
Turnercrest	0-4	4.0-10	7.4-8.4	0-10	0	0	0
	4-11	4.0-11	7.4-8.4	0-10	0	0	0
	11-27	3.0-10	7.4-8.4	1-15	0	0	0
	27-37	---	---	---	---	---	---
180:							
Keeline	0-4	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	4-9	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2
	9-60	3.0-10	7.9-9.0	5-15	0	0.0-2.0	0-2
Turnercrest	0-6	4.0-10	7.4-8.4	0-10	0	0	0
	6-32	3.0-10	7.4-8.4	1-15	0	0	0
	32-42	---	---	---	---	---	---
181:							
Keeline	0-5	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	5-60	3.0-10	7.9-9.0	5-15	0	0.0-2.0	0-2
Turnercrest	0-8	4.0-10	7.4-8.4	0-10	0	0	0
	8-19	4.0-11	7.4-8.4	0-10	0	0	0
	19-36	3.0-10	7.4-8.4	1-15	0	0	0
	36-46	---	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
182:							
Kishona	0-5	15-20	7.4-8.4	1-4	0	4.0-8.0	0-5
	5-60	11-20	7.9-9.0	4-10	0	4.0-8.0	5-13
183:							
Livan	0-6	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
	6-32	1.0-5.0	7.4-8.4	1-5	0	0.0-2.0	0
	32-60	1.0-5.0	7.4-8.4	1-5	0	0.0-2.0	0
Clarkelen	0-3	2.0-8.0	7.4-7.8	0	0	0.0-2.0	0
	3-40	2.0-6.0	7.4-8.4	0-5	0	0.0-2.0	0
	40-60	2.0-6.0	7.9-8.4	0-5	0	0.0-2.0	0
184:							
Livan	0-5	4.0-11	7.4-8.4	1-5	0	0.0-2.0	0
	5-16	3.0-9.0	7.4-8.4	1-5	0	0.0-2.0	0
	16-60	1.0-5.0	7.4-8.4	1-5	0	0.0-2.0	0
Riverwash.							
185:							
Mainter	0-8	7.0-11	6.6-7.8	0	0	0.0-2.0	0
	8-21	7.0-11	6.6-8.4	0-5	0	0.0-2.0	0
	21-60	4.0-8.0	7.4-8.4	5-15	0	0.0-2.0	0
186:							
Mainter, wet	0-11	8.0-12	7.4-7.8	0	0	0.0-2.0	0
	11-17	10-14	7.4-7.8	0-5	0	0.0-2.0	0
	17-21	9.0-12	7.4-7.8	0-5	0	0.0-2.0	0
	21-34	8.0-11	7.9-8.4	4-14	0	0.0-2.0	0
	34-60	3.0-6.0	7.9-8.4	4-14	0	0.0-2.0	0
187:							
Mainter	0-11	7.0-11	6.6-7.8	0	0	0.0-2.0	0
	11-20	7.0-11	6.6-8.4	0-5	0	0.0-2.0	0
	20-30	4.0-8.0	7.4-8.4	5-15	0	0.0-2.0	0
	30-60	4.0-8.0	7.4-8.4	5-10	0	0.0-2.0	0
Keeline	0-5	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	5-60	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2
188:							
McFadden	0-5	5.0-10	7.9-8.4	0-2	0	0.0-2.0	0
	5-18	5.0-10	7.9-9.0	10-30	0	0.0-2.0	0-3
	18-60	10-15	7.9-9.0	15-30	0	0.0-2.0	0-3
189:							
Mines.							
Quarries.							
190:							
Mitchell	0-7	7.0-11	7.4-8.4	1-5	0	0	0
	7-30	6.0-10	7.4-8.4	1-10	0	0	0
	30-60	4.0-9.0	7.4-8.4	1-10	0	0	0
191:							
Mitchell	0-12	7.0-11	7.4-8.4	1-5	0	0	0
	12-60	6.0-10	7.4-8.4	1-10	0	0	0

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
192:							
Moskee	0-11	7.0-12	6.6-7.8	0-5	0	0	0
	11-21	12-17	6.6-8.4	0-5	0	0.0-2.0	0
	21-32	9.0-13	7.9-8.4	5-15	0	0.0-2.0	0
	32-42	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	42-60	4.0-9.0	7.4-7.8	5-15	0	0.0-2.0	0
193:							
Moskee	0-10	7.0-12	6.6-7.8	0-5	0	0	0
	10-19	12-17	6.6-8.4	0-5	0	0.0-2.0	0
	19-60	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
194:							
Orpha	0-5	4.0-8.0	6.6-7.8	0	0	0	0
	5-60	2.0-5.0	6.6-7.8	0	0	0	0
195:							
Orpha	0-12	0.0-5.0	6.6-7.8	0	0	0	0-2
	12-60	2.0-5.0	6.6-7.8	0	0	0	0
Tullock	0-12	0.0-5.0	6.6-7.8	0-5	0	0	0-2
	12-21	0.0-5.0	6.6-7.8	1-5	0	0	0-2
	21-31	---	---	---	---	---	---
196:							
Phiferson	0-9	6.0-12	6.6-8.4	0-5	0	0	0
	9-15	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	15-30	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
Alice, bedrock substratum	0-10	8.0-12	7.4-8.4	0-5	0	0.0-2.0	0
	10-17	7.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	17-50	5.0-9.0	7.9-8.4	5-10	0	0.0-2.0	0
	50-60	---	---	---	---	---	---
197:							
Phiferson	0-9	6.0-12	6.6-8.4	0-5	0	0	0
	9-16	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	16-36	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	36-46	---	---	---	---	---	---
Mainter	0-8	7.0-11	6.6-7.8	0	0	0.0-2.0	0
	8-20	7.0-11	6.6-8.4	0-5	0	0.0-2.0	0
	20-60	4.0-8.0	7.4-8.4	5-10	0	0.0-2.0	0
198:							
Phiferson	0-8	6.0-12	6.6-8.4	0-5	0	0	0
	8-19	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	19-30	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	30-40	---	---	---	---	---	---
Treon	0-7	6.0-11	7.4-8.4	0-5	0	0	0
	7-11	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	11-21	---	---	---	---	---	---
199:							
Pinelli	0-3	11-20	6.6-7.8	0	0	0	0
	3-30	15-20	7.4-7.8	0	0	0	0
	30-60	8.0-20	7.9-8.4	2-5	0	0.0-2.0	0

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
200:							
Poposhia	0-6	7.0-12	7.4-8.4	0-5	0	0.0-2.0	0
	6-60	7.0-12	7.9-8.4	2-10	0	0.0-2.0	0
201:							
Poposhia	0-10	7.0-12	7.4-8.4	0-5	0	0.0-2.0	0
	10-60	7.0-12	7.9-8.4	2-10	0	0.0-2.0	0
Blazon	0-6	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	6-13	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	13-23	---	---	---	---	---	---
202:							
Poposhia	0-4	7.0-12	7.4-8.4	0-5	0	0.0-2.0	0
	4-60	7.0-12	7.9-8.4	2-10	0	0.0-2.0	0
Blazon, thin solum	0-3	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	3-9	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	9-19	---	---	---	---	---	---
Rock outcrop.							
203:							
Poposhia	0-5	10-15	7.4-8.4	0-10	0	0.0-2.0	0
	5-60	10-20	7.9-9.0	5-15	0-1	0.0-2.0	0-2
Chaperton	0-3	7.0-12	7.9-8.4	0-5	0	0.0-2.0	0
	3-25	9.0-15	7.9-8.4	0-5	0-5	0.0-2.0	0
	25-35	---	---	---	---	---	---
204:							
Poposhia	0-2	10-15	7.4-8.4	0-10	0	0.0-2.0	0
	2-60	10-20	7.9-9.0	5-15	0-1	0.0-2.0	0-2
Forelle	0-2	7.0-12	6.6-7.3	0-5	0	0	0
	2-34	12-18	7.4-7.8	0-10	0	0.0-2.0	0
	34-60	10-15	7.9-8.4	4-14	0	0.0-2.0	0
205:							
Quarterback	0-1	4.0-14	7.9-8.4	0-5	0	0.0-2.0	0
	1-12	7.0-13	7.9-8.4	0-5	0	0.0-2.0	0
	12-60	6.0-10	7.9-8.4	0-5	0	0.0-2.0	0
206:							
Quarterback, thick surface	0-4	5.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	4-16	5.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	16-60	5.0-10	6.6-7.8	0-5	0	0.0-2.0	0
Albinas	0-5	9.0-20	6.6-7.8	0	0	0.0-2.0	0
	5-23	12-24	6.6-8.4	0	0	0.0-2.0	0
	23-60	6.0-22	7.9-9.0	2-10	0	0.0-2.0	0
207:							
Recluse	0-10	4.0-13	6.6-7.8	0	0	0	0
	10-16	7.0-16	6.6-7.8	0	0	0	0
	16-30	11-21	6.6-7.8	0	0	0	0
	30-42	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0
	42-60	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
208:							
Recluse	0-5	11-17	6.6-7.8	0	0	0	0
	5-12	7.0-16	6.6-7.8	0	0	0	0
	12-16	7.0-16	6.6-7.8	1-5	0	0	0
	16-26	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0
	26-60	4.0-10	7.9-8.4	5-15	0	0.0-2.0	0
209:							
Recluse	0-9	5.0-14	6.6-7.8	0	0	0	0
	9-20	11-21	6.6-7.8	0	0	0	0
	20-60	4.0-10	7.9-8.4	5-15	0	0.0-2.0	0
210:							
Recluse	0-18	6.0-12	6.6-8.4	0	0	0	0
	18-31	10-17	6.6-8.4	0	0	0	0
	31-49	5.0-15	7.9-9.0	5-15	0	0.0-2.0	0-2
	49-60	4.0-10	7.9-9.0	5-15	0	0.0-2.0	0-2
Albinas	0-5	9.0-20	6.6-7.8	0	0	0.0-2.0	0
	5-22	12-24	6.6-8.4	0	0	0.0-2.0	0
	22-60	6.0-22	7.9-9.0	2-10	0	0.0-2.0	0
Treon, thin solum	0-6	6.0-11	7.4-8.4	0-5	0	0	0
	6-9	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	9-19	---	---	---	---	---	---
211:							
Recluse	0-8	11-17	6.6-7.8	0	0	0	0
	8-23	7.0-16	6.6-7.8	0	0	0	0
	23-28	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0
	28-60	4.0-10	7.9-8.4	5-15	0	0.0-2.0	0
Cedak	0-9	8.0-12	7.4-8.4	0	0	0.0-2.0	0
	9-20	11-17	7.4-8.4	0	0	0.0-2.0	0
	20-29	7.0-11	7.9-9.0	10-20	0	0.0-2.0	0
	29-39	---	---	---	---	---	---
212:							
Recluse	0-13	5.0-14	6.6-7.8	0	0	0	0
	13-18	7.0-16	6.6-7.8	0	0	0	0
	18-23	11-21	6.6-7.8	0	0	0	0
	23-60	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0
Cedak	0-8	11-19	6.6-7.8	0	0	0	0
	8-19	10-19	6.6-7.8	0	0	0	0
	19-32	7.0-12	7.9-9.0	5-10	0	0	0-2
	32-42	---	---	---	---	---	---
213:							
Recluse	0-10	6.0-13	6.6-7.8	0	0	0	0
	10-28	7.0-16	6.6-7.8	0	0	0	0
	28-60	4.0-10	7.9-8.4	5-15	0	0.0-2.0	0
Graystone	0-9	6.0-12	7.4-8.4	0-5	0	0	0
	9-16	4.0-10	7.4-8.4	5-25	0	0	0
	16-44	4.0-10	7.4-8.4	5-25	0	0	0
	44-60	3.0-9.0	7.4-9.0	5-20	0	0.0-2.0	0-3
214:							
Recluse	0-11	5.0-14	6.6-7.8	0	0	0	0
	11-28	7.0-16	6.6-7.8	0	0	0	0
	28-60	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
214:							
Nuncho	0-10	5.0-15	6.6-7.8	0	0	0.0-2.0	0
	10-21	10-20	7.4-7.8	0	0	0.0-2.0	0
	21-31	10-20	7.4-8.4	1-7	0	0.0-2.0	0
	31-60	5.0-15	7.9-8.4	4-14	0	0.0-2.0	0
215:							
Rentsac	0-3	2.0-5.0	7.9-8.4	0	0	0	0
	3-15	2.0-5.0	7.9-8.4	5-15	0	0.0-2.0	0
	15-25	---	---	---	---	---	---
Brownsto	0-4	4.0-6.0	7.9-8.4	1-5	0	0.0-2.0	0
	4-60	5.0-8.0	7.9-8.4	20-35	0	0.0-2.0	0
Ipson	0-9	4.0-6.0	6.6-7.8	0	0	0	0
	9-23	6.0-10	7.4-8.4	5-20	0	0	0
	23-60	4.0-6.0	7.4-9.0	5-30	0	0.0-2.0	0-3
216:							
Riverwash.							
217:							
Rock outcrop.							
Blazon, thin solum	0-9	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	9-19	---	---	---	---	---	---
218:							
Rock outcrop.							
Bonjea	0-3	5.0-10	6.6-7.8	0	0	0	0
	3-13	10-15	6.6-7.8	0	0	0	0
	13-17	10-15	6.6-7.8	0	0	0	0
	17-27	---	---	---	---	---	---
219:							
Rock outcrop.							
Cathedral	0-5	5.0-10	6.6-7.3	0	0	0	0
	5-11	5.0-10	6.6-7.3	0	0	0	0
	11-21	---	---	---	---	---	---
220:							
Rock outcrop.							
Cathedral	0-2	5.0-10	6.6-7.3	0	0	0	0
	2-10	5.0-10	6.6-7.3	0	0	0	0
	10-20	---	---	---	---	---	---
Alderon	0-1	---	---	---	---	---	---
	1-3	10-15	6.6-7.3	0	0	0.0-2.0	0
	3-8	15-25	6.6-7.3	0	0	0.0-2.0	0
	8-27	15-25	6.6-7.3	0	0	0.0-2.0	0
	27-39	4.0-10	6.6-7.8	0	0	0.0-2.0	0
	39-49	---	---	---	---	---	---
221:							
Selpats	0-7	7.0-14	7.9-8.4	0-5	0	0.0-2.0	0
	7-11	9.0-18	7.9-8.4	0-5	0	0.0-2.0	0
	11-24	4.0-14	7.9-8.4	5-15	0	0.0-2.0	0
	24-38	4.0-13	7.9-8.4	8-20	0	0.0-2.0	0
	38-60	2.0-10	7.9-8.4	8-30	0	0.0-2.0	0

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
222:							
Selpats	0-3	10-20	7.4-7.8	0-5	0	0.0-2.0	0
	3-13	9.0-23	7.4-8.4	5-10	0	0.0-2.0	0
	13-24	9.0-23	7.4-8.4	5-10	0	0.0-2.0	0
	24-30	6.0-17	7.9-8.4	5-20	0	0.0-2.0	0
	30-51	4.0-13	7.9-8.4	8-20	0	0.0-2.0	0
	51-60	2.0-10	7.9-8.4	8-30	0	0.0-2.0	0
Forkwood	0-8	11-17	7.4-7.8	0	0	0	0
	8-19	11-17	7.4-8.4	0	0	0.0-2.0	0
	19-36	6.0-10	7.9-9.0	1-5	0	0.0-2.0	0
	36-60	5.0-10	7.9-9.0	1-5	0	0.0-2.0	0-2
223:							
Selpats	0-6	6.0-10	7.4-7.8	0-5	0	0.0-2.0	0
	6-13	11-15	7.4-7.8	0-5	0	0.0-2.0	0
	13-24	6.0-10	7.4-8.4	9-14	0	0.0-2.0	0
	24-35	5.0-9.0	7.4-8.4	8-13	0	0.0-2.0	0
	35-60	4.0-8.0	7.9-8.4	8-30	0	0.0-2.0	0
Hiland	0-6	6.0-12	6.6-7.8	0	0	0	0
	6-9	11-20	6.6-8.4	0	0	0.0-2.0	0
	9-60	5.0-10	7.9-8.4	5-15	0	0.0-2.0	0-2
224:							
Snilloc	0-8	6.0-14	7.4-8.4	1-5	0	0	0
	8-30	4.0-11	7.9-9.0	5-40	0	0	0-3
	30-60	4.0-11	7.9-9.0	5-40	0	0	0-3
Chugcity	0-7	6.0-11	7.9-8.4	0-5	0	0.0-2.0	0
	7-28	9.0-12	7.9-8.4	8-15	0	0.0-2.0	0
	28-35	5.0-9.0	7.9-9.0	8-30	0	0.0-2.0	0
	35-45	---	---	---	---	---	---
225:							
Snilloc	0-5	6.0-14	7.4-8.4	1-5	0	0	0
	5-60	4.0-11	7.9-9.0	5-40	0	0	0-3
Recluse	0-6	5.0-14	6.6-7.8	0	0	0	0
	6-21	7.0-16	6.6-7.8	0	0	0	0
	21-60	4.0-15	7.9-8.4	5-15	0	0.0-2.0	0
226:							
Spearfish	0-4	7.0-18	7.4-8.4	0-5	0	0.0-2.0	0
	4-8	9.0-20	7.9-8.4	1-5	0	0.0-2.0	0
	8-16	8.0-19	7.9-8.4	1-5	1-5	0.0-2.0	0
	16-26	---	---	---	---	---	---
Sixmile	0-4	7.0-21	7.9-8.4	0-5	0	0.0-2.0	0
	4-15	7.0-21	7.9-8.4	1-5	0	0.0-2.0	0
	15-28	7.0-21	7.9-8.4	1-5	0	0.0-2.0	0
	28-38	---	---	---	---	---	---
Rock outcrop.							
227:							
Storsun	0-4	9.0-17	7.4-8.4	5-20	0	0	0
	4-8	9.0-17	7.4-8.4	5-20	0	0	0
	8-25	9.0-15	7.9-9.0	40-60	0	0	0-3
	25-60	9.0-15	7.9-9.0	15-30	0	0.0-2.0	0-3

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
227:							
Sunup	0-5	4.0-10	7.4-8.4	0	0	0	0
	5-11	4.0-14	7.9-8.4	1-8	0	0	0
	11-21	---	---	---	---	---	---
Rock outcrop.							
228:							
Sunup	0-2	3.0-8.0	7.4-8.4	0	0	0	0
	2-10	4.0-14	7.9-8.4	1-8	0	0	0
	10-20	---	---	---	---	---	---
Rock outcrop.							
229:							
Sunup	0-4	3.0-8.0	7.4-8.4	0	0	0	0
	4-17	4.0-14	7.9-8.4	1-8	0	0	0
	17-27	---	---	---	---	---	---
Snavee	0-4	3.0-12	6.6-7.3	0	0	0	0
	4-9	3.0-11	6.6-7.8	0	0	0	0
	9-60	2.0-9.0	7.9-8.4	5-20	0	0	0
Rock outcrop.							
230:							
Sweatbee	0-11	8.0-12	7.9-8.4	0-5	0	0	0
	11-26	7.0-12	7.9-8.4	5-15	0	0	0
	26-60	2.0-7.0	7.9-9.0	20-40	0	0.0-2.0	0
231:							
Sweatbee, wet	0-3	7.0-12	6.6-7.8	0-5	0	0	0
	3-32	7.0-12	7.9-8.4	5-40	0	0	0
	32-39	3.0-9.0	7.9-8.4	25-40	0	0.0-2.0	0
	39-60	3.0-9.0	7.9-8.4	5-40	0	0.0-2.0	0
232:							
Sweatbee	0-11	11-17	7.9-8.4	0-5	0	0	0
	11-17	7.0-12	7.9-8.4	5-15	0	0	0
	17-22	5.0-11	7.9-8.4	15-40	0	0	0
	22-35	2.0-7.0	7.9-9.0	20-40	0	0.0-2.0	0
	35-60	2.0-6.0	7.9-8.4	20-40	0	0.0-2.0	0
Numa	0-10	11-15	7.9-8.4	0-5	0	0.0-2.0	0
	10-30	11-15	7.9-8.4	15-25	0	0.0-2.0	0
	30-60	6.0-9.0	7.9-8.4	5-15	0	0.0-2.0	0
233:							
Taluce, thin solum	0-2	6.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	2-10	6.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	10-20	---	---	---	---	---	---
Rock outcrop.							
234:							
Taluce, thin solum	0-1	6.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	1-5	6.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	5-15	---	---	---	---	---	---
Keeline	0-4	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	4-60	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
235:							
Taluce, thin solum	0-3	6.0-10	7.4-8.4	1-5	0	0	0
	3-9	5.0-9.0	7.4-8.4	1-10	0	0.0-2.0	0
	9-19	---	---	---	---	---	---
Rock outcrop.							
Turnercrest	0-12	8.0-12	7.4-8.4	0-10	0	0	0
	12-25	3.0-10	7.4-8.4	1-15	0	0	0
	25-35	---	---	---	---	---	---
236:							
Taluce	0-4	6.0-10	7.9-8.4	1-5	0	0.0-2.0	0
	4-12	5.0-10	7.9-8.4	1-5	0	0.0-2.0	0
	12-22	---	---	---	---	---	---
Rock outcrop.							
Turnercrest	0-5	4.0-10	7.4-8.4	0-10	0	0	0
	5-12	4.0-11	7.4-8.4	0-10	0	0	0
	12-34	3.0-10	7.4-8.4	1-15	0	0	0
	34-44	---	---	---	---	---	---
237:							
Taluce	0-6	6.0-10	7.4-8.4	1-5	0	0	0
	6-11	5.0-9.0	7.4-8.4	1-5	0	0	0
	11-21	---	---	---	---	---	---
Rock outcrop.							
Turnercrest	0-10	4.0-10	7.4-8.4	0-10	0	0	0
	10-17	4.0-11	7.4-8.4	0-10	0	0	0
	17-36	3.0-10	7.4-8.4	1-15	0	0	0
	36-46	---	---	---	---	---	---
238:							
Taluce	0-6	6.0-10	7.4-8.4	1-5	0	0	0
	6-17	5.0-9.0	7.4-8.4	1-10	0	0.0-2.0	0
	17-27	---	---	---	---	---	---
Taluce, thin solum	0-6	6.0-10	7.4-8.4	1-5	0	0	0
	6-16	---	---	---	---	---	---
Rock outcrop.							
239:							
Taluce	0-6	6.0-10	7.4-8.4	1-5	0	0	0
	6-17	5.0-9.0	7.4-8.4	1-10	0	0.0-2.0	0
	17-27	---	---	---	---	---	---
Taluce, thin solum	0-3	6.0-10	7.4-8.4	1-5	0	0	0
	3-7	5.0-9.0	7.4-8.4	1-10	0	0.0-2.0	0
	7-17	---	---	---	---	---	---
Turnercrest	0-6	4.0-10	7.4-8.4	0-10	0	0	0
	6-28	4.0-11	7.4-8.4	0-10	0	0	0
	28-38	---	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
240:							
Taluce, thin solum	0-5	6.0-10	7.9-8.4	1-5	0	0.0-2.0	0
	5-9	5.0-10	7.9-8.4	1-5	0	0.0-2.0	0
	9-19	---	---	---	---	---	---
Treon, thin solum	0-5	6.0-11	7.4-8.4	0-5	0	0	0
	5-10	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	10-20	---	---	---	---	---	---
241:							
Taluce	0-8	6.0-10	7.9-8.4	1-5	0	0.0-2.0	0
	8-19	5.0-10	7.9-8.4	1-5	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
Turnercrest	0-7	4.0-10	7.4-8.4	0-10	0	0	0
	7-24	4.0-11	7.4-8.4	0-10	0	0	0
	24-34	---	---	---	---	---	---
242:							
Taluce	0-4	7.0-12	7.4-8.4	1-5	0	0	0
	4-14	5.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2
	14-24	---	---	---	---	---	---
Turnercrest	0-12	4.0-10	7.4-8.4	0-10	0	0	0
	12-29	4.0-11	7.4-8.4	0-10	0	0	0
	29-39	3.0-10	7.4-8.4	1-15	0	0	0
	39-49	---	---	---	---	---	---
Keeline	0-3	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	3-60	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2
243:							
Torriorthents, gullied.							
Gullied land.							
244:							
Treon	0-7	7.0-14	7.4-8.4	0-5	0	0.0-2.0	0
	7-19	7.0-14	7.4-8.4	1-5	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
Aberone	0-8	4.0-14	7.4-8.4	0	0	0.0-2.0	0
	8-60	2.0-10	7.9-8.4	40-70	0	0.0-2.0	0
245:							
Treon	0-8	6.0-11	7.4-8.4	0-5	0	0	0
	8-15	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	15-25	---	---	---	---	---	---
Alice	0-9	6.0-11	6.6-7.8	0-5	0	0.0-2.0	0
	9-18	6.0-11	7.4-8.4	0-5	0	0.0-2.0	0
	18-31	4.0-9.0	7.4-8.4	5-10	0	0.0-2.0	0
	31-60	7.0-10	7.4-8.4	5-10	0	0.0-2.0	0
Phiferson	0-6	6.0-12	6.6-8.4	0-5	0	0	0
	6-11	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	11-23	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	23-33	---	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
246:							
Treon	0-6	5.0-12	7.4-8.4	0-5	0	0	0
	6-19	2.0-8.0	7.4-8.4	5-15	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
Rock outcrop.							
247:							
Treon, thin solum	0-7	6.0-11	7.4-8.4	0-5	0	0	0
	7-10	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	10-20	---	---	---	---	---	---
Phiferson	0-7	6.0-12	6.6-8.4	0-5	0	0	0
	7-16	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	16-23	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	23-33	---	---	---	---	---	---
Keeline	0-7	4.0-12	7.4-8.4	1-5	0	0.0-2.0	0
	7-41	4.0-11	7.9-9.0	5-15	0	0.0-2.0	0-2
	41-60	3.0-10	7.9-9.0	5-15	0	0.0-2.0	0-2
248:							
Trimad	0-7	10-15	7.9-8.4	1-7	0	0.0-2.0	0
	7-25	4.0-12	7.9-8.4	15-25	0	0.0-2.0	0
	25-60	4.0-10	7.9-8.4	15-25	0	0.0-2.0	0
Blazon	0-4	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	4-10	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	10-20	---	---	---	---	---	---
Rock outcrop.							
249:							
Trimad	0-8	5.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	8-60	4.0-10	7.9-8.4	15-25	0	0.0-2.0	0
Evanston	0-8	9.0-16	6.6-7.8	0	0	0	0
	8-23	11-25	7.4-7.8	0	0	0.0-2.0	0
	23-60	10-16	7.4-8.4	3-15	0	0.0-2.0	0
250:							
Trimad	0-8	10-15	7.9-8.4	1-7	0	0.0-2.0	0
	8-14	4.0-12	7.9-8.4	15-25	0	0.0-2.0	0
	14-60	4.0-12	7.9-8.4	25-35	0	0.0-2.0	0
Weed	0-3	10-15	7.4-7.8	0	0	0.0-2.0	0
	3-9	15-20	7.4-7.8	0	0	0.0-2.0	0
	9-27	15-20	7.4-8.4	0-5	0	0.0-2.0	0
	27-60	8.0-15	7.9-8.4	5-10	0	0.0-2.0	0
Blazon	0-2	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	2-15	9.0-15	7.9-8.4	2-8	0	0.0-2.0	0
	15-25	---	---	---	---	---	---
251:							
Turnercrest	0-7	4.0-10	7.4-8.4	0-10	0	0	0
	7-38	3.0-10	7.4-8.4	1-15	0	0	0
	38-48	---	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
251:							
Phiferson	0-10	6.0-12	6.6-8.4	0-5	0	0	0
	10-18	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	18-34	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	34-44	---	---	---	---	---	---
Taluce	0-7	6.0-10	7.9-8.4	1-5	0	0.0-2.0	0
	7-18	5.0-10	7.9-8.4	1-5	0	0.0-2.0	0
	18-28	---	---	---	---	---	---
252:							
Typic Calciaquolls	0-5	10-14	7.4-8.4	2-5	0	0.0-2.0	0
	5-22	7.0-11	7.9-9.0	10-25	0	0.0-2.0	0-3
	22-60	6.0-10	7.9-9.0	5-15	0	0.0-2.0	0-3
Whetsoon	0-4	6.0-12	7.4-8.4	0	0	0	0
	4-11	11-17	7.4-8.4	0-5	0	0	0
	11-27	11-17	7.4-8.4	0-5	0	0	0
	27-40	9.0-17	7.9-8.4	0-5	0	0.0-2.0	0
	40-60	4.0-10	7.9-8.4	0-5	0	0.0-2.0	0
253:							
Tyzak	0-3	11-17	7.9-8.4	15-25	0	0.0-2.0	0
	3-11	10-15	7.9-8.4	25-35	0	0.0-2.0	0
	11-21	---	---	---	---	---	---
Tyzak, thin solum	0-3	11-17	7.9-8.4	15-25	0	0.0-2.0	0
	3-7	10-15	7.9-8.4	25-35	0	0.0-2.0	0
	7-17	---	---	---	---	---	---
Rock outcrop.							
254:							
Valent	0-10	1.0-6.0	6.6-7.8	0	0	0.0-2.0	0
	10-60	1.0-6.0	6.6-7.8	0	0	0.0-2.0	0
255:							
Vetal	0-10	7.0-14	6.6-7.8	0	0	0.0-2.0	0
	10-34	8.0-14	7.4-7.8	0	0	0.0-2.0	0
	34-60	6.0-9.0	7.4-8.4	0-5	0	0.0-2.0	0
256:							
Vetal	0-9	7.0-14	6.6-7.8	0	0	0.0-2.0	0
	9-39	8.0-14	7.4-7.8	0	0	0.0-2.0	0
	39-60	6.0-9.0	7.4-8.4	0-5	0	0.0-2.0	0
Julesburg	0-6	7.0-13	6.6-7.8	0	0	0	0
	6-15	7.0-13	6.6-7.8	0	0	0	0
	15-31	7.0-12	6.6-7.8	0	0	0	0
	31-50	6.0-10	6.6-8.4	0	0	0	0
	50-60	6.0-10	6.6-8.4	0-5	0	0	0
257:							
Vetal	0-24	7.0-14	6.6-7.8	0	0	0.0-2.0	0
	24-36	8.0-14	7.4-7.8	0	0	0.0-2.0	0
	36-60	6.0-9.0	7.4-8.4	0-5	0	0.0-2.0	0
Treon	0-5	6.0-11	7.4-8.4	0-5	0	0	0
	5-14	4.0-9.0	7.4-8.4	5-15	0	0.0-2.0	0
	14-24	---	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
257:							
Phiferson-------	0-10	6.0-12	6.6-8.4	0-5	0	0	0
	10-24	6.0-11	7.4-8.4	0-10	0	0.0-2.0	0
	24-33	6.0-11	7.4-8.4	5-15	0	0.0-2.0	0
	33-43	---	---	---	---	---	---
258:							
Vonalee---------	0-6	5.0-10	7.4-7.8	0	0	0	0
	6-18	7.0-11	7.4-8.4	0-5	0	0.0-2.0	0
	18-60	4.0-9.0	7.9-8.4	1-5	0	0.0-2.0	0
259:							
Wagonhound------	0-3	4.0-9.0	5.6-6.5	0	0	0.0-2.0	0
	3-15	5.0-10	5.6-6.5	0	0	0.0-2.0	0
	15-60	3.0-6.0	7.4-8.4	5-15	0	0.0-2.0	0
Selpats---------	0-3	8.0-16	7.4-7.8	0-5	0	0.0-2.0	0
	3-12	9.0-20	7.4-8.4	0-5	0	0.0-2.0	0
	12-18	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	18-35	6.0-17	7.9-8.4	5-20	0	0.0-2.0	0
	35-50	4.0-13	7.9-8.4	8-20	0	0.0-2.0	0
	50-60	2.0-10	7.9-8.4	8-30	0	0.0-2.0	0
260:							
Water.							
261:							
Water.							
262:							
Weed------------	0-6	10-15	7.4-7.8	0	0	0.0-2.0	0
	6-14	15-20	7.4-7.8	0	0	0.0-2.0	0
	14-28	15-20	7.4-8.4	0-5	0	0.0-2.0	0
	28-60	15-20	7.9-8.4	5-10	0	0.0-2.0	0
263:							
Wendover--------	0-6	7.0-16	7.4-7.8	0-5	0	0	0
	6-12	11-17	7.4-8.4	5-15	0	0.0-2.0	0
	12-18	11-17	7.4-8.4	5-15	0	0.0-2.0	0
	18-28	---	---	---	---	---	---
Rock outcrop.							

Table 15.--Soil Features

(See text for definition 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		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
100:					
Aberone	---	---	Low	Moderate	Moderate
101:					
Aberone	---	---	Low	Moderate	Moderate
Cragola	10-20	Bedrock (paralithic)	Moderate	High	Low
102:					
Albinas	---	---	Low	High	Low
103:					
Alice	---	---	Moderate	High	Low
Bayard	---	---	Moderate	Moderate	Low
104:					
Alice	---	---	Moderate	High	Low
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
105:					
Alice	---	---	Moderate	High	Low
Recluse	---	---	Moderate	High	Low
Cedak	20-40	Bedrock (paralithic)	Moderate	High	Low
106:					
Bayard	---	---	Moderate	Moderate	Low
107:					
Bayard	---	---	Moderate	High	Low
108:					
Bayard	---	---	Moderate	Moderate	Low
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
Treon, thin solum	4-10	Bedrock (paralithic)	Moderate	High	Low
109:					
Bayard	---	---	Moderate	Moderate	Low
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
Treon, thin solum	4-10	Bedrock (paralithic)	Moderate	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
110:					
Blackhall	10-20	Bedrock (paralithic)	Low	High	Moderate
Satanka	20-40	Bedrock (paralithic)	Low	High	Low
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
111:					
Blazon	10-20	Bedrock (paralithic)	Low	High	Low
Trimad	---	---	Moderate	High	Low
112:					
Bonjea	10-20	Bedrock (lithic)	Moderate	Moderate	Low
Chugcreek	20-40	Bedrock (lithic)	Low	Moderate	Low
113:					
Bonjea	10-20	Bedrock (lithic)	Moderate	Moderate	Low
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
Chugcreek	20-40	Bedrock (lithic)	Low	Moderate	Low
114:					
Boyle	10-20	Bedrock (lithic)	Moderate	High	Low
Boyle, thin solum	4-10	Bedrock (lithic)	Moderate	High	Low
115:					
Boyle, thin solum	4-10	Bedrock (paralithic)	Moderate	Moderate	Low
Breece	---	---	Moderate	High	Low
Cathedral	10-20	Bedrock (lithic)	Moderate	Moderate	Low
116:					
Boyle	10-20	Bedrock (lithic)	Moderate	High	Low
Lininger	20-40	Bedrock (paralithic)	Moderate	High	Low
117:					
Boyle	10-20	Bedrock (lithic)	Moderate	High	Low
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
118:					
Boyle	10-20	Bedrock (paralithic)	Moderate	Moderate	Low
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
Cathedral	10-20	Bedrock (lithic)	Moderate	Moderate	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
119:					
Brown	10-20	Bedrock (paralithic)	Low	High	Low
Featherlegs	---	---	Moderate	High	Low
Recluse	---	---	Moderate	High	Low
120:					
Byrnie	10-20	Bedrock (paralithic)	Moderate	Moderate	Low
Byrnie, thin solum	4-10	Bedrock (paralithic)	Moderate	Moderate	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
121:					
Byrnie	10-20	Bedrock (paralithic)	Moderate	Moderate	Low
Coocreek	---	---	Moderate	High	Low
Byrnie, thin solum	4-10	Bedrock (paralithic)	Moderate	Moderate	Low
122:					
Cascajo	---	---	Low	High	Low
Taluce	10-20	Bedrock (paralithic)	Moderate	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
123:					
Cathedral	10-20	Bedrock (lithic)	Moderate	Moderate	Moderate
Spinekop	---	---	Moderate	High	Low
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
124:					
Cedak	20-40	Bedrock (paralithic)	Moderate	High	Low
Bayard	---	---	Moderate	Moderate	Low
Treon, thin solum	4-10	Bedrock (paralithic)	Moderate	High	Low
125:					
Cedak	20-40	Bedrock (paralithic)	Moderate	High	Low
Recluse	---	---	Moderate	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
126:					
Cedak	20-40	Bedrock (paralithic)	Moderate	High	Low
Recluse	---	---	Moderate	High	Low
Treon	10-20	Bedrock (paralithic)	Moderate	High	Low
127:					
Cedak	20-40	Bedrock (paralithic)	Moderate	High	Low
Treon	10-20	Bedrock (paralithic)	Moderate	High	Low
128:					
Chaperton, moderately saline	20-40	Bedrock (paralithic)	Moderate	High	High
Blazon	10-20	Bedrock (paralithic)	Low	High	Moderate
129:					
Claprych	---	---	Low	High	Low
130:					
Claprych	---	---	Low	High	Low
Luman	---	---	Low	High	Low
131:					
Claprych	---	---	Low	High	Low
Selpats	---	---	Low	High	Low
132:					
Claprych	---	---	Low	High	Low
Sweatbee	---	---	Moderate	High	Low
133:					
Clarkelen	---	---	Moderate	High	Low
Quarterback	---	---	Moderate	High	Low
134:					
Clarkelen, wet	---	---	Moderate	High	Low
Anvil	---	---	Low	High	Low
135:					
Coaliams	---	---	Moderate	High	Low
Haverdad	---	---	Low	High	Low
136:					
Cowestglen	---	---	Moderate	High	Low
137:					
Creighton	---	---	Moderate	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
138:					
Curabith	---	---	Moderate	High	Low
139:					
Cushool	20-40	Bedrock (paralithic)	Moderate	High	Low
Cutback	20-40	Bedrock (paralithic)	Low	High	Moderate
140:					
Dalecreek	---	---	Moderate	High	Low
Kovich	---	---	High	High	Low
141:					
Deight	---	---	Moderate	High	Low
Thirtynine	---	---	Moderate	High	Low
Glendo	---	---	Moderate	High	Low
142:					
Diamonkit	20-40	Bedrock (paralithic)	Low	High	High
Stylite	---	---	Low	High	High
143:					
Embry	---	---	Low	High	Low
144:					
Evanston	---	---	Moderate	High	Low
145:					
Evanston	---	---	Moderate	High	Low
Ipson	---	---	Moderate	High	Moderate
146:					
Evanston	---	---	Moderate	High	Low
Ipson	---	---	Moderate	High	Moderate
Brownsto	---	---	Low	High	Moderate
147:					
Evanston	---	---	Moderate	High	Low
Weed	---	---	Moderate	High	Low
148:					
Evanston	---	---	Moderate	High	Low
Weed	---	---	Moderate	High	Low
Trimad	---	---	Moderate	High	Low
149:					
Featherlegs, wet	---	---	Moderate	High	Low
150:					
Featherlegs	---	---	Moderate	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
150:					
Bayard	---	---	Moderate	Moderate	Low
151:					
Featherlegs	---	---	Moderate	High	Low
Curabith	---	---	Moderate	High	Low
152:					
Featherlegs	---	---	Moderate	High	Low
Greenhope	---	---	Moderate	High	Low
Curabith	---	---	Moderate	High	Low
153:					
Featherlegs	---	---	Moderate	High	Low
Recluse	---	---	Moderate	High	Low
154:					
Featherlegs	---	---	Moderate	High	Low
Recluse	---	---	Moderate	High	Low
155:					
Featherlegs	---	---	Moderate	High	Low
Recluse	---	---	Moderate	High	Low
156:					
Fluvaquentic Endoaquolls	---	---	High	High	Low
Whetsoon	---	---	Moderate	High	Low
157:					
Forelle	---	---	Moderate	High	Low
158:					
Forelle	---	---	Moderate	High	Low
Diamondville	20-40	Bedrock (paralithic)	Moderate	High	Low
159:					
Forkwood	---	---	Moderate	High	Low
160:					
Forkwood	---	---	Moderate	High	Low
161:					
Forkwood, wet	---	---	Low	High	Low
162:					
Glendo	---	---	Moderate	High	Low
163:					
Graystone	---	---	Moderate	High	Low
Alice	---	---	Moderate	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
164:					
Graystone	---	---	Moderate	High	Low
Greenhope	---	---	Moderate	High	Low
Bayard	---	---	Moderate	Moderate	Low
165:					
Graystone	---	---	Moderate	High	Low
Mainter	---	---	Moderate	High	Low
166:					
Graystone	---	---	Moderate	High	Low
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
Treon	10-20	Bedrock (paralithic)	Moderate	High	Low
167:					
Greenhope	---	---	Moderate	High	Low
Featherlegs	---	---	Moderate	High	Low
168:					
Hiland	---	---	Low	High	Low
169:					
Hiland	---	---	Low	High	Low
Cambria	---	---	Low	High	Low
170:					
Ipson	---	---	Moderate	High	Low
Evanston	---	---	Moderate	High	Low
171:					
Ipson	---	---	Moderate	High	Low
Evanston	---	---	Moderate	High	Low
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
172:					
Jayem	---	---	Low	High	Low
Mainter	---	---	Moderate	High	Low
Moskee	---	---	Moderate	High	Low
173:					
Julesburg	---	---	Moderate	High	Low
Jayem	---	---	Low	High	Low
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
174:					
Keeline	---	---	Low	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
175:					
Keeline	---	---	Low	High	Low
176:					
Keeline	---	---	Low	High	Low
177:					
Keeline	---	---	Low	High	Low
Mainter	---	---	Moderate	High	Low
178:					
Keeline	---	---	Low	High	Low
Nidix	20-40	Bedrock (paralithic)	Moderate	High	Low
Taluce	10-20	Bedrock (paralithic)	Moderate	High	Low
179:					
Keeline	---	---	Low	High	Low
Taluce	10-20	Bedrock (paralithic)	Low	High	Low
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
180:					
Keeline	---	---	Low	High	Low
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
181:					
Keeline	---	---	Low	High	Low
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
182:					
Kishona	---	---	Low	High	High
183:					
Livan	---	---	Low	High	Low
Clarkelen	---	---	Moderate	Moderate	Moderate
184:					
Livan	---	---	Low	High	Low
Riverwash	---	---	None	---	---
185:					
Mainter	---	---	Moderate	High	Low
186:					
Mainter, wet	---	---	Moderate	High	Low
187:					
Mainter	---	---	Moderate	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
187:					
Keeline	---	---	Low	High	Low
188:					
McFadden	---	---	Low	High	Low
189:					
Mines.					
Quarries.					
190:					
Mitchell	---	---	Moderate	High	Low
191:					
Mitchell	---	---	Moderate	High	Low
192:					
Moskee	---	---	Moderate	High	Low
193:					
Moskee	---	---	Moderate	High	Low
194:					
Orpha	---	---	Low	Moderate	Low
195:					
Orpha	---	---	Low	Moderate	Low
Tullock	20-40	Bedrock (paralithic)	Low	Moderate	Low
196:					
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
Alice, bedrock substratum	40-60	Bedrock (paralithic)	Moderate	High	Low
197:					
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
Mainter	---	---	Moderate	High	Low
198:					
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
Treon	10-20	Bedrock (paralithic)	Moderate	High	Low
199:					
Pinelli	---	---	Moderate	High	Low
200:					
Poposhia	---	---	Low	High	Low
201:					
Poposhia	---	---	Low	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
201:					
Blazon	10-20	Bedrock (paralithic)	Low	High	Low
202:					
Poposhia	---	---	Low	High	Low
Blazon, thin solum	4-10	Bedrock (paralithic)	Low	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
203:					
Poposhia	---	---	Moderate	High	Low
Chaperton	20-40	Bedrock (paralithic)	Moderate	High	Low
204:					
Poposhia	---	---	Moderate	High	Low
Forelle	---	---	Moderate	High	Low
205:					
Quarterback	---	---	Moderate	High	Low
206:					
Quarterback, thick surface	---	---	Moderate	High	Moderate
Albinas	---	---	Low	High	Low
207:					
Recluse	---	---	Moderate	High	Low
208:					
Recluse	---	---	Moderate	High	Low
209:					
Recluse	---	---	Moderate	High	Low
210:					
Recluse	---	---	Moderate	High	Low
Albinas	---	---	Low	High	Low
Treon, thin solum	4-10	Bedrock (paralithic)	Moderate	High	Low
211:					
Recluse	---	---	Moderate	High	Low
Cedak	20-40	Bedrock (paralithic)	Moderate	High	Low
212:					
Recluse	---	---	Moderate	High	Low
Cedak	20-40	Bedrock (paralithic)	Moderate	Moderate	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
213:					
Recluse	---	---	Moderate	High	Low
Graystone	---	---	Moderate	High	Low
214:					
Recluse	---	---	Moderate	High	Low
Nuncho	---	---	Moderate	High	Low
215:					
Rentsac	10-20	Bedrock (lithic)	Low	High	Moderate
Brownsto	---	---	Low	High	Moderate
Ipson	---	---	Moderate	High	Moderate
216:					
Riverwash	---	---	None	---	---
217:					
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
Blazon, thin solum	4-10	Bedrock (paralithic)	Low	High	Low
218:					
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
Bonjea	10-20	Bedrock (lithic)	Moderate	Moderate	Low
219:					
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
Cathedral	10-20	Bedrock (lithic)	Moderate	Moderate	Low
220:					
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
Cathedral	10-20	Bedrock (lithic)	Moderate	Moderate	Low
Alderon	20-40	Bedrock (paralithic)	Moderate	Moderate	Low
221:					
Selpats	---	---	Low	High	Low
222:					
Selpats	---	---	Low	High	Low
Forkwood	---	---	Moderate	High	Low
223:					
Selpats	---	---	Low	High	Low
Hiland	---	---	Low	High	Low
224:					
Snilloc	---	---	Moderate	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
224:					
Chugcity	20-40	Bedrock (paralithic)	Moderate	High	Low
225:					
Snilloc	---	---	Moderate	High	Low
Recluse	---	---	Moderate	High	Low
226:					
Spearfish	10-20	Bedrock (paralithic)	Low	High	High
Sixmile	20-40	Bedrock (paralithic)	Low	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
227:					
Storsun	---	---	Moderate	High	Low
Sunup	10-20	Bedrock (lithic)	Low	Moderate	Moderate
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
228:					
Sunup	10-20	Bedrock (lithic)	Low	Moderate	Moderate
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
229:					
Sunup	10-20	Bedrock (lithic)	Low	Moderate	Moderate
Snavee	---	---	Moderate	High	Low
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
230:					
Sweatbee	---	---	Moderate	High	Low
231:					
Sweatbee, wet	---	---	Moderate	High	Low
232:					
Sweatbee	---	---	Moderate	High	Low
Numa	---	---	Low	High	Low
233:					
Taluce, thin solum	4-10	Bedrock (paralithic)	Moderate	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
234:					
Taluce, thin solum	4-10	Bedrock (paralithic)	Moderate	High	Low
Keeline	---	---	Low	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
235:					
Taluce, thin solum	4-10	Bedrock (paralithic)	Low	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
236:					
Taluce	10-20	Bedrock (paralithic)	Moderate	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
237:					
Taluce	10-20	Bedrock (paralithic)	Low	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
238:					
Taluce	10-20	Bedrock (paralithic)	Low	High	Low
Taluce, thin solum	4-10	Bedrock (paralithic)	Low	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
239:					
Taluce	10-20	Bedrock (paralithic)	Low	High	Low
Taluce, thin solum	4-10	Bedrock (paralithic)	Low	High	Low
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
240:					
Taluce, thin solum	4-10	Bedrock (paralithic)	Moderate	High	Low
Treon, thin solum	4-10	Bedrock (paralithic)	Moderate	High	Low

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
241:					
Taluce	10-20	Bedrock (paralithic)	Moderate	High	Low
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
242:					
Taluce	10-20	Bedrock (paralithic)	Low	High	Low
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
Keeline	---	---	Low	High	Low
243:					
Torriorthents, gullied.					
Gullied land.					
244:					
Treon	10-20	Bedrock (paralithic)	Moderate	High	Low
Aberone	---	---	Low	High	Low
245:					
Treon	10-20	Bedrock (paralithic)	Moderate	High	Low
Alice	---	---	Moderate	High	Low
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
246:					
Treon	10-20	Bedrock (paralithic)	Moderate	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---
247:					
Treon, thin solum	4-10	Bedrock (paralithic)	Moderate	High	Low
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
Keeline	---	---	Low	High	Low
248:					
Trimad	---	---	Moderate	High	Low
Blazon	10-20	Bedrock (paralithic)	Low	High	Low
Rock outcrop	0-0	Bedrock (paralithic)	None	---	---

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
249:					
Trimad	---	---	Moderate	High	Low
Evanston	---	---	Moderate	High	Low
250:					
Trimad	---	---	Moderate	High	Low
Weed	---	---	Moderate	High	Low
Blazon	10-20	Bedrock (paralithic)	Low	High	Low
251:					
Turnercrest	20-40	Bedrock (paralithic)	Low	High	Low
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
Taluce	10-20	Bedrock (paralithic)	Moderate	High	Low
252:					
Typic Calciaquolls	---	---	High	High	Low
Whetsoon	---	---	Moderate	High	Low
253:					
Tyzak	10-20	Bedrock (lithic)	Moderate	High	Low
Tyzak, thin solum	4-10	Bedrock (lithic)	Moderate	High	Low
Rock outcrop	0-0	Bedrock (lithic)	None	---	---
254:					
Valent	---	---	Low	Moderate	Low
255:					
Vetal	---	---	Moderate	High	Low
256:					
Vetal	---	---	Moderate	High	Low
Julesburg	---	---	Moderate	High	Low
257:					
Vetal	---	---	Moderate	High	Low
Treon	10-20	Bedrock (paralithic)	Moderate	High	Low
Phiferson	20-40	Bedrock (paralithic)	Moderate	High	Low
258:					
Vonalee	---	---	Moderate	High	Low
259:					
Wagonhound	---	---	Low	Low	Moderate

Table 15.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Depth	Kind		Uncoated steel	Concrete
	In				
259:					
Selpats	---	---	Low	High	Low
260:					
Water.					
261:					
Water.					
262:					
Weed	---	---	Moderate	High	Low
263:					
Wendover	10-20	Bedrock (lithic)	Low	High	Low
Rock outcrop	0-0	Bedrock (lithic)	None	---	---

Table 16.--Water 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	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
100:									
Aberone	B	---	---	---	---	---	---	---	---
101:									
Aberone	B	---	---	---	---	---	---	---	---
Cragola	D	---	---	---	---	---	---	---	---
102:									
Albinas	B	---	---	---	---	---	---	---	---
103:									
Alice	B	---	---	---	---	---	---	---	---
Bayard	B	---	---	---	---	---	---	---	---
104:									
Alice	B	---	---	---	---	---	---	---	---
Phiferson	B	---	---	---	---	---	---	---	---
105:									
Alice	B	---	---	---	---	---	---	---	---
Recluse	B	---	---	---	---	---	---	---	---
Cedak	B	---	---	---	---	---	---	---	---
106:									
Bayard	B	---	---	---	---	---	---	---	---
107:									
Bayard	B	---	---	---	---	---	---	---	---
108:									
Bayard	B	---	---	---	---	---	---	---	---
Phiferson	B	---	---	---	---	---	---	---	---
Treon, thin solum	D	---	---	---	---	---	---	---	---
109:									
Bayard	B	---	---	---	---	---	---	---	---
Phiferson	B	---	---	---	---	---	---	---	---
Treon, thin solum	D	---	---	---	---	---	---	---	---
110:									
Blackhall	D	---	---	---	---	---	---	---	---
Satanka	C	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
111:									
Blazon	D	---	---	---	---	---	---	---	---

Table 16.--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				
111:									
Trimad	B	---	---	---	---	---	---	---	---
112:									
Bonjea	D	---	---	---	---	---	---	---	---
Chugcreek	C	---	---	---	---	---	---	---	---
113:									
Bonjea	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
Chugcreek	C	---	---	---	---	---	---	---	---
114:									
Boyle	D	---	---	---	---	---	---	---	---
Boyle, thin solum	D	---	---	---	---	---	---	---	---
115:									
Boyle, thin solum	D	---	---	---	---	---	---	---	---
Breece	B	---	---	---	---	---	---	---	---
Cathedral	D	---	---	---	---	---	---	---	---
116:									
Boyle	D	---	---	---	---	---	---	---	---
Lininger	C	---	---	---	---	---	---	---	---
117:									
Boyle	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
118:									
Boyle	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
Cathedral	D	---	---	---	---	---	---	---	---
119:									
Brown	D	---	---	---	---	---	---	---	---
Featherlegs	B	---	---	---	---	---	---	---	---
Recluse	B	---	---	---	---	---	---	---	---
120:									
Byrnie	B	---	---	---	---	---	---	---	---
Byrnie, thin solum	B	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
121:									
Byrnie	B	---	---	---	---	---	---	---	---
Coocreek	B	---	---	---	---	---	---	---	---

Table 16.--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				
121:									
Byrnie, thin solum	B	---	---	---	---	---	---	---	---
122:									
Cascajo	A	---	---	---	---	---	---	---	---
Taluce	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
123:									
Cathedral	D	---	---	---	---	---	---	---	---
Spinekop	B	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
124:									
Cedak	B	---	---	---	---	---	---	---	---
Bayard	B	---	---	---	---	---	---	---	---
Treon, thin solum	D	---	---	---	---	---	---	---	---
125:									
Cedak	B	---	---	---	---	---	---	---	---
Recluse	B	---	---	---	---	---	---	---	---
126:									
Cedak	B	---	---	---	---	---	---	---	---
Recluse	B	---	---	---	---	---	---	---	---
Treon	D	---	---	---	---	---	---	---	---
127:									
Cedak	B	---	---	---	---	---	---	---	---
Treon	D	---	---	---	---	---	---	---	---
128:									
Chaperton, moderately saline	B	---	---	---	---	---	---	---	---
Blazon	D	---	---	---	---	---	---	---	---
129:									
Claprych	B	---	---	---	---	---	---	---	---
130:									
Claprych	B	---	---	---	---	---	---	---	---
Luman	B	---	---	---	---	---	---	---	---
131:									
Claprych	B	---	---	---	---	---	---	---	---
Selpats	B	---	---	---	---	---	---	---	---
132:									
Claprych	B	---	---	---	---	---	---	---	---

Table 16.--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				
132:									
Sweatbee	B	---	---	---	---	---	---	---	---
133:									
Clarkelen	B	April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
Quarterback	B	April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
134:									
Clarkelen, wet	B	April	---	---	---	---	None	Very brief	Rare
		May	3.0-5.0	>6.0	---	---	None	Very brief	Rare
		June	3.0-5.0	>6.0	---	---	None	Very brief	Rare
		July	3.0-5.0	>6.0	---	---	None	Very brief	Rare
		August	3.0-5.0	>6.0	---	---	None	---	None
		September	3.0-5.0	>6.0	---	---	None	---	None
		October	3.0-5.0	>6.0	---	---	None	---	None
Anvil	C	April	---	---	---	---	None	Very brief	Rare
		May	3.0-5.0	>6.0	---	---	None	Very brief	Rare
		June	3.0-5.0	>6.0	---	---	None	Very brief	Rare
		July	3.0-5.0	>6.0	---	---	None	Very brief	Rare
		August	3.0-5.0	>6.0	---	---	None	---	None
		September	3.0-5.0	>6.0	---	---	None	---	None
		October	3.0-5.0	>6.0	---	---	None	---	None
135:									
Coaliams	C	April	---	---	---	---	None	Very brief	Rare
		May	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		June	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		July	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		August	3.0-6.0	>6.0	---	---	None	---	None
		September	3.0-6.0	>6.0	---	---	None	---	None
		October	3.0-6.0	>6.0	---	---	None	---	None
Haverdad	B	April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
136:									
Cowestglen	B	April	---	---	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Occasional
137:									
Creighton	B	---	---	---	---	---	---	---	---
138:									
Curabith	B	---	---	---	---	---	---	---	---
139:									
Cushool	B	---	---	---	---	---	---	---	---
Cutback	B	---	---	---	---	---	---	---	---

Table 16.--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				
140:									
Dalecreek	C	April	2.5-4.0	>6.0	---	---	None	Very brief	Rare
		May	2.5-4.0	>6.0	---	---	None	Very brief	Rare
		June	2.5-4.0	>6.0	---	---	None	Very brief	Rare
		July	2.5-4.0	>6.0	---	---	None	Very brief	Rare
Kovich	D	April	0.0-2.5	>6.0	---	---	None	Brief	Occasional
		May	0.0-2.5	>6.0	---	---	None	Brief	Occasional
		June	0.0-2.5	>6.0	---	---	None	Brief	Occasional
		July	0.0-2.5	>6.0	---	---	None	Brief	Occasional
		August	0.0-2.5	>6.0	---	---	None	---	None
141:									
Deight	B	---	---	---	---	---	---	---	---
Thirtynine	B	---	---	---	---	---	---	---	---
Glendo	B	---	---	---	---	---	---	---	---
142:									
Diamonkit	C	---	---	---	---	---	---	---	---
Stylite	C	---	---	---	---	---	---	---	---
143:									
Embry	B	---	---	---	---	---	---	---	---
144:									
Evanston	B	---	---	---	---	---	---	---	---
145:									
Evanston	B	---	---	---	---	---	---	---	---
Ipson	B	---	---	---	---	---	---	---	---
146:									
Evanston	B	---	---	---	---	---	---	---	---
Ipson	B	---	---	---	---	---	---	---	---
Brownsto	B	---	---	---	---	---	---	---	---
147:									
Evanston	B	---	---	---	---	---	---	---	---
Weed	B	---	---	---	---	---	---	---	---
148:									
Evanston	B	---	---	---	---	---	---	---	---
Weed	B	---	---	---	---	---	---	---	---
Trimad	B	---	---	---	---	---	---	---	---
149:									
Featherlegs, wet	B	April	2.0-4.0	>6.0	---	---	None	---	None
		May	2.0-4.0	>6.0	---	---	None	---	None
		June	2.0-4.0	>6.0	---	---	None	---	None
		July	2.0-4.0	>6.0	---	---	None	---	None
		August	2.0-4.0	>6.0	---	---	None	---	None
		September	2.0-4.0	>6.0	---	---	None	---	None
		October	2.0-4.0	>6.0	---	---	None	---	None

Table 16.--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				
150:									
Featherlegs	B	---	---	---	---	---	---	---	---
Bayard	B	---	---	---	---	---	---	---	---
151:									
Featherlegs	B	---	---	---	---	---	---	---	---
Curabith	B	---	---	---	---	---	---	---	---
152:									
Featherlegs	B	---	---	---	---	---	---	---	---
Greenhope	B	---	---	---	---	---	---	---	---
Curabith	B	---	---	---	---	---	---	---	---
153:									
Featherlegs	B	---	---	---	---	---	---	---	---
Recluse	B	---	---	---	---	---	---	---	---
154:									
Featherlegs	B	---	---	---	---	---	---	---	---
Recluse	B	---	---	---	---	---	---	---	---
155:									
Featherlegs	B	---	---	---	---	---	---	---	---
Recluse	B	---	---	---	---	---	---	---	---
156:									
Fluvaquentic Endoaquolls	C	April	0.5-1.5	>6.0	---	---	None	Very brief	Rare
		May	0.5-1.5	>6.0	---	---	None	Very brief	Rare
		June	0.5-1.5	>6.0	---	---	None	Very brief	Rare
		July	0.5-1.5	>6.0	---	---	None	Very brief	Rare
		August	0.5-1.5	>6.0	---	---	None	---	None
		September	0.5-1.5	>6.0	---	---	None	---	None
		October	0.5-1.5	>6.0	---	---	None	---	None
Whetsoon	C	April	1.5-3.0	>6.0	---	---	None	Very brief	Rare
		May	1.5-3.0	>6.0	---	---	None	Very brief	Rare
		June	1.5-3.0	>6.0	---	---	None	Very brief	Rare
		July	1.5-3.0	>6.0	---	---	None	Very brief	Rare
		August	1.5-3.0	>6.0	---	---	None	---	None
		September	1.5-3.0	>6.0	---	---	None	---	None
		October	1.5-3.0	>6.0	---	---	None	---	None
157:									
Forelle	B	---	---	---	---	---	---	---	---
158:									
Forelle	B	---	---	---	---	---	---	---	---
Diamondville	C	---	---	---	---	---	---	---	---
159:									
Forkwood	B	---	---	---	---	---	---	---	---
160:									
Forkwood	B	---	---	---	---	---	---	---	---

Table 16.--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				
161:									
Forkwood, wet	C	April	2.5-4.0	>6.0	---	---	None	---	None
		May	2.5-4.0	>6.0	---	---	None	---	None
		June	2.5-4.0	>6.0	---	---	None	---	None
		July	2.5-4.0	>6.0	---	---	None	---	None
		August	2.5-4.0	>6.0	---	---	None	---	None
		September	2.5-4.0	>6.0	---	---	None	---	None
		October	2.5-4.0	>6.0	---	---	None	---	None
162:									
Glendo	B	---	---	---	---	---	---	---	---
163:									
Graystone	B	---	---	---	---	---	---	---	---
Alice	B	---	---	---	---	---	---	---	---
164:									
Graystone	B	---	---	---	---	---	---	---	---
Greenhope	B	---	---	---	---	---	---	---	---
Bayard	B	---	---	---	---	---	---	---	---
165:									
Graystone	B	---	---	---	---	---	---	---	---
Mainter	B	---	---	---	---	---	---	---	---
166:									
Graystone	B	---	---	---	---	---	---	---	---
Phiferson	B	---	---	---	---	---	---	---	---
Treon	D	---	---	---	---	---	---	---	---
167:									
Greenhope	B	---	---	---	---	---	---	---	---
Featherlegs	B	---	---	---	---	---	---	---	---
168:									
Hiland	B	---	---	---	---	---	---	---	---
169:									
Hiland	B	---	---	---	---	---	---	---	---
Cambria	B	---	---	---	---	---	---	---	---
170:									
Ipson	B	---	---	---	---	---	---	---	---
Evanston	B	---	---	---	---	---	---	---	---
171:									
Ipson	B	---	---	---	---	---	---	---	---
Evanston	B	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
172:									
Jayem	B	---	---	---	---	---	---	---	---

Table 16.--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				
172:									
Mainter	B	---	---	---	---	---	---	---	---
Moskee	B	---	---	---	---	---	---	---	---
173:									
Julesburg	B	---	---	---	---	---	---	---	---
Jayem	B	---	---	---	---	---	---	---	---
Phiferson	B	---	---	---	---	---	---	---	---
174:									
Keeline	B	---	---	---	---	---	---	---	---
175:									
Keeline	B	---	---	---	---	---	---	---	---
176:									
Keeline	B	---	---	---	---	---	---	---	---
177:									
Keeline	B	---	---	---	---	---	---	---	---
Mainter	B	---	---	---	---	---	---	---	---
178:									
Keeline	B	---	---	---	---	---	---	---	---
Nidix	B	---	---	---	---	---	---	---	---
Taluce	D	---	---	---	---	---	---	---	---
179:									
Keeline	B	---	---	---	---	---	---	---	---
Taluce	D	---	---	---	---	---	---	---	---
Turnercrest	C	---	---	---	---	---	---	---	---
180:									
Keeline	B	---	---	---	---	---	---	---	---
Turnercrest	C	---	---	---	---	---	---	---	---
181:									
Keeline	B	---	---	---	---	---	---	---	---
Turnercrest	C	---	---	---	---	---	---	---	---
182:									
Kishona	B	---	---	---	---	---	---	---	---
183:									
Livan	A	April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
Clarkelen	B	April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare

Table 16.--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				
184:									
Livan	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
		July	---	---	---	---	None	Brief	Rare
		October	---	---	---	---	None	Brief	Rare
		November	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
Riverwash	D	January	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		February	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		March	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		April	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		May	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		June	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		July	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		August	0.0-2.0	>6.0	---	---	None	---	None
		September	0.0-2.0	>6.0	---	---	None	---	None
		October	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		November	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		December	0.0-2.0	>6.0	---	---	None	Very long	Frequent
185:									
Mainter	B	---	---	---	---	---	---	---	---
186:									
Mainter, wet	B	April	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		May	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		June	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		July	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		August	3.0-6.0	>6.0	---	---	None	---	None
		September	3.0-6.0	>6.0	---	---	None	---	None
		October	3.0-6.0	>6.0	---	---	None	---	None
187:									
Mainter	B	---	---	---	---	---	---	---	---
Keeline	B	---	---	---	---	---	---	---	---
188:									
McFadden	B	---	---	---	---	---	---	---	---
189:									
Mines.									
Quarries.									
190:									
Mitchell	B	---	---	---	---	---	---	---	---
191:									
Mitchell	B	---	---	---	---	---	---	---	---
192:									
Moskee	B	---	---	---	---	---	---	---	---
193:									
Moskee	B	---	---	---	---	---	---	---	---

Table 16.--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				
194:									
Orpha	A	---	---	---	---	---	---	---	---
195:									
Orpha	A	---	---	---	---	---	---	---	---
Tullock	A	---	---	---	---	---	---	---	---
196:									
Phiferson	B	---	---	---	---	---	---	---	---
Alice, bedrock substratum	B	---	---	---	---	---	---	---	---
197:									
Phiferson	B	---	---	---	---	---	---	---	---
Mainter	B	---	---	---	---	---	---	---	---
198:									
Phiferson	B	---	---	---	---	---	---	---	---
Treon	D	---	---	---	---	---	---	---	---
199:									
Pinelli	C	---	---	---	---	---	---	---	---
200:									
Poposhia	B	---	---	---	---	---	---	---	---
201:									
Poposhia	B	---	---	---	---	---	---	---	---
Blazon	D	---	---	---	---	---	---	---	---
202:									
Poposhia	B	---	---	---	---	---	---	---	---
Blazon, thin solum	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
203:									
Poposhia	B	---	---	---	---	---	---	---	---
Chaperton	B	---	---	---	---	---	---	---	---
204:									
Poposhia	B	---	---	---	---	---	---	---	---
Forelle	B	---	---	---	---	---	---	---	---
205:									
Quarterback	B	April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
206:									
Quarterback, thick surface	B	April	---	---	---	---	None	Very brief	Rare
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare

Table 16.--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				
206:									
Albinas	B	---	---	---	---	---	---	---	---
207:									
Recluse	B	---	---	---	---	---	---	---	---
208:									
Recluse	B	---	---	---	---	---	---	---	---
209:									
Recluse	B	---	---	---	---	---	---	---	---
210:									
Recluse	B	---	---	---	---	---	---	---	---
Albinas	B	---	---	---	---	---	---	---	---
Treon, thin solum	D	---	---	---	---	---	---	---	---
211:									
Recluse	B	---	---	---	---	---	---	---	---
Cedak	B	---	---	---	---	---	---	---	---
212:									
Recluse	B	---	---	---	---	---	---	---	---
Cedak	B	---	---	---	---	---	---	---	---
213:									
Recluse	B	---	---	---	---	---	---	---	---
Graystone	B	---	---	---	---	---	---	---	---
214:									
Recluse	B	---	---	---	---	---	---	---	---
Nuncho	C	---	---	---	---	---	---	---	---
215:									
Rentsac	C	---	---	---	---	---	---	---	---
Brownsto	B	---	---	---	---	---	---	---	---
Ipson	B	---	---	---	---	---	---	---	---
216:									
Riverwash	D	January	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		February	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		March	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		April	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		May	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		June	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		July	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		August	0.0-2.0	>6.0	---	---	None	---	None
		September	0.0-2.0	>6.0	---	---	None	---	None
		October	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		November	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		December	0.0-2.0	>6.0	---	---	None	Very long	Frequent
217:									
Rock outcrop	D	---	---	---	---	---	---	---	---

Table 16.--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				
217:									
Blazon, thin solum	D	---	---	---	---	---	---	---	---
218:									
Rock outcrop	D	---	---	---	---	---	---	---	---
Bonjea	D	---	---	---	---	---	---	---	---
219:									
Rock outcrop	D	---	---	---	---	---	---	---	---
Cathedral	D	---	---	---	---	---	---	---	---
220:									
Rock outcrop	D	---	---	---	---	---	---	---	---
Cathedral	D	---	---	---	---	---	---	---	---
Alderon	B	---	---	---	---	---	---	---	---
221:									
Selpats	B	---	---	---	---	---	---	---	---
222:									
Selpats	B	---	---	---	---	---	---	---	---
Forkwood	B	---	---	---	---	---	---	---	---
223:									
Selpats	B	---	---	---	---	---	---	---	---
Hiland	B	---	---	---	---	---	---	---	---
224:									
Snilloc	B	---	---	---	---	---	---	---	---
Chugcity	B	---	---	---	---	---	---	---	---
225:									
Snilloc	B	---	---	---	---	---	---	---	---
Recluse	B	---	---	---	---	---	---	---	---
226:									
Spearfish	D	---	---	---	---	---	---	---	---
Sixmile	B	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
227:									
Storsun	B	---	---	---	---	---	---	---	---
Sunup	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
228:									
Sunup	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---

Table 16.--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				
229:									
Sunup	D	---	---	---	---	---	---	---	---
Snavee	B	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
230:									
Sweatbee	B	---	---	---	---	---	---	---	---
231:									
Sweatbee, wet	C	April	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		May	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		June	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		July	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		August	3.0-6.0	>6.0	---	---	None	---	None
		September	3.0-6.0	>6.0	---	---	None	---	None
		October	3.0-6.0	>6.0	---	---	None	---	None
232:									
Sweatbee	B	---	---	---	---	---	---	---	---
Numa	B	---	---	---	---	---	---	---	---
233:									
Taluce, thin solum	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
234:									
Taluce, thin solum	D	---	---	---	---	---	---	---	---
Keeline	B	---	---	---	---	---	---	---	---
235:									
Taluce, thin solum	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
Turnercrest	C	---	---	---	---	---	---	---	---
236:									
Taluce	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
Turnercrest	C	---	---	---	---	---	---	---	---
237:									
Taluce	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
Turnercrest	C	---	---	---	---	---	---	---	---
238:									
Taluce	D	---	---	---	---	---	---	---	---
Taluce, thin solum	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---

Table 16.--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				
239:									
Taluce	D	---	---	---	---	---	---	---	---
Taluce, thin solum	D	---	---	---	---	---	---	---	---
Turnercrest	C	---	---	---	---	---	---	---	---
240:									
Taluce, thin solum	D	---	---	---	---	---	---	---	---
Treon, thin solum	D	---	---	---	---	---	---	---	---
241:									
Taluce	D	---	---	---	---	---	---	---	---
Turnercrest	C	---	---	---	---	---	---	---	---
242:									
Taluce	D	---	---	---	---	---	---	---	---
Turnercrest	C	---	---	---	---	---	---	---	---
Keeline	B	---	---	---	---	---	---	---	---
243:									
Torriorthents, gullied.									
Gullied land.									
244:									
Treon	D	---	---	---	---	---	---	---	---
Aberone	B	---	---	---	---	---	---	---	---
245:									
Treon	D	---	---	---	---	---	---	---	---
Alice	B	---	---	---	---	---	---	---	---
Phiferson	B	---	---	---	---	---	---	---	---
246:									
Treon	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
247:									
Treon, thin solum	D	---	---	---	---	---	---	---	---
Phiferson	B	---	---	---	---	---	---	---	---
Keeline	B	---	---	---	---	---	---	---	---
248:									
Trimad	B	---	---	---	---	---	---	---	---
Blazon	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
249:									
Trimad	B	---	---	---	---	---	---	---	---

Table 16.--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				
249:									
Evanston	B	---	---	---	---	---	---	---	---
250:									
Trimad	B	---	---	---	---	---	---	---	---
Weed	B	---	---	---	---	---	---	---	---
Blazon	D	---	---	---	---	---	---	---	---
251:									
Turnercrest	C	---	---	---	---	---	---	---	---
Phiferson	B	---	---	---	---	---	---	---	---
Taluce	D	---	---	---	---	---	---	---	---
252:									
Typic Calciaquolls	C	April	0.5-1.5	>6.0	---	---	None	Very brief	Rare
		May	0.5-1.5	>6.0	---	---	None	Very brief	Rare
		June	0.5-1.5	>6.0	---	---	None	Very brief	Rare
		July	0.5-1.5	>6.0	---	---	None	Very brief	Rare
		August	0.5-1.5	>6.0	---	---	None	---	None
		September	0.5-1.5	>6.0	---	---	None	---	None
		October	0.5-1.5	>6.0	---	---	None	---	None
Whetsoon	C	April	1.5-3.0	>6.0	---	---	None	Very brief	Rare
		May	1.5-3.0	>6.0	---	---	None	Very brief	Rare
		June	1.5-3.0	>6.0	---	---	None	Very brief	Rare
		July	1.5-3.0	>6.0	---	---	None	Very brief	Rare
		August	1.5-3.0	>6.0	---	---	None	---	None
		September	1.5-3.0	>6.0	---	---	None	---	None
		October	1.5-3.0	>6.0	---	---	None	---	None
253:									
Tyzak	D	---	---	---	---	---	---	---	---
Tyzak, thin solum	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---
254:									
Valent	A	---	---	---	---	---	---	---	---
255:									
Vetal	B	---	---	---	---	---	---	---	---
256:									
Vetal	B	---	---	---	---	---	---	---	---
Julesburg	B	---	---	---	---	---	---	---	---
257:									
Vetal	B	---	---	---	---	---	---	---	---
Treon	D	---	---	---	---	---	---	---	---
Phiferson	B	---	---	---	---	---	---	---	---
258:									
Vonalee	B	---	---	---	---	---	---	---	---

Table 16.--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				
259:									
Wagonhound	B	---	---	---	---	---	---	---	---
Selpats	B	---	---	---	---	---	---	---	---
260:									
Water.									
261:									
Water.									
262:									
Weed	B	---	---	---	---	---	---	---	---
263:									
Wendover	D	---	---	---	---	---	---	---	---
Rock outcrop	D	---	---	---	---	---	---	---	---

Table 17.--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
*Aberone	Loamy-skeletal, carbonatic, mesic Aridic Haplustolls
Albinas	Fine-loamy, mixed, superactive, mesic Pachic Argiustolls
Alderon	Fine-loamy, mixed, superactive, frigid Typic Haplustalfs
Alice	Coarse-loamy, mixed, superactive, mesic Aridic Haplustolls
Anvil	Sandy-skeletal, mixed, calcareous, mesic Oxyaquic Torrifluvents
Bayard	Coarse-loamy, mixed, superactive, mesic Torriorthentic Haplustolls
Blackhall	Loamy, mixed, superactive, calcareous, frigid, shallow Ustic Torriorthents
Blazon	Loamy, mixed, superactive, calcareous, frigid, shallow Ustic Torriorthents
Bonjea	Loamy, mixed, superactive Lithic Argiborolls
Boyle	Loamy-skeletal, mixed, superactive, shallow Aridic Argiborolls
Breece	Coarse-loamy, mixed, superactive Pachic Haploborolls
Brown	Loamy-skeletal, mixed, superactive, mesic, shallow Aridic Argiustolls
Brownsto	Loamy-skeletal, mixed, superactive, frigid Ustic Haplocalcids
Byrnie	Loamy, mixed, superactive, calcareous, frigid, shallow Ustic Torriorthents
Cambria	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Cascajo	Sandy-skeletal, mixed, mesic Ustic Haplocalcids
Cathedral	Loamy-skeletal, mixed, superactive Lithic Haploborolls
Cedak	Fine-loamy, mixed, superactive, mesic Aridic Argiustolls
Chaperton	Fine-loamy, mixed, superactive, frigid Ustic Haplocambids
Chugcity	Coarse-loamy, mixed, superactive, mesic Ustic Haplocalcids
Chugcreek	Fine-loamy, mixed, superactive Pachic Argiborolls
Claprych	Loamy-skeletal, mixed, superactive, mesic Ustic Haplocalcids
Clarkelen	Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Coaliams	Fine-loamy, mixed, superactive, mesic Torrifluventic Haplustolls
Coocreek	Fine-loamy, mixed, superactive, frigid Aridic Ustochrepts
Cowestglen	Coarse-loamy, mixed, superactive, calcareous, frigid Ustic Torrifluvents
Cragola	Loamy-skeletal, mixed, active, calcareous, mesic, shallow Ustic Torriorthents
Creighton	Coarse-loamy, mixed, superactive, mesic Aridic Haplustolls
Curabith	Loamy-skeletal, mixed, superactive, mesic Aridic Calciustolls
Cushool	Fine-loamy, mixed, superactive, frigid Ustic Haplargids
Cutback	Fine-loamy, mixed, superactive, frigid Ustic Calciargids
Dalecreek	Fine-loamy, mixed, superactive Aquic Cumulic Haploborolls
Deight	Coarse-silty, mixed, superactive, mesic Aridic Argiustolls
Diamondville	Fine-loamy, mixed, active, frigid Ustic Haplargids
Diamonkit	Fine-loamy, mixed, superactive, frigid Ustic Argigypsids
Embry	Coarse-loamy, mixed, superactive, nonacid, mesic Ustic Torriorthents
Evanston	Fine-loamy, mixed, superactive Aridic Argiborolls
Featherlegs	Fine-loamy, mixed, superactive, mesic Aridic Argiustolls
Fluvaquentic Endoaquolls	Fluvaquentic Endoaquolls
Forelle	Fine-loamy, mixed, superactive, frigid Ustic Haplargids
Forkwood	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Glendo	Coarse-silty, mixed, superactive, mesic Aridic Ustochrepts
Graystone	Coarse-loamy, mixed, superactive, mesic Aridic Calciustolls
Greenhope	Coarse-loamy, mixed, superactive, mesic Aridic Calciustolls
Haverdad	Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Hiland	Fine-loamy, mixed, active, mesic Ustic Calciargids
Ipson	Loamy-skeletal, mixed, superactive Aridic Argiborolls
Jayem	Coarse-loamy, mixed, superactive, mesic Aridic Haplustolls
Julesburg	Coarse-loamy, mixed, superactive, mesic Aridic Argiustolls
Keeline	Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Kishona	Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Kovich	Fine-loamy, mixed, superactive, frigid Cumulic Endoaquolls
Lininger	Fine-loamy, mixed, superactive Typic Argiborolls
Livan	Sandy-skeletal, mixed, calcareous, mesic Ustic Torrifluvents
Luman	Loamy-skeletal, mixed, active, mesic Ustic Calciargids
Mainter	Coarse-loamy, mixed, superactive, mesic Aridic Argiustolls
McFadden	Coarse-loamy, mixed, superactive, frigid Ustic Haplocalcids
Mitchell	Coarse-silty, mixed, superactive, calcareous, mesic Ustic Torriorthents
Moskee	Fine-loamy, mixed, superactive, mesic Aridic Argiustolls
Nidix	Loamy-skeletal, mixed, superactive, mesic Aridic Haplustolls

Table 17.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Numa	Fine-loamy, mixed, superactive, mesic Ustic Haplocalcids
Nuncho	Fine, smectitic, mesic Aridic Argiustolls
Orpha	Mixed, mesic Ustic Torripsamments
Phiferson	Coarse-loamy, mixed, superactive, mesic Aridic Haplustolls
Pinelli	Fine, smectitic, frigid Ustic Haplargids
Poposhia	Fine-loamy, mixed, superactive, calcareous, frigid Ustic Torriorthents
Quarterback	Coarse-loamy, mixed, superactive, mesic Torrifluventic Haplustolls
Recluse	Fine-loamy, mixed, superactive, mesic Aridic Argiustolls
Rentsac	Loamy-skeletal, mixed, superactive, calcareous, Aridic Lithic Ustochrepts
Satanka	Fine-loamy, mixed, superactive, frigid Ustic Haplargids
Selpats	Fine-loamy, mixed, superactive, mesic Ustic Calciargids
Sixmile	Fine-loamy, mixed, superactive, calcareous, mesic Aridic Ustorthents
Snavee	Loamy-skeletal, mixed, superactive, mesic Aridic Haplustalfs
Snilloc	Coarse-loamy, mixed, superactive, mesic Haplocalcidic Ustochrepts
Spearfish	Loamy, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Spinekop	Fine-loamy, mixed, superactive, frigid Aridic Ustochrepts
Storsun	Loamy-skeletal, carbonatic, mesic Ustic Haplocalcids
Stylite	Fine-loamy, mixed, superactive, frigid Calcic Argigypsids
Sunup	Loamy-skeletal, mixed, semiactive, calcareous, mesic Lithic Ustic Torriorthents
Sweatbee	Coarse-loamy, mixed, superactive, mesic Haplocalcidic Ustochrepts
Taluce	Loamy, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Thirtynine	Fine-silty, mixed, superactive, mesic Aridic Argiustolls
Treon	Loamy, mixed, superactive, mesic, shallow Torriorthentic Haplustolls
Trimad	Loamy-skeletal, mixed, superactive Typic Calciborolls
Tullock	Mixed, mesic Ustic Torripsamments
Turnercrest	Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Typic Calciaquolls	Typic Calciaquolls
Tyzak	Loamy-skeletal, mixed, superactive Lithic Calciborolls
Valent	Mixed, mesic Ustic Torripsamments
Vetal	Coarse-loamy, mixed, superactive, mesic Pachic Haplustolls
Vonalee	Coarse-loamy, mixed, superactive, mesic Ustic Haplargids
Wagonhound	Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Weed	Fine-loamy, mixed, superactive Pachic Argiborolls
Wendover	Loamy-skeletal, mixed, superactive, mesic Lithic Argiustolls
Whetsoon	Fine-loamy, mixed, superactive, mesic Aquic Argiustolls

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