

Important Farmland

None of the map units in the survey area meet the requirements for prime farmland because of inadequate precipitation, insufficient water for irrigation, high alkalinity, high salinity, or steep slopes. Some map units, however, meet the requirements for farmland of statewide importance. This is land that is important for the production of food, feed, fiber, forage, and oilseed crops. Criteria for defining and delineating this land were determined by the appropriate State agencies. Generally, farmland of statewide importance includes areas that are nearly prime farmland and that produce high yields of crops in an economic manner when treated and managed according to acceptable farming methods. Some may produce as high a yield as prime farmland if conditions are favorable.

Farmland of statewide importance commonly receives an adequate and dependable supply of moisture from irrigation. Temperature and growing season are favorable, and the level of acidity or alkalinity is acceptable. This farmland is not excessively erodible or saturated with water for long periods and is not flooded during the growing season. Slope ranges mainly from 0 to 15 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as farmland of statewide importance if these limitations are overcome by drainage, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of the corrective measures. More information on the criteria for farmland of statewide importance is available at the local office of the Natural Resources Conservation Service.

About 900,000 acres in the survey area, or about 17 percent of the total acreage, would meet the requirements for farmland of statewide importance if an adequate and dependable supply of irrigation water were available.

The map units listed at the end of this section meet the soil requirements for farmland of statewide importance if they are irrigated. On some soils included in the list, measures have been used to overcome a hazard or limitation, such as flooding, wetness, or droughtiness. The location of each map unit is shown on the detailed soil maps. Soil qualities that affect use and management are described under the heading "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

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| 1 | Abela gravelly loam, 2 to 8 percent slopes |
| 6 | Birdow loam, 1 to 4 percent slopes |
| 8 | Bramwell silt loam, 0 to 2 percent slopes |
| 12 | Cliffdown gravelly sandy loam, 2 to 15 percent slopes |
| 15 | Doyce loam, 2 to 8 percent slopes |
| 19 | Erda silt loam, 1 to 5 percent slopes |
| 21 | Hiko Peak gravelly loam, 2 to 15 percent slopes |
| 31 | Kanosh loam, 0 to 2 percent slopes |
| 33 | Kapod gravelly loam, 2 to 10 percent slopes |
| 37 | Lakewin gravelly loam, 1 to 5 percent slopes |
| 41 | Manassa silt loam, 0 to 3 percent slopes |
| 42 | Medburn fine sandy loam, 2 to 8 percent slopes |
| 43 | Medburn fine sandy loam, saline, 2 to 4 percent slopes |
| 64 | Taylorflat loam, 1 to 5 percent slopes |
| 65 | Taylorflat loam, saline, 0 to 3 percent slopes |
| 66 | Timpie silt loam, 0 to 3 percent slopes |
| 67 | Timpie silt loam, saline, 0 to 4 percent slopes |
| 68 | Timpie-Tooele complex, saline, 0 to 5 percent slopes |
| 69 | Tooele fine sandy loam, 0 to 5 percent slopes |
| 70 | Tooele fine sandy loam, saline, 0 to 5 percent slopes |

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help 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 woodland; 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

About 26,000 acres in the survey area is used as irrigated cropland, and 10,000 acres is used for irrigated

pastures or sod farms. About 7,000 acres is used as nonirrigated cropland. The majority of the irrigated cropland is in the Grantsville, Erda, and Tooele areas, and the nonirrigated cropland is in the Hickman Bench, Tooele, and Erda areas. The milder climate and higher precipitation of Grantsville-Tooele Valley make this area more favorable than the rest of the survey area for the production of commercial crops.

The potential of some of the soils for the increased production of crops is good. The use of adapted crops and pasture plants and the proper management of irrigation water could increase production. Some areas have soils that have a high water table or are saline or alkali, or both. Maintaining a drainage system and properly managing irrigation are necessary to maintain crop production on the wet Bramwell and Kanosh soils. Proper irrigation management helps to leach salts and alkali in areas of some soils, such as Manassa, Timpie, Tooele, and Taylorsflat soils.

The main irrigated crops in the survey area are alfalfa, small grain, and some corn silage. The most productive soils for these crops are Erda, Bramwell, Kanosh, and Birdow soils in the Erda and Grantsville areas. A large percentage of small grain and alfalfa is used locally as supplemental feed for livestock. Management of irrigation water is the major management concern in these areas. Most of the irrigation delivery systems have been improved. The majority of the cropland is sprinkler irrigated.

General management needed for crops and for hay and pasture is suggested in this section. The system of land capability classification used by the Natural Resources Conservation Service is explained, and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under 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 table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

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

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that 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 table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the 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 take into account 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 woodland, or for engineering purposes.

In the capability system, soils generally are grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

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

Class I soils have few limitations that restrict their use.

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

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

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

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

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

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

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

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main 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 I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The capability classification of each map unit is given in the section "Detailed Soil Map Units" and in the yields table.

Rangeland

Rangeland is an important resource in the survey area. A large portion of the survey area is used as rangeland. Perennial grasses, shrubs, and forbs are the dominant vegetation, but some areas support a cover of aspen, maple, oak, and coniferous trees.

Rangeland is used primarily for grazing by cattle and sheep in spring and fall. The warmer areas are used as winter range for sheep and cattle. The mountain and high mountain areas are used for summer range. Stock water is generally adequate and is supplemented by streams, springs, reservoirs, or wells.

Much of the acreage that was formerly open native grassland is now covered by annuals and shrubs. Excessive grazing in the past has resulted in a deteriorated range condition throughout much of the survey area. Juniper and pinyon trees and woody shrubs, such as sagebrush and greasewood, have invaded or increased in density to nearly closed stands. As a result of excessive grazing and repeated wildfires, cheatgrass is the dominant type of vegetation.

The productivity of rangeland can be increased by using such management practices as planned grazing systems, deferred grazing, brush management, fencing, water development, and reseeding. The practices used or recommended for use should include consideration of the soils, the range site, and the specific type of operation.

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, the range site or woodland site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. Explanation of the column headings in table 6 follows.

A *site* is a distinctive kind of rangeland or grazeable woodland that produces a characteristic natural plant community that differs from natural plant communities on other sites in kind, amount, and proportion of plants. The relationship between soils and vegetation was ascertained during this survey; thus, range sites or woodland sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on productivity. Soil reaction, salt content, and a seasonal high water table are also important. A woodland site has at least 10 percent potential canopy cover of trees.

Total production is the amount of vegetation that can

be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation 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, mainly because of low available soil moisture.

Dry weight is the total annual yield per acre of air-dry vegetation. Yields are adjusted to a common percent of air-dry moisture content. The relationship of green weight to air-dry weight varies according to such factors as exposure, amount of shade, recent rains, and unseasonable dry periods.

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 *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 condition. Range condition is determined by comparing the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the potential community, the better the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community in a given use.

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 optimal production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Climatic Regimes and Their Effect on Range

Precipitation and climate are important environmental factors influencing the kind, amount, and distribution of vegetation. Plants growing on the range in different

parts of the survey area are affected by differences in the kind of soil and by differences in climate.

The climate ranges from arid in the salt flats near the Great Salt Lake to subalpine in the higher mountains. Average annual precipitation ranges from about 4 inches in the salt flats near Wendover to more than 35 inches in the high mountains.

Five distinct climatic regimes are recognized in the survey area. These regimes are determined on the basis of differences in the amount of moisture received, the average annual temperature, and the length of the growing season. In addition, some sites are azonal, where the influence of flooding, a high water table, or some other factor is strong enough to override climate as a controlling factor. The climatic regimes in the survey area are Desert, Semidesert, Upland, Mountain, and High Mountain.

Desert climatic regime.—In this regime, the average annual precipitation ranges from 6 to 8 inches and the average annual air temperature is 45 to 52 degrees F. The average frost-free period is 100 to 180 days. Elevations range from 4,200 to 6,000 feet. The range sites in this climatic regime are Desert Alkali Bench (Bud Sagebrush), Desert Alkali Sand (Fourwing Saltbush), Desert Flat (Shadscale), Desert Gravelly Loam (Shadscale), Desert Gravelly Sandy Loam (Indian Ricegrass), Desert Loam (Shadscale), Desert Oolitic Dunes (Black Greasewood), Desert Salt Flat (Sickle Saltbush), Desert Salty Silt (Pickleweed), Desert Sand (Fourwing Saltbush), Desert Sandy Loam (Shadscale), and Desert Shallow Loam (Shadscale).

Semidesert climatic regime.—In this regime, the average precipitation ranges from 8 to 12 inches and the average annual air temperature is 45 to 52 degrees F. The average frost-free period is 100 to 180 days. Elevations range from 4,200 to 7,000 feet. The range sites in this climatic regime are Semidesert Gravelly Loam (Wyoming Big Sagebrush), Semidesert Sand (Utah Juniper), Semidesert Shallow Hardpan 8 to 10 Ppt, Semidesert Shallow Hardpan (Utah Juniper), Semidesert Shallow Loam (Black Sagebrush), Semidesert Shallow Loam (Utah Juniper-Bluebunch Wheatgrass), Semidesert Shallow Loam (Utah Juniper-Salmon Wildrye), and Semidesert Stony Loam (Black Sagebrush).

Upland climatic regime.—In this regime, the average precipitation ranges from 12 to 16 inches and the average annual air temperature is 38 to 52 degrees F. The average frost-free period is 80 to 180 days. Elevations range from 4,200 to 8,000 feet. The range or woodland sites in this climatic regime are Upland Claypan (Low Sagebrush), Upland Gravelly Loam (Mountain Big Sagebrush), Upland Loam (Mountain Big Sagebrush), Upland Sand (Indian Ricegrass), Upland

Shallow Hardpan (Pinyon-Utah Juniper), Upland Shallow Loam (Black Sagebrush), Upland Shallow Loam (Pinyon-Utah Juniper), Upland Stony Loam (Pinyon-Utah Juniper), and Upland Stony Loam (Wyoming Big Sagebrush).

Mountain climatic regime.—In this regime, the average annual precipitation ranges from 16 to 22 inches and the average annual air temperature is 38 to 45 degrees F. The average frost-free period is 60 to 115 days. Elevations range from 5,200 to 10,000 feet. The range or woodland sites in this climatic regime are Mountain Gravelly Loam (Oak), Mountain Shallow Loam (Low Sagebrush), Mountain Stony Loam (Antelope Bitterbrush), and Mountain Windswept Ridge (Low Sagebrush).

High Mountain climatic regime.—In this regime, the average annual precipitation ranges from 22 to 35 inches and the average annual air temperature is 38 to 45 degrees F. The average frost-free period is 50 to 90 days. Elevations range from 6,000 to more than 10,000 feet. The range or woodland sites in this climatic regime are High Mountain Loam (Aspen) and High Mountain Stony Loam (Conifer).

Azonal areas.—Three azonal range sites are in the survey area. The average annual precipitation ranges from 6 to 14 inches, and the average annual air temperature is 45 to 52 degrees F. The average frost-free period is 110 to 180 days. Elevations range from 4,200 to 6,200 feet. Plant communities in these range sites receive additional moisture from a water table or as runoff from adjacent soils. The azonal range sites are Alkali Bottom (Alkali Sacaton), Loamy Bottom (Basin Wildrye), and Wet Saline Meadow.

Woodland Management and Productivity

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

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number indicates the volume, in cubic meters per hectare per year, which the indicator species can produce. The letter *R* indicates steep slopes; *X*, stoniness or rockiness; *W*, excess water in or on the soil; *T*, toxic substances in the soil; *D*, restricted rooting depth; *C*, clay in the upper part of the soil; *S*, sandy texture; *F*, a high content of rock fragments in the

soil; and *N*, snowpack. The letter *A* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, F, and N.

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

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed are also subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular prevention measures are needed under ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface, rock outcrops, soil wetness, and texture of the surface layer. A rating of *slight* indicates that under normal conditions the kind of equipment and season of use are not significantly restricted by soil factors. Soil wetness can restrict equipment use, but the wet period does not exceed 1 month. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If the soil is wet, the wetness restricts equipment use for a period of 1 to 3 months. A rating of *severe* indicates that equipment use is severely restricted either as to the kind of equipment that can be used or the season of use. If the soil is wet, the wetness restricts equipment use for more than 3 months.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is 25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem.

Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *productivity class*. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The *productivity class*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic meters per hectare per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The first species listed under *common trees* for a soil is the indicator species for that soil. It generally is the most common species on the soil and is the one that determines the ordination class.

Trees to plant are those that are suitable for commercial wood production.

Recreation

The survey area provides a wide variety of recreational activities. It includes areas that are popular for hunting of big game, such as mule deer and elk, and for hunting of game birds, such as grouse, pheasants, and waterfowl. Reservoirs, streams, and springs provide areas for fishing.

Areas of the Great Salt Lake around Stansbury Island have undeveloped sandy beaches, which are good locations for swimming and picnicking. Sand dunes near Knolls and areas around the Cedar Mountains are popular with dirt bike and dune buggy enthusiasts. The scenic mountains in the area provide opportunities for camping, picnicking, hiking, and horseback riding. The Bonneville Salt Flats Race Track is near Wendover, along the edge of salt and mud flats of the Great Salt Lake Desert.

Historic areas include the Pony Express Trail across the southern part of the survey area, the restored grist mill near Lake Point, and the gold and silver mines at Ophir and Mercur.

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public 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 table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties generally are favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for dwellings without basements and for local roads and streets in table 10 and interpretations

for septic tank absorption fields in table 11.

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 are gently sloping 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

The survey area includes a variety of habitats, ranging from barren mud and salt flats, dunes, and playas to irrigated agricultural areas and forested mountains. Except for those in the barren areas, most of the soils in the survey area support vegetation that is used by wildlife to a varying extent. Most wildlife species are not confined to areas of a particular soil or group of soils.

The mountainous areas in the eastern half of the survey area and along the extreme western border

provide summer habitat for mule deer. Winter habitat for mule deer is in the areas of southern exposure in the foothills and on the windswept lower ridges. Other important wildlife species in the mountainous areas include mountain cottontail, mountain lion, blue grouse, broad-tailed hummingbird, Stellar's jay, boreal chorus frog, and gopher snake.

The openland areas in the uplands include most of the farmland in the survey area. These areas provide seasonal habitat for many of the species that also inhabit the mountainous areas and for other species, such as badger, coyote, Townsend ground squirrel, mourning dove, horned lark, Swainson's hawk, Great Basin spadefoot toad, and western long-nosed snake.

Wetlands and riparian zones and adjacent areas provide diverse habitat for wildlife. Small but highly valuable areas of wetlands and riparian zones are scattered throughout the survey area. Extensive wetlands are along the southern shore of the Great Salt Lake. Thousands of waterfowl and shore birds utilize these wetlands for nesting and brooding each year during their migrations. Species include snow goose, mallard, cinnamon teal, white pelican, great egret, and sandhill crane. Other wildlife species that inhabit these areas include raccoon, striped skunk, meadow vole, leopard frog, and wandering garter snake.

Semidesert areas provide habitat for several species, including mule deer, antelope, lacktail jackrabbit, Ord kangaroo rat, sage grouse, sage thrasher, horned lark, and side-blotched lizard.

The mud and salt flats and playas are generally devoid of vegetation, but these areas along with adjacent areas are an important part of the ecosystem. They are inhabited by invertebrates, such as insects. The fringe areas are used by a variety of species.

Streams and reservoirs in the survey area are concentrated in the mountainous areas. Important fish species include rainbow trout, cutthroat trout, and other nongame fish. The Lahontan cutthroat trout inhabits mountain streams in the extreme western part of the survey area.

The bald eagle has been observed in the survey area. A population of bald eagles winters in the Tooele and Rush Valleys in the eastern part of the survey area. The survey area also contains potential habitat for the peregrine falcon. In recent years, peregrine falcons have been released from hack sites. A pair of these birds has been successfully nesting in Salt Lake City for several years.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat

can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

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

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

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

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

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface

stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are Indian ricegrass, bluebunch wheatgrass, crested wheatgrass, galleta, globemallow, and lupine.

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

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs and other woody plants are mountainmahogany, bitterbrush, sagebrush, shadscale, winterfat, Gambel oak, and aspen.

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

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds. Extensive areas of mud and salt flats and playas are seasonally covered with shallow water. The Great Salt Lake has broad areas of water that are less than 5 feet deep.

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

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include kit fox, deer mouse, ring-necked pheasant, western kingbird, vesper sparrow, red-tailed hawk, and western fence lizard.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants, or both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include mule deer, porcupine, great horned owl, Cooper's hawk, downy woodpecker, spotted frog, and Utah mountain

kingsnake. In the survey area, this habitat is primarily in the mountainous areas.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are raccoon, marsh hawk, Canada goose, American avocet, lesser yellowlegs, bullfrog, and wandering garter snake.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, mule deer, sage grouse, black-throated sparrow, and Great Basin spadefoot toad.

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, 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 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features generally are 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, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 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 generally are limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

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

limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated *good*; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock 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.

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table,

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

Excessive seepage 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 table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench 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 soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants.

Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good*, *fair*, or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

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

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help 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 table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the taxonomic unit 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 as much as 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 generally is preferred for topsoil because of its organic matter content.

Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features generally are 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 more than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed

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

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

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

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each taxonomic unit 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 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, 1993) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1986).

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 oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

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

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Tables 15 and 16 show estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

In table 15, *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 taxonomic unit under the heading "Soil Series and Their Morphology."

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $\frac{1}{3}$ -bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil

material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems 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 major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

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

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

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

Organic matter is the plant and animal residue in the

soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, very fine sand, sand, and organic matter (as much as 4 percent) and on soil structure and permeability. The estimates are modified by the presence of rock fragments. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion.

Erosion factor Kf also indicates the susceptibility of a soil to sheet and rill erosion, but the estimates are based only on the fine-earth fraction of the soil. Rocks and rock fragments are not considered.

Erosion factor T is an estimate of the maximum average 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 resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. Soils are grouped according to the following distinctions:

1. Coarse sands, fine sands, and very fine sands. These soils generally are not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.
2. Loamy coarse sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.
5. Noncalcareous loams and silt loams that are less

than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.

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 used in the wind erosion equation (WEQ). The index number indicates the amount of soil lost in tons per acre per year.

In table 16, *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 taxonomic unit under the heading "Soil Series and Their Morphology."

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Cation-exchange capacity is the total amount of cations held in a soil in such a way that they can be removed only by exchanging with another cation in the natural soil solution. Cation-exchange capacity is a measure of the ability of a soil to retain cations, some of which are plant nutrients. Soils that have a low cation-exchange capacity hold few cations and may require more frequent applications of fertilizer than soils that have a high cation-exchange capacity. Soils that have a high cation-exchange capacity have the potential to retain cations, thus reducing the risk of ground-water pollution.

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

fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate is the percentage, by weight, of calcium carbonate in the fraction of the soil less than 2 millimeters in size.

Gypsum is the percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 2 millimeters in size. Gypsum is corrosive to concrete. Corrosion of concrete is most likely to occur in soils that are more than about 1 percent gypsum after wetting and drying.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of the soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio is an expression of the relative activity of sodium ions in exchange reactions in the soil. It is a measure of the amount of sodium relative to calcium and magnesium in the water extract from saturated soil paste.

Soil Features

Table 17 gives estimates of several important soil features. The estimates are used in land use planning that involves engineering considerations.

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

A *cemented pan* is a cemented or indurated subsurface layer at a depth of 5 feet or less. Such a pan causes difficulty in excavation. Pans are classified as thin or thick. A *thin* pan is one that is less than 3 inches thick if continuously indurated or less than 18 inches thick if discontinuous or fractured. Excavations can be made by trenching machines, backhoes, or small rippers. A *thick* pan is one that is more than 3 inches thick if continuously indurated or more than 18 inches thick if it is discontinuous or fractured. Such a pan is so thick or massive that blasting or special

equipment is needed in excavation.

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

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

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

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

Water Features

Table 18 gives estimates of several important water features. The estimates are used in land use planning that involves engineering considerations.

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

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low

runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

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

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

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

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

Table 18 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable, *rare* that it is unlikely but is possible under unusual weather conditions (the chance of flooding in any year is 0 to 5 percent), *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding in any year is 5 to 50 percent), and *frequent* that it occurs often under normal weather conditions (the chance of flooding in any year is more than 50 percent).

Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and

very long (more than 1 month). The time of year that flooding is most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

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

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

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 18 are the depth to the seasonal high water table; the kind of water table—that is, perched, artesian, or apparent; and the months of the year that the water table usually is highest. Only saturated zones within a depth of about 6 feet are indicated. A water table that is seasonally high for less than 1 month is not indicated in the table.

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

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1975). 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 19 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 Entisol.

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 Orthent (*Orth*, meaning the common ones, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Torriorthents (*Torri*, meaning hot and dry, plus *orthent*, the suborder of the Entisols that has a weakly developed soil profile).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Torriorthents.

FAMILY. Families are established within a subgroup

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

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

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

Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the unit in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (USDA, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (USDA, 1975). Unless otherwise stated, matrix colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the unit.

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

Abela Series

The Abela series consists of very deep, well drained, moderately rapidly permeable soils on fan remnants. These soils formed in alluvium derived dominantly from limestone and quartzite. Slopes range from 2 to 15

percent. Elevation is 4,600 to 6,000 feet. Average annual precipitation is 12 to 14 inches, and mean annual air temperature is 45 to 50 degrees F.

These soils are loamy-skeletal, mixed, mesic Aridic Calcixerolls.

Typical pedon of Abela gravelly loam, 2 to 8 percent slopes; about 4 miles west of Stockton; about 2,100 feet south and 700 feet west of the northeast corner of sec. 23, T. 4 S., R. 6 W.

- A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to weak fine granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine vesicular pores; 15 percent gravel; strong effervescence (8 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.0); clear smooth boundary.
- A2—4 to 10 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine tubular pores; 25 percent gravel; strong effervescence (10 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.
- Bw—10 to 20 inches; pale brown (10YR 6/3) gravelly loam, dark grayish brown (10YR 4/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine tubular pores; 25 percent gravel, 5 percent cobbles; strong effervescence (14 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.
- Bk1—20 to 33 inches; very pale brown (10YR 7/3) very gravelly loam, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; 35 percent gravel, 10 percent cobbles; violent effervescence (35 percent calcium carbonate equivalent); carbonates are disseminated, are segregated in veins, and completely coat rock fragments; strongly alkaline (pH 8.6); clear smooth boundary.
- Bk2—33 to 45 inches; very pale brown (10YR 7/3) very gravelly loam, pale brown (10YR 6/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very

fine, fine, and medium roots; 45 percent gravel; violent effervescence (32 percent calcium carbonate equivalent); carbonates are disseminated, are segregated in veins, and completely coat rock fragments; strongly alkaline (pH 8.6); clear smooth boundary.

- Bk3—45 to 60 inches; very pale brown (10YR 7/3) very gravelly loam, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; 45 percent gravel; violent effervescence (35 percent calcium carbonate equivalent); carbonates are disseminated, are segregated in veins, and completely coat rock fragments; strongly alkaline (pH 8.6).

The mollic epipedon is 10 to 18 inches thick. The calcic horizon is at a depth of 15 to 24 inches. The particle-size control section is 35 to 60 percent rock fragments. The content of clay is 10 to 18 percent throughout.

The A horizon has chroma of 2 or 3. It is gravelly loam or very gravelly loam. The content of rock fragments is 15 to 50 percent. Calcium carbonate equivalent is 1 to 15 percent.

The Bw horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 or 3. It is gravelly loam or very gravelly loam. The content of rock fragments is 25 to 60 percent. Calcium carbonate equivalent is 3 to 15 percent. Reaction is moderately alkaline or strongly alkaline.

The Bk horizon and the C horizon, if it occurs, have value of 6 to 8 (4 to 6 moist) and chroma of 2 or 3. They are very gravelly loam or extremely gravelly sandy loam. The content of rock fragments is 35 to 75 percent. Calcium carbonate equivalent is 15 to 40 percent. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

Amtoft Series

The Amtoft series consists of shallow, somewhat excessively drained, moderately rapidly permeable soils on hillsides and mountainsides. These soils formed in residuum and colluvium derived dominantly from limestone. Slopes range from 30 to 70 percent. Elevation is 4,250 to 7,000 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 45 to 48 degrees F.

These soils are loamy-skeletal, carbonatic, mesic Lithic Xerollic Calciorthids.

Typical pedon of Amtoft very cobbly loam, in an area of Amtoft-Rock outcrop complex, 30 to 70 percent slopes; about 2 miles west and 8 miles north of Delle; about 400 feet west and 300 feet south of the northeast

corner of sec. 23, T. 2 N., R. 9 W.

A—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly loam, grayish brown (10YR 5/2) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; few very fine and fine vesicular pores; 25 percent gravel, 10 percent cobbles, 5 percent stones; strong effervescence (25 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—3 to 9 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine and common medium and coarse roots; few very fine and fine tubular pores; 25 percent gravel, 15 percent cobbles, 5 percent stones; violent effervescence (36 percent calcium carbonate equivalent); carbonates are disseminated as coatings on undersides of rock fragments; moderately alkaline (pH 8.2); clear wavy boundary.

Bk—9 to 16 inches; very pale brown (10YR 7/3) extremely cobbly loam, pale brown (10YR 6/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; 45 percent gravel, 25 percent cobbles, 5 percent stones; violent effervescence (50 percent calcium carbonate equivalent); carbonates are disseminated and completely coat rock fragments; strongly alkaline (pH 8.6); abrupt irregular boundary.

R—16 inches; fractured limestone bedrock.

Bedrock is at a depth of 10 to 20 inches. The calcic horizon is at a depth of 4 to 12 inches. The particle-size control section averages 12 to 18 percent clay, 35 to 80 percent rock fragments, and more than 40 percent calcium carbonate equivalent. Thickness of the calcic horizon ranges from 6 to 10 inches. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

The A and Bw horizons have value of 5 or 6 (3 to 5 moist) and chroma of 2 or 3. The content of rock fragments is 35 to 60 percent. Calcium carbonate equivalent is 20 to 40 percent.

The Bk horizon has value of 6 to 8 (4 to 7 moist) and chroma of 2 or 3. The content of rock fragments is 60 to 80 percent. Calcium carbonate equivalent is 40 to 80 percent.

Berent Series

The Berent series consists of very deep, somewhat excessively drained, rapidly permeable soils on hummocky, stabilized sand dunes. These soils formed in eolian sands derived from sandy lacustrine deposits. Slopes range from 2 to 15 percent. Elevation is 4,500 to 5,800 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 46 to 50 degrees F.

These soils are mixed, mesic Xeric Torripsamments.

Typical pedon of Berent loamy fine sand, in an area of Berent-Hiko Peak complex, 2 to 15 percent slopes; about 10 miles west and 9 miles south of Delle; about 2,200 feet south and 500 feet west of the northeast corner of sec. 20, T. 2 S., R. 10 W.

A—0 to 6 inches; pale brown (10YR 6/3) loamy fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose; many very fine and few fine roots; slight effervescence; carbonates are disseminated; moderately alkaline (pH 8.0); clear smooth boundary.

C1—6 to 16 inches; pale brown (10YR 6/3) fine sand, dark brown (10YR 4/3) moist; single grain; loose; common very fine and few fine and medium roots; slight effervescence; carbonates are disseminated; moderately alkaline (pH 8.2); gradual wavy boundary.

C2—16 to 39 inches; light yellowish brown (10YR 6/4) fine sand, dark yellowish brown (10YR 4/4) moist; single grain; loose; few very fine and fine roots; slight effervescence; carbonates are disseminated; strongly alkaline (pH 8.8); gradual wavy boundary.

C3—39 to 60 inches; light yellowish brown (10YR 6/4) fine sand, brown (10YR 5/3) moist; single grain; loose; few very fine roots; slight effervescence; carbonates are disseminated; strongly alkaline (pH 9.0).

Conductivity of the saturation extract is 0 to 2 mmhos/cm. Calcium carbonate equivalent is 1 to 15 percent.

The A horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 or 3. The content of clay is 0 to 10 percent. Reaction is slightly alkaline or moderately alkaline.

The C horizon has value of 6 or 7 (4 to 6 moist) and chroma of 2 to 4. The content of clay is 0 to 5 percent. Reaction is moderately alkaline or strongly alkaline.

Birdow Series

The Birdow series consists of very deep, well drained, moderately permeable soils on flood plains, stream terraces, and alluvial fans. These soils formed in

alluvium derived dominantly from limestone and quartzite. Slopes range from 1 to 4 percent. Elevation is 4,250 to 6,200 feet. Average annual precipitation is 10 to 14 inches, and mean annual air temperature is 45 to 48 degrees F.

These soils are fine-loamy, mixed, mesic Cumulic Haploxerolls.

Typical pedon of Birdow loam, 1 to 4 percent slopes; about 1 mile south of Stockton; about 1,800 feet west and 1,100 feet south of the northeast corner of sec. 36, T. 4 S., R. 5 W.

Ap—0 to 10 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine tubular pores; 5 percent gravel; slight effervescence (5 percent calcium carbonate equivalent); carbonates are disseminated; slightly alkaline (pH 7.6); clear smooth boundary.

A1—10 to 17 inches; grayish brown (10YR 5/2) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine tubular pores; 10 percent gravel; slight effervescence (8 percent calcium carbonate equivalent); carbonates are disseminated; slightly alkaline (pH 7.8); clear wavy boundary.

A2—17 to 28 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine tubular pores; 5 percent gravel; strong effervescence (11 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.0); gradual wavy boundary.

Bw—28 to 50 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; 5 percent gravel; strong effervescence (12 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); gradual wavy boundary.

Ab—50 to 60 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; 5 percent gravel; strong

effervescence (13 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.4).

The mollic epipedon is 20 to 40 inches thick. The particle-size control section is 0 to 15 percent rock fragments. The content of clay is 18 to 27 percent. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The A horizon has chroma of 2 or 3. Reaction is slightly alkaline or moderately alkaline.

The B horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 or 3. Reaction is moderately alkaline or strongly alkaline.

Borvant Series

The Borvant series consists of well drained, moderately permeable soils on fan remnants. These soils are shallow over a petrocalcic horizon. They formed in alluvium derived dominantly from limestone. Slopes range from 2 to 15 percent. Elevation is 5,200 to 6,500 feet. Average annual precipitation is 12 to 14 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are loamy-skeletal, carbonatic, mesic, shallow Aridic Petrocalcic Palexerolls.

Typical pedon of Borvant gravelly loam, 2 to 15 percent slopes; about 2 miles east and 6 miles south of Ibapah; about 1,500 feet north and 700 feet east of the southwest corner of sec. 13, T. 10 S., R. 19 W.

A—0 to 7 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thin and moderately thick platy structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine, medium, and coarse roots; common very fine vesicular pores; 25 percent gravel, 5 percent cobbles; slight effervescence (18 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.

Bk—7 to 18 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; 45 percent gravel, 10 percent cobbles; strong effervescence (50 percent calcium carbonate equivalent); carbonates are disseminated and segregated in concretions; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bkqm—18 to 25 inches; indurated, carbonate-cemented hardpan.

C—25 to 60 inches; stratified very gravelly sandy loam, very gravelly loamy sand, and carbonate- and silica-cemented hardpan.

The calcic horizon is at a depth of 7 to 14 inches. The hardpan is at a depth of 10 to 20 inches. The mollic epipedon is 7 to 14 inches thick. The particle-size control section is 35 to 60 percent rock fragments. Calcium carbonate equivalent in the particle-size control section is 40 to 60 percent. The content of clay is 10 to 18 percent. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. The content of rock fragments is 15 to 35 percent. Reaction is slightly alkaline to strongly alkaline. Calcium carbonate equivalent is 15 to 40 percent. The fine-earth fraction may be leached of calcium carbonate. Fragments less than 20 millimeters in size are the main contributors of calcium carbonate equivalent.

The Bk horizon has value of 6 or 7 (5 or 6 moist) and chroma of 2 or 3. The content of rock fragments is 35 to 60 percent. Reaction is moderately alkaline or strongly alkaline. Calcium carbonate equivalent is 40 to 60 percent.

Bramwell Series

The Bramwell series consists of very deep, somewhat poorly drained, slowly permeable soils on low lake terraces and stream terraces. These soils formed in alluvium and lacustrine sediments derived from mixed rock sources. Slopes range from 0 to 2 percent. Elevation is 4,200 to 5,300 feet. Average annual precipitation is 10 to 12 inches, and mean annual air temperature is 49 to 52 degrees F.

These soils are fine-silty, mixed, mesic Aquic Calciorthids.

Typical pedon of Bramwell silt loam, 0 to 2 percent slopes; in Erda; about 1,200 feet east and 1,400 feet south of the northwest corner of sec. 32, T. 2 S., R. 4 W.

Ap—0 to 6 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak moderately thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine and common fine vesicular pores; strong effervescence (18 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.

Bk1—6 to 20 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak

fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine tubular pores; strong effervescence (24 percent calcium carbonate equivalent); carbonates are disseminated and segregated in common fine soft masses; strongly alkaline (pH 8.5); clear smooth boundary.

Bk2—20 to 28 inches; light gray (10YR 7/2) silty clay loam, light brownish gray (2.5Y 6/2) moist; weak fine subangular blocky structure; hard, firm, sticky and plastic; few fine and medium roots; common very fine tubular pores; violent effervescence (40 percent calcium carbonate equivalent); carbonates are disseminated and segregated in many fine soft masses; strongly alkaline (pH 9.0); gradual smooth boundary.

Bk3—28 to 36 inches; light gray (10YR 7/2) silty clay loam, light brownish gray (2.5Y 6/2) moist; few fine distinct reddish yellow (7.5YR 6/6) mottles; weak fine subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; few very fine tubular pores; violent effervescence (22 percent calcium carbonate equivalent); carbonates are disseminated and segregated in few fine soft masses; strongly alkaline (pH 8.6); gradual smooth boundary.

C—36 to 60 inches; light gray (10YR 7/2) silty clay loam, light brownish gray (2.5Y 6/2) moist; common fine distinct reddish yellow (7.5YR 5/6) mottles; massive; hard, firm, sticky and plastic; strong effervescence (22 percent calcium carbonate equivalent); carbonates are disseminated; strongly alkaline (pH 8.6).

The calcic horizon is at a depth of 6 to 14 inches. A seasonal high water table is at a depth of 2.5 to 3.5 feet from March through July. In areas that are artificially drained, the water table is usually at a depth of 3.5 to 5.0 feet. Reaction is moderately alkaline or strongly alkaline throughout the profile.

The A horizon has hue of 10YR or 2.5Y, value of 6 or 7 (4 or 5 moist), and chroma of 1 or 2. The content of clay is 18 to 25 percent. Conductivity of the saturation extract is 4 to 16 mmhos/cm. Calcium carbonate equivalent is 15 to 25 percent.

The Bk and C horizons have hue of 10YR or 2.5Y, value of 6 or 7 (4 to 6 moist), and chroma of 2 or 3. They are silt loam or silty clay loam. The content of clay is 24 to 35 percent. Calcium carbonate equivalent is 20 to 40 percent. Conductivity of the saturation extract is 8 to 16 mmhos/cm.

Broad Series

The Broad series consists of moderately deep, well drained, moderately slowly permeable soils on

mountainsides. These soils formed in colluvium and residuum derived dominantly from quartzite and sandstone. Slopes range from 30 to 60 percent. Elevation is 5,200 to 9,000 feet. Average annual precipitation is 16 to 22 inches, and mean annual air temperature is 42 to 45 degrees F.

These soils are loamy-skeletal, mixed, frigid Calcic Argixerolls.

Typical pedon of Broad cobbly loam, in an area of Reywat-Broad-Rock outcrop association, 30 to 60 percent slopes; about 2 miles east and 12 miles south of Aragonite; about 2,200 feet east and 600 feet south of the northwest corner of sec. 15, T. 3 S., R. 10 W.

A1—0 to 4 inches; dark brown (10YR 4/3) cobbly loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine vesicular pores; 15 percent gravel, 15 percent cobbles; slightly alkaline (pH 7.5); clear smooth boundary.

A2—4 to 14 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; common very fine tubular pores; 15 percent gravel, 15 percent cobbles; slightly alkaline (pH 7.5); clear wavy boundary.

Bt—14 to 23 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; common very fine and fine tubular pores; common thin clay films on faces of peds; 35 percent gravel, 15 percent cobbles; slightly alkaline (pH 7.7); clear wavy boundary.

Bk—23 to 36 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few very fine tubular pores; 30 percent gravel, 30 percent cobbles; strong effervescence (20 percent calcium carbonate equivalent); carbonates are disseminated as coatings on rock fragments; moderately alkaline (pH 8.0); abrupt irregular boundary.

R—36 inches; fractured quartzite bedrock.

Bedrock is at a depth of 20 to 40 inches. The calcic horizon is at a depth of 23 to 36 inches. The mollic epipedon is 10 to 20 inches thick. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. It is cobbly loam or gravelly loam. The content of clay is 15 to 20 percent. The content of rock fragments is 15 to 35 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 to 6 (3 or 4 moist), and chroma of 3 or 4. The content of clay is 27 to 35 percent. The content of rock fragments is 35 to 60 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 7 (4 or 5 moist) and chroma of 3 or 4. It is very cobbly loam or extremely cobbly loam. The content of clay is 15 to 20 percent. The content of rock fragments is 35 to 80 percent. Reaction is moderately alkaline or strongly alkaline. Calcium carbonate equivalent is 15 to 40 percent.

Checkett Series

The Checkett series consists of shallow, well drained, moderately permeable soils on hillsides and mountainsides. These soils formed in residuum and colluvium derived dominantly from igneous and metamorphic rocks. Slopes range from 10 to 40 percent. Elevation is 4,400 to 6,700 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 45 to 49 degrees F.

These soils are loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids.

Typical pedon of Checkett very cobbly loam, in an area of Checkett-Rock outcrop complex, 10 to 40 percent slopes; about 7 miles west and 6 miles south of lbapah; about 600 feet north and 800 feet east of the southwest corner of sec. 18, T. 24 N., R. 70 E.

A—0 to 3 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and common fine and few medium roots; many very fine tubular pores; 25 percent gravel, 20 percent cobbles, 5 percent stones; slight effervescence (2 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.1); clear smooth boundary.

Bt1—3 to 10 inches; light yellowish brown (10YR 6/4) very cobbly clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine and few fine and medium roots; many very fine and common fine tubular pores; common thin clay films on faces of peds; 20 percent gravel, 15 percent cobbles, 5 percent stones; slight effervescence (3 percent calcium carbonate equivalent); carbonates are disseminated;

moderately alkaline (pH 8.2); gradual wavy boundary.

Bt2—10 to 14 inches; light yellowish brown (10YR 6/4) very cobbly loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine and common fine tubular pores; common thin clay films on faces of peds; 30 percent gravel, 20 percent cobbles, 10 percent stones; strong effervescence (12 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.3); abrupt irregular boundary.

R—14 inches; fractured quartzite bedrock.

Bedrock is at a depth of 14 to 20 inches. The particle-size control section is 35 to 60 percent rock fragments. Conductivity of the saturation extract is 0 to 4 mmhos/cm. Reaction is moderately alkaline or strongly alkaline.

The A horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 or 3. The content of clay is 18 to 22 percent.

The Bt horizon has hue of 7.5YR or 10YR, value of 6 or 7 (4 or 5 moist), and chroma of 3 or 4. It is very cobbly loam or very cobbly clay loam. The content of clay is 22 to 30 percent.

Cliffdown Series

The Cliffdown series consists of very deep, somewhat excessively drained, moderately rapidly permeable soils on fan remnants. These soils formed in alluvium derived dominantly from sedimentary rocks. Slopes range from 2 to 15 percent. Elevation is 4,250 to 6,000 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 47 to 52 degrees F.

These soils are loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents.

Typical pedon of Cliffdown gravelly sandy loam, 2 to 15 percent slopes; about 16 miles north of Ibapah; about 100 feet south and 800 feet west of the northeast corner of sec. 33, T. 6 S., R. 19 W.

A—0 to 5 inches; pale brown (10YR 6/3) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak thin platy structure parting to weak fine granular; slightly hard, friable, nonplastic and slightly sticky; many very fine roots; many very fine and fine vesicular pores; 25 percent gravel; strong effervescence; carbonates are disseminated; moderately alkaline (pH 8.4); clear smooth boundary.

C1—5 to 30 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonplastic and slightly sticky; many very fine roots; 35 percent gravel; strong effervescence; carbonates are disseminated; strongly alkaline (pH 8.6); gradual wavy boundary.

C2—30 to 60 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonplastic and slightly sticky; few very fine roots; 40 percent gravel, 10 percent cobbles; violent effervescence; carbonates are disseminated; strongly alkaline (pH 9.0).

Calcium carbonate equivalent is 15 to 40 percent.

The A horizon has value of 6 or 7 (4 or 5 moist) and chroma of 2 to 4. It is gravelly sandy loam or very gravelly sandy loam. The content of clay is 10 to 18 percent. The content of rock fragments is 15 to 60 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The C horizon has value of 6 or 7 (5 or 6 moist) and chroma of 2 to 4. The content of clay is 8 to 18 percent. The content of rock fragments is 35 to 60 percent. Conductivity of the saturation extract is 2 to 16 mmhos/cm.

Cristo Series

The Cristo series consists of moderately deep, well drained, moderately slowly permeable soils on mountainsides. These soils formed in residuum and colluvium derived dominantly from shale and limestone. Slopes range from 10 to 60 percent. Elevation is 6,500 to 8,800 feet. Average annual precipitation is 16 to 22 inches, and mean annual air temperature is 41 to 43 degrees F.

These soils are fine, montmorillonitic, frigid Pachic Argixerolls.

Typical pedon of Cristo loam, 10 to 60 percent slopes; about 15 miles south and 7 miles west of Ibapah; about 1,000 feet east and 1,600 feet south of the northwest corner of sec. 8, T. 22 N., R. 70 E.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; 10 percent gravel; neutral (pH 6.6); clear smooth boundary.

A2—2 to 9 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very

fine and few fine and medium roots; common very fine tubular pores; 10 percent gravel; neutral (pH 6.7); clear wavy boundary.

Bt1—9 to 17 inches; grayish brown (10YR 5/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; strong fine angular blocky structure; hard, firm, sticky and plastic; many very fine and few fine and medium roots; common very fine tubular pores; common thin clay films on faces of peds; 25 percent gravel; neutral (pH 6.8); clear wavy boundary.

Bt2—17 to 22 inches; grayish brown (10YR 5/2) gravelly clay loam, dark brown (10YR 3/3) moist; strong fine subangular blocky structure; hard, firm, sticky and plastic; many very fine and few fine and medium roots; common very fine tubular pores; common thin clay films on faces of peds; 30 percent gravel; neutral (pH 6.8); clear wavy boundary.

C—22 to 35 inches; pale brown (10YR 6/3) extremely gravelly clay loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; 70 percent gravel; slight effervescence (14 percent calcium carbonate equivalent); carbonates are disseminated; neutral (pH 7.3); abrupt irregular boundary.

Cr—35 to 60 inches; fractured shale.

Weathered bedrock is at a depth of 20 to 40 inches. The mollic epipedon is 20 to 35 inches thick.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. The content of clay is 18 to 27 percent. The content of rock fragments is 0 to 15 percent.

The Bt horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. The content of clay is 35 to 40 percent. The content of rock fragments is 15 to 35 percent.

The C horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 or 3. The content of clay is 27 to 40 percent. The content of rock fragments is 60 to 80 percent. Calcium carbonate equivalent is 1 to 15 percent. Reaction is slightly acid to slightly alkaline.

Dateman Series

The Dateman series consists of moderately deep, well drained, moderately permeable soils on mountainsides. These soils formed in residuum and colluvium derived dominantly from limestone. Slopes range from 30 to 70 percent. Elevation is 6,000 to 10,000 feet. Average annual precipitation is 22 to 35 inches, and mean annual air temperature is 35 to 45 degrees F.

These soils are loamy-skeletal, mixed Pachic Cryoborolls.

Typical pedon of Dateman gravelly loam, in an area of Lundy-Dateman-Rock outcrop association, 30 to 70 percent slopes; about 7 miles west and 9 miles south of Clover; about 300 feet east and 800 feet north of the southwest corner of sec. 33, T. 6 S., R. 6 W.

Oi—1 inch to 0; partly decomposed needles, leaves, and twigs.

A1—0 to 11 inches; very dark grayish brown (10YR 3/2) gravelly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium and coarse roots; many very fine vesicular pores; 20 percent gravel, 5 percent cobbles; slightly acid (pH 6.4); clear smooth boundary.

A2—11 to 22 inches; dark brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium and coarse roots; many very fine tubular pores; 20 percent gravel, 10 percent cobbles; neutral (pH 6.6); clear wavy boundary.

Bw—22 to 36 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium and coarse roots; many very fine tubular pores; 25 percent gravel, 25 percent cobbles; neutral (pH 7.0); abrupt irregular boundary.

R—36 inches; fractured limestone bedrock.

The mollic epipedon is 16 to 30 inches thick. The particle-size control section is 35 to 70 percent rock fragments. Bedrock is at a depth of 20 to 40 inches. The content of clay is 18 to 27 percent.

The A horizon has value of 3 or 4 (2 or 3 moist) and chroma of 2 or 3. The content of rock fragments is 15 to 35 percent. Reaction is slightly acid or neutral.

The B horizon has chroma of 3 or 4. The content of rock fragments is 35 to 60 percent. Reaction is neutral or slightly alkaline.

Doyce Series

The Doyce series consists of very deep, well drained, moderately slowly permeable soils on fan remnants. These soils formed in alluvium derived from mixed rock sources. Slopes range from 2 to 8 percent. Elevation is 4,800 to 6,300 feet. Average annual precipitation is 12 to 14 inches, and mean annual air temperature is 45 to 50 degrees F.

These soils are fine-loamy, mixed, mesic Aridic Calcic Argixerolls.

Typical pedon of Doyce loam, 2 to 8 percent slopes; about 2 miles south and 2 miles west of Tooele; about 1,200 feet east and 200 feet south of the northwest corner of sec. 7, T. 4 S., R. 4 W.

- A1—0 to 2 inches; brown (10YR 5/3) loam, very dark brown (10YR 3/2) moist; weak moderately thick platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.
- A2—2 to 10 inches; brown (10YR 5/3) loam, very dark brown (10YR 3/2) moist; weak thin platy structure parting to weak fine subangular blocky; soft, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; many very fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.
- Bt—10 to 15 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, friable, sticky and plastic; many very fine and few fine and medium roots; many very fine tubular pores; many thin clay films on faces of peds and lining pores; 5 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.
- Btk—15 to 21 inches; light yellowish brown (10YR 6/4) clay loam, brown (10YR 4/3) moist; moderate fine and medium angular blocky structure; very hard, friable, sticky and plastic; many very fine and few fine roots; many very fine tubular pores; many thin clay films on faces of peds and lining pores; 5 percent gravel; strong effervescence (8 percent calcium carbonate equivalent); carbonates are in soft masses and veins; moderately alkaline (pH 8.2); gradual wavy boundary.
- Bk—21 to 42 inches; very pale brown (10YR 7/3) loam, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; 5 percent gravel; violent effervescence (35 percent calcium carbonate equivalent); carbonates are disseminated and in soft masses; strongly alkaline (pH 9.0); gradual wavy boundary.
- C—42 to 60 inches; very pale brown (10YR 7/3) loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 5 percent gravel; strong effervescence (15 percent calcium

carbonate equivalent); carbonates are disseminated; strongly alkaline (pH 8.5).

The calcic horizon is at a depth of 14 to 18 inches. The mollic epipedon is 10 to 12 inches thick. The content of rock fragments is 5 to 15 percent.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. The content of clay is 18 to 24 percent. Reaction is neutral or slightly alkaline.

The Bt and Btk horizons have value of 5 to 7 (3 to 5 moist) and chroma of 3 or 4. The content of clay is 27 to 35 percent. Calcium carbonate equivalent in the Bt horizon is 3 to 15 percent.

The Bk and C horizons have value of 6 to 8 (5 or 6 moist) and chroma of 3 or 4. The content of clay is 18 to 27 percent. Reaction is moderately alkaline or strongly alkaline. Calcium carbonate equivalent is 15 to 40 percent in the Bk horizon and 10 to 30 percent in the C horizon. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

Dynal Series

The Dynal series consists of very deep, somewhat excessively drained, rapidly permeable soils on hummocky, stabilized sand dunes. These soils formed in eolian sands derived dominantly from calcareous, oolitic lacustrine sediments. Slopes range from 2 to 15 percent. Elevation is 4,200 to 4,250 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 48 to 52 degrees F.

These soils are carbonatic, mesic Typic Torripsammments.

Typical pedon of Dynal sand, 2 to 15 percent slopes; on the west side of Stansbury Island; about 1,000 feet south and 1,300 feet east of the northwest corner of sec. 16, T. 1 N., R. 6 W.

- A—0 to 1 inch; very pale brown (10YR 7/3) sand, pale brown (10YR 6/3) moist; single grain; loose; many very fine roots; many very fine and fine interstitial pores; violent effervescence (86 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- C1—1 to 14 inches; very pale brown (10YR 7/3) sand, very pale brown (10YR 7/3) moist; single grain; loose; many very fine and few fine roots; many very fine and fine interstitial pores; violent effervescence (88 percent calcium carbonate equivalent); moderately alkaline (pH 8.5); gradual smooth boundary.
- C2—14 to 30 inches; light gray (10YR 7/2) sand, light gray (10YR 7/2) moist; single grain; loose; few very fine roots; many very fine and fine interstitial pores;

violent effervescence (85 percent calcium carbonate equivalent); strongly alkaline (pH 8.6); gradual smooth boundary.

C3—30 to 60 inches; light gray (10YR 7/2) sand, light gray (10YR 7/2) moist; single grain; loose; many very fine and fine interstitial pores; violent effervescence (84 percent calcium carbonate equivalent); very strongly alkaline (pH 9.2).

Calcium carbonate equivalent is 40 to 90 percent. Some pedons have sand-sized gypsum crystals in the C horizon. Conductivity of the saturation extract is 0 to 8 mmhos/cm.

The A horizon has value of 6 to 8 (5 to 8 moist) and chroma of 2 or 3. Reaction is moderately alkaline or strongly alkaline.

The C horizon has value of 6 to 8 (6 to 8 moist) and chroma of 2 or 3. Reaction is strongly alkaline or very strongly alkaline.

Erda Series

The Erda series consists of very deep, well drained, moderately slowly permeable soils on fan remnants and lake terraces. These soils formed in alluvium and lacustrine sediments derived from mixed rock sources. Slopes range from 1 to 5 percent. Elevation is 4,250 to 6,000 feet. Average annual precipitation is 12 to 14 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are fine-silty, mixed, mesic Aridic Calcixerolls.

Typical pedon of Erda silt loam, 1 to 5 percent slopes; about 1 mile east and 1 mile north of Erda; about 1,600 feet west and 100 feet south of the northeast corner of sec. 27, T. 2 S., R. 4 W.

Ap—0 to 8 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular pores; strong effervescence (9 percent calcium carbonate equivalent); carbonates are disseminated; slightly alkaline (pH 7.6); clear smooth boundary.

A—8 to 14 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; strong effervescence (12 percent calcium carbonate equivalent); carbonates are disseminated; slightly alkaline (pH 7.8); clear smooth boundary.

Bk1—14 to 23 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak medium subangular

blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; violent effervescence (23 percent calcium carbonate equivalent); carbonates are disseminated and in soft masses; moderately alkaline (pH 8.2); clear wavy boundary.

Bk2—23 to 39 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; violent effervescence (37 percent calcium carbonate equivalent); carbonates are disseminated and in soft masses; strongly alkaline (pH 8.8); clear wavy boundary.

C—39 to 60 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; common fine distinct strong brown (7.5YR 5/6) relict mottles; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; violent effervescence (24 percent calcium carbonate equivalent); carbonates are disseminated; strongly alkaline (pH 8.8).

The mollic epipedon is 7 to 18 inches thick. The calcic horizon is at a depth of 7 to 18 inches. The particle-size control section ranges from 18 to 27 percent clay and contains less than 15 percent fine sand or coarser sand.

The A horizon has value of 3 or 4 moist and chroma of 2 or 3. Calcium carbonate equivalent is 3 to 15 percent. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The Bk horizon has value of 6 to 8 (4 to 6 moist) and chroma of 2 to 4. Calcium carbonate equivalent is 15 to 40 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The C horizon has value of 6 to 8 (4 to 6 moist) and chroma of 2 to 4. Calcium carbonate equivalent is 10 to 35 percent. Conductivity of the saturation extract is 0 to 8 mmhos/cm.

Flygare Series

The Flygare series consists of very deep, well drained, moderately permeable soils on mountainsides. These soils formed in alluvium and colluvium derived dominantly from interbedded quartzite and limestone. Slopes range from 30 to 60 percent. Elevation is 7,200 to 10,000 feet. Average annual precipitation is 25 to 35 inches, and mean annual air temperature is 38 to 45 degrees F.

These soils are loamy-skeletal, mixed Cryic Pachic Paleborolls.

Typical pedon of Flygare cobbly loam, in an area of Flygare-Dateman-Rock outcrop association, 30 to 70 percent slopes; about 20 miles south of Ibapah; about 1,000 feet south and 1,400 feet east of the northwest corner of sec. 34, T. 12 S., R. 19 W.

A—0 to 22 inches; dark brown (10YR 3/3) cobbly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine, medium, and coarse roots; many very fine pores; 15 percent gravel, 10 percent cobbles, 5 percent stones; slightly acid (pH 6.2); clear wavy boundary.

E—22 to 36 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; many very fine and few fine, medium, and coarse roots; many very fine pores; 30 percent gravel, 15 percent cobbles, 10 percent stones; moderately acid (pH 6.0); gradual wavy boundary.

Bt—36 to 50 inches; pale brown (10YR 6/3) very cobbly sandy clay loam, brown (10YR 4/3) moist; strong fine subangular blocky structure; very hard, firm, very sticky and very plastic; many very fine and few fine roots; many very fine pores; many thin clay films on faces of peds; 30 percent gravel, 15 percent cobbles, and 10 percent stones; moderately acid (pH 6.0); gradual wavy boundary.

Bw—50 to 60 inches; light yellowish brown (10YR 6/4) extremely cobbly loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; common very fine roots; 40 percent gravel, 20 percent cobbles, 15 percent stones; slightly acid (pH 6.2).

The mollic epipedon is 20 to 30 inches thick. The particle-size control section is 35 to 60 percent rock fragments. Reaction is moderately acid or slightly acid.

The A horizon has value of 3 to 5 (2 or 3 moist) and chroma of 2 or 3. The content of clay is 18 to 27 percent. The content of rock fragments is 15 to 35 percent.

The E horizon has hue of 10YR or 7.5YR, value of 5 to 7 (3 to 5 moist), and chroma of 2 to 4. The content of clay is 15 to 27 percent. The content of rock fragments is 35 to 60 percent.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6 (3 to 5 moist), and chroma of 2 to 4. The content of clay is 27 to 35 percent. The content of rock fragments is 35 to 60 percent.

The Bw horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3 or 4. The content of clay is 18 to 27 percent. The content of rock fragments is 60 to 80 percent.

Hiko Peak Series

The Hiko Peak series consists of very deep, well drained, moderately rapidly permeable soils on fan remnants. These soils formed in alluvium derived from mixed rock sources. Slopes range from 2 to 15 percent. Elevation is 4,400 to 6,000 feet. Average annual precipitation is 10 to 12 inches, and mean annual air temperature is 45 to 50 degrees F.

These soils are loamy-skeletal, mixed, mesic Xerollic Calciorthids.

Typical pedon of Hiko Peak gravelly loam, 2 to 15 percent slopes; about 3 miles northwest of Fivemile Pass; about 900 feet west and 100 feet north of the southeast corner of sec. 25, T. 6 S., R. 4 W.

A—0 to 4 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate thin platy structure parting to moderate very fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine vesicular pores; 15 percent gravel, 5 percent cobbles; strong effervescence (22 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—4 to 12 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; few very fine and fine tubular pores; 30 percent gravel, 10 percent cobbles; strong effervescence (27 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.4); clear wavy boundary.

Bk1—12 to 32 inches; very pale brown (10YR 7/3) very gravelly loam, light yellowish brown (10YR 6/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; 30 percent gravel, 10 percent cobbles; violent effervescence (38 percent calcium carbonate equivalent); carbonates are disseminated and occur as thick coatings on rock fragments; strongly alkaline (pH 8.8); gradual wavy boundary.

Bk2—32 to 60 inches; light yellowish brown (10YR 6/4) very gravelly loam, yellowish brown (10YR 5/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; 40 percent gravel, 10 percent cobbles; violent effervescence (33 percent calcium carbonate

equivalent); carbonates are disseminated and occur as thin coatings on undersides of rock fragments; strongly alkaline (pH 9.0).

The calcic horizon is at a depth of 7 to 12 inches. The particle-size control section is 35 to 70 percent rock fragments. The content of clay is 10 to 18 percent.

The A horizon has value of 5 to 7 (3 to 5 moist) and chroma of 2 or 3. It is gravelly loam or very stony loam. Calcium carbonate equivalent is 3 to 30 percent. The content of rock fragments is 15 to 50 percent. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The Bw horizon has value of 6 or 7 (4 or 5 moist) and chroma of 3 or 4. It is very gravelly loam or very stony loam. Calcium carbonate equivalent is 3 to 30 percent. The content of rock fragments is 35 to 60 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The Bk horizon has value of 6 or 7 (5 or 6 moist) and chroma of 3 or 4. It is very gravelly loam or extremely gravelly sandy loam. Calcium carbonate equivalent is 15 to 40 percent. The content of rock fragments is 35 to 70 percent. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

Hiko Springs Series

The Hiko Springs series consists of very deep, well drained, moderately rapidly permeable soils on fan remnants. These soils formed in alluvium derived dominantly from igneous and sedimentary rocks. Slopes range from 2 to 4 percent. Elevation is 5,700 to 6,000 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 51 to 53 degrees F.

These soils are coarse-loamy, mixed, mesic Typic Calciorthids.

Typical pedon of Hiko Springs gravelly sandy loam, 2 to 4 percent slopes; about 11 miles west and 6 miles south of Ibapah; about 1,500 feet west and 100 feet north of the southeast corner of sec. 18, T. 24 N., R. 69 E.

A—0 to 4 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak thin platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; many very fine vesicular pores; 20 percent gravel; strong effervescence (10 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—4 to 18 inches; very pale brown (10YR 7/4)

gravelly sandy loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; many very fine tubular pores; 20 percent gravel; strong effervescence (14 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.4); clear wavy boundary.

Bk1—18 to 47 inches; very pale brown (10YR 8/3) gravelly sandy loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine tubular pores; 25 percent gravel; violent effervescence (36 percent calcium carbonate equivalent); carbonates are disseminated and occur as thin coatings on undersides of rock fragments; strongly alkaline (pH 8.8); clear wavy boundary.

Bk2—47 to 60 inches; very pale brown (10YR 8/3) gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; 25 percent gravel; violent effervescence (34 percent calcium carbonate equivalent); carbonates are disseminated and occur as thin coatings on undersides of rock fragments; strongly alkaline (pH 8.6).

The calcic horizon is at a depth of 12 to 20 inches. The content of clay is 10 to 18 percent.

The A and Bw horizons have value of 6 or 7 (4 or 5 moist) and chroma of 3 or 4. Calcium carbonate equivalent is 3 to 15 percent. The content of rock fragments is 15 to 25 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The Bk horizon has value of 7 or 8 (5 to 7 moist) and chroma of 3 or 4. The content of rock fragments is 15 to 35 percent. Calcium carbonate equivalent is 15 to 40 percent. Conductivity of the saturation extract is 4 to 8 mmhos/cm.

Holmes Series

The Holmes series consists of very deep, well drained, moderately permeable soils on fan remnants. These soils formed in alluvium derived dominantly from sedimentary and igneous rocks. Slopes range from 5 to 15 percent. Elevation is 6,200 to 7,500 feet. Average annual precipitation is 14 to 16 inches, and mean annual air temperature is 40 to 43 degrees F.

These soils are loamy-skeletal, mixed, frigid Typic Argixerolls.

Typical pedon of Holmes very stony sandy loam, 5 to 15 percent slopes; about 10 miles south and 1 mile east

of Ibapah; about 250 feet west and 1,800 feet south of the northeast corner of sec. 10, T. 11 S., R. 19 W.

A—0 to 10 inches; dark brown (10YR 4/3) very stony sandy 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 few fine and medium roots; many very fine vesicular pores; 20 percent gravel, 15 percent cobbles, 15 percent stones; neutral (pH 6.6); clear wavy boundary.

Bt1—10 to 14 inches; brown (7.5YR 5/4) very stony sandy clay loam, dark brown (7.5YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; common thin clay films on faces of peds; 20 percent gravel, 15 percent cobbles, 15 percent stones; neutral (pH 6.8); clear wavy boundary.

Bt2—14 to 29 inches; light brown (7.5YR 6/4) very stony sandy clay loam, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; continuous thin clay films on faces of peds; 20 percent gravel, 15 percent cobbles, 15 percent stones; neutral (pH 6.8); gradual wavy boundary.

BC—29 to 37 inches; pink (7.5YR 7/4) very stony sandy loam, brown (7.5YR 5/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; many very fine tubular pores; 35 percent gravel, 10 percent cobbles, 10 percent stones; neutral (pH 6.8); gradual wavy boundary.

2C—37 to 60 inches; very pale brown (10YR 7/4) extremely stony loamy coarse sand, yellowish brown (10YR 5/4) moist; single grain; loose; few very fine, fine, and medium roots; 45 percent gravel, 15 percent cobbles, 15 percent stones; slight effervescence; slightly alkaline (pH 7.4).

The mollic epipedon is 10 to 20 inches thick.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. The content of clay is 15 to 20 percent. The content of rock fragments is 35 to 60 percent.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6 (3 or 4 moist), and chroma of 3 or 4. The content of clay is 27 to 35 percent. The content of rock fragments is 35 to 60 percent.

The BC horizon has hue of 10YR or 7.5YR, value of 6 or 7 (4 or 5 moist), and chroma of 3 or 4. The content

of clay is 15 to 20 percent. The content of rock fragments is 35 to 60 percent.

The 2C horizon has hue of 10YR or 7.5YR, value of 5 to 7 (4 or 5 moist), and chroma of 3 or 4. The content of clay is 2 to 5 percent. The content of rock fragments is 60 to 80 percent.

Izamatch Series

The Izamatch series consists of very deep, somewhat excessively drained, rapidly permeable soils on lake terraces. These soils formed in alluvium and lacustrine sediments derived from mixed rock sources. Slopes range from 2 to 8 percent. Elevation is 4,250 to 5,300 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 51 to 53 degrees F.

These soils are sandy-skeletal, mixed, mesic Typic Torriorthents.

Typical pedon of Izamatch gravelly sandy loam, in an area of Izamatch-Cliffdown, alkali, complex, 2 to 8 percent slopes; about 16 miles north and 9 miles east of Ibapah; about 200 feet west and 800 feet north of the southeast corner of sec. 36, T. 6 S., R. 18 W.

A—0 to 3 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak moderately thick platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine and few fine vesicular pores; 20 percent gravel; strong effervescence; carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—3 to 10 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine and few fine tubular pores; 20 percent gravel; strong effervescence; carbonates are disseminated and occur as thin coatings on undersides of rock fragments; strongly alkaline (pH 8.6); clear smooth boundary.

2Ck1—10 to 30 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 5/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine and few fine tubular pores; 50 percent gravel, 5 percent cobbles; strong effervescence; carbonates are disseminated and occur as thin coatings on undersides of rock fragments; moderately alkaline (pH 8.4); clear smooth boundary.

3Ck2—30 to 60 inches; pale brown (10YR 6/3) very

gravelly sand, brown (10YR 5/3) moist; single grain; loose; few very fine roots; 45 percent gravel; strong effervescence; carbonates are disseminated and occur as thin coatings on undersides of rock fragments; strongly alkaline (pH 9.0).

The A horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 or 3. Texture is gravelly sandy loam or very gravelly sandy loam. The content of clay is 8 to 18 percent. The content of rock fragments is 15 to 50 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The Bw horizon, if it occurs, has value of 5 to 7 (3 to 5 moist). It is gravelly sandy loam or very gravelly sandy loam. The content of clay is 8 to 18 percent. The content of rock fragments is 15 to 50 percent. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The 2Ck and 3Ck horizons have value of 6 to 8 (5 or 6 moist) and chroma of 2 to 4. They are very gravelly sand or very gravelly loamy sand. The content of clay is 0 to 5 percent. The content of rock fragments is 35 to 60 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

Jericho Series

The Jericho series consists of well drained, moderately rapidly permeable soils on fan remnants. These soils are shallow over a duripan. They formed in alluvium derived dominantly from igneous rocks. Slopes range from 2 to 15 percent. Elevation is 5,000 to 6,100 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 46 to 50 degrees F.

These soils are loamy-skeletal, mixed, mesic, shallow Xerollic Durorthids.

Typical pedon of Jericho gravelly sandy loam, dry, 2 to 8 percent slopes; about 9 miles south and 8 miles west of Ibapah; about 2,600 feet east and 100 feet south of the northwest corner of sec. 2, T. 23 N., R. 69 E., in White Pine County, Nevada:

A—0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 4/3) moist; weak thin platy structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine vesicular pores; 30 percent gravel; strong effervescence (12 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.4); clear smooth boundary.

Bw—3 to 9 inches; very pale brown (10YR 7/4) gravelly sandy loam, yellowish brown (10YR 5/4) moist;

weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; 30 percent gravel; strong effervescence (14 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.4); clear wavy boundary.

Bkq—9 to 14 inches; very pale brown (10YR 7/4) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; 50 percent gravel; strong effervescence (22 percent calcium carbonate equivalent); carbonates are disseminated and occur as coatings on rock fragments; few thin brownish silica coatings on undersides of rock fragments; strongly alkaline (pH 8.6); abrupt wavy boundary.

Bkqm—14 to 19 inches; silica- and carbonate-cemented hardpan layer; an indurated troweled surface about 1 mm thick that stops most roots; abrupt wavy boundary.

2C1—19 to 33 inches; very pale brown (10YR 7/4) extremely gravelly loamy coarse sand, yellowish brown (10YR 5/4) moist; single grain; loose; few very fine roots; 60 percent gravel, 10 percent cobbles; strong effervescence (12 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.4); abrupt wavy boundary.

3C2—33 to 60 inches; stratified, indurated, silica- and carbonate-cemented hardpan and sand and gravel.

The calcic horizon is at a depth of 4 to 9 inches. The hardpan is at a depth of 14 to 20 inches. The particle-size control section is 35 to 60 percent rock fragments. The content of clay is 10 to 18 percent. Conductivity of the saturation extract is 0 to 2 mmhos/cm. Reaction is moderately alkaline or strongly alkaline.

The A horizon has value of 5 to 7 (3 to 5 moist) and chroma of 2 to 4. The content of rock fragments is 15 to 35 percent. Calcium carbonate equivalent is 3 to 15 percent.

The Bw horizon has value of 5 to 7 (4 or 5 moist) and chroma of 3 or 4. The content of rock fragments is 15 to 35 percent. Calcium carbonate equivalent is 10 to 40 percent.

The Bkq horizon has value of 6 to 8 (5 to 7 moist) and chroma of 2 to 4. The content of rock fragments is 35 to 60 percent. Calcium carbonate equivalent is 10 to 40 percent.

The 2C and 3C horizons are stratified very gravelly loamy sand, extremely gravelly loamy coarse sand, or extremely gravelly coarse sand. Buried cemented layers are common below a depth of 30 inches.

Junkett Series

The Junkett series consists of well drained, moderately slowly permeable soils on fan remnants. These soils are moderately deep over a petrocalcic horizon. They formed in alluvium derived dominantly from igneous and sedimentary rocks. Slopes range from 2 to 5 percent. Elevation is 5,900 to 6,300 feet. Average annual precipitation is 10 to 12 inches, and mean annual air temperature is 45 to 50 degrees F.

These soils are fine-loamy, mixed, mesic Petrocalcic Xerollic Paleargids.

Typical pedon of Junkett gravelly loam, 2 to 5 percent slopes; about 12 miles south and 2 miles west of Ibapah; about 800 feet west and 2,400 feet north of the southeast corner of sec. 18, T. 11 S., R. 19 W.

A—0 to 5 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate thin platy structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common very fine and fine vesicular pores; 25 percent gravel; slight effervescence; moderately alkaline (pH 8.0); clear smooth boundary.

Bt—5 to 11 inches; brown (7.5YR 5/4) gravelly clay loam, dark brown (7.5YR 3/4) moist; strong fine angular blocky structure; hard, friable, sticky and plastic; many very fine and fine and common medium roots; common very fine and fine and few medium tubular pores; many moderately thick clay films on faces of pedis; 20 percent gravel; slight effervescence; moderately alkaline (pH 8.0); clear wavy boundary.

Btk—11 to 16 inches; light brown (7.5YR 6/4) gravelly clay loam, brown (7.5YR 4/4) moist; moderate very fine and fine angular blocky structure; hard, friable, sticky and plastic; common very fine and fine and few medium roots; common very fine and few fine tubular pores; few thin clay films on faces of pedis; 15 percent gravel; strong effervescence (15 percent calcium carbonate equivalent); carbonates are disseminated and occur as coatings on rock fragments; moderately alkaline (pH 8.4); clear wavy boundary.

Bk—16 to 24 inches; very pale brown (10YR 7/3) gravelly loam, light yellowish brown (10YR 6/4) moist; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine tubular pores; 20 percent gravel; strong effervescence (30 percent calcium carbonate equivalent); carbonates are

disseminated and occur as coatings on rock fragments; strongly alkaline (pH 9.0); abrupt wavy boundary.

Bkqm—24 to 30 inches; indurated carbonate-cemented hardpan that stops most roots.

C—30 to 60 inches; stratified very gravelly sandy loam, very gravelly loamy sand, and carbonate- and silica-cemented hardpans.

The calcic horizon is at a depth of 11 to 19 inches. The hardpan is at a depth of 20 to 40 inches.

Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The A horizon has value of 5 or 6 (3 or 4 moist) and chroma of 3 or 4. The content of clay is 10 to 18 percent. The content of rock fragments is 15 to 35 percent. Calcium carbonate equivalent is 0 to 3 percent.

The Bt horizon has value of 5 or 6 (3 or 4 moist). The content of clay is 27 to 35 percent. The content of rock fragments is 15 to 35 percent. Calcium carbonate equivalent is 0 to 5 percent.

The Btk horizon has value of 5 or 6 (3 or 4 moist). The content of clay is 27 to 35 percent. The content of rock fragments is 15 to 35 percent. Calcium carbonate equivalent is 3 to 15 percent.

The Bk horizon has value of 7 or 8 (5 or 6 moist) and chroma of 3 or 4. The content of clay is 10 to 18 percent. The content of rock fragments is 15 to 35 percent. Calcium carbonate equivalent is 15 to 40 percent.

Kanosh Series

The Kanosh series consists of very deep, somewhat poorly drained, moderately rapidly permeable soils on low lake terraces. These soils formed in lacustrine sediments derived from mixed rock sources. Slopes range from 0 to 2 percent. Elevation is 4,200 to 4,300 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 49 to 54 degrees F.

These soils are coarse-loamy, mixed, mesic Aquic Calciorthis.

Typical pedon of Kanosh loam, in an area of Kanosh-Saltair-Logan complex, 0 to 2 percent slopes; 1 mile west of Stansbury Park; about 2,600 feet south and 20 feet west of the northeast corner of sec. 19, T. 2 S., R. 4 W.

A—0 to 4 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine vesicular pores; strong effervescence (16 percent calcium carbonate

equivalent); carbonates are disseminated and in few soft masses; strongly alkaline (pH 8.6); gradual smooth boundary.

- Bk—4 to 8 inches; very pale brown (10YR 7/3) loam, grayish brown (10YR 5/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine tubular pores; strong effervescence (22 percent calcium carbonate equivalent); carbonates are disseminated and in few soft masses; strongly alkaline (pH 8.8); clear smooth boundary.
- Bky1—8 to 20 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine tubular pores; strong effervescence (21 percent calcium carbonate equivalent); carbonates and gypsum are disseminated and in few soft masses; strongly alkaline (pH 9.0); gradual wavy boundary.
- Bky2—20 to 27 inches; light gray (10YR 7/2) fine sandy loam, light brownish gray (10YR 6/2) moist; common fine faint light brownish gray (2.5Y 6/2) mottles; weak medium subangular blocky structure; soft, very friable, slightly sticky; common very fine roots; many very fine tubular pores; strong effervescence (27 percent calcium carbonate equivalent); carbonates and gypsum are disseminated and in few soft masses; strongly alkaline (pH 9.0); clear wavy boundary.
- Bky3—27 to 60 inches; white (10YR 8/2) fine sandy loam, light brownish gray (10YR 6/2) moist; common fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; strong effervescence (30 percent calcium carbonate equivalent); carbonates and gypsum are disseminated; strongly alkaline (pH 9.0).

The calcic horizon is at a depth of 4 to 14 inches. A seasonal high water table is at a depth of 2 to 3 feet from March through July.

The A horizon has value of 6 or 7 (4 to 6 moist) and chroma of 2 or 3. The content of clay is 8 to 18 percent. Conductivity of the saturation extract is 2 to 8 mmhos/cm. Calcium carbonate equivalent is 10 to 25 percent.

The B horizon has value of 7 or 8 (5 to 7 moist) and chroma of 2 or 3. It is fine sandy loam or loam. The content of clay is 5 to 18 percent. Carbonate concretions occur in some pedons. Conductivity of the saturation extract is 4 to 16 mmhos/cm. Calcium carbonate equivalent is 20 to 40 percent.

Kapod Series

The Kapod series consists of very deep, well drained, moderately permeable soils on fan remnants. These soils formed in alluvium derived dominantly from sandstone and limestone. Slopes range from 2 to 30 percent. Elevation is 4,600 to 6,500 feet. Average annual precipitation is 14 to 16 inches, and mean annual air temperature is 45 to 49 degrees F.

These soils are loamy-skeletal, mixed, mesic Calcic Argixerolls.

Typical pedon of Kapod very cobbly loam, 5 to 30 percent slopes; about 9 miles south and 9 miles west of Vernon; about 1,000 feet north and 1,400 feet east of the southwest corner of sec. 11, T. 10 S., R. 7 W.

- A—0 to 11 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse granular structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium and coarse roots; many very fine and common fine and medium tubular pores; 25 percent gravel and 20 percent cobbles; neutral (pH 7.2); clear wavy boundary.
- Bt1—11 to 17 inches; brown (10YR 5/3) very cobbly sandy clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; many very fine and few fine roots; many very fine, common fine, and few medium tubular pores; many thin clay films on faces of peds and lining pores; 25 percent gravel, 15 percent cobbles; neutral (pH 6.8); clear wavy boundary.
- Bt2—17 to 25 inches; light yellowish brown (10YR 6/4) very cobbly sandy clay loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine, fine, and medium tubular pores; few thin clay films on faces of peds; 35 percent gravel, 20 percent cobbles; slightly alkaline (pH 7.4); clear wavy boundary.
- Bk—25 to 60 inches; very pale brown (10YR 7/3) very cobbly sandy loam, pale brown (10YR 6/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 35 percent gravel, 20 percent cobbles; strong effervescence; carbonates are disseminated and in veins; moderately alkaline (pH 8.4).

The calcic horizon is at a depth of 20 to 33 inches. The mollic epipedon is 10 to 14 inches thick. The

particle-size control section is 35 to 60 percent rock fragments.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. It is very cobbly loam, gravelly loam, or stony loam. The content of clay is 18 to 27 percent. The content of rock fragments is 15 to 60 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has value of 5 or 6 (3 to 5 moist) and chroma of 3 or 4. It is very cobbly sandy clay loam or very cobbly clay loam. The content of clay is 25 to 35 percent. The content of rock fragments is 35 to 60 percent. Reaction is neutral or slightly alkaline.

The Bk horizon has value of 6 or 7 (4 to 6 moist) and chroma of 3 or 4. It is very cobbly sandy loam or very cobbly sandy clay loam. The content of clay is 10 to 27 percent. The content of rock fragments is 35 to 60 percent. Calcium carbonate equivalent is 15 to 40 percent. Reaction is slightly alkaline or moderately alkaline. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

Kilburn Series

The Kilburn series consists of very deep, somewhat excessively drained, moderately rapidly permeable soils on fan remnants and lake terraces. These soils formed in alluvium and colluvium derived dominantly from gneiss, schist, and quartzite. Slopes range from 2 to 10 percent. Elevation is 4,250 to 4,500 feet. Average annual precipitation is 14 to 16 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are loamy-skeletal, mixed, mesic Typic Haploxerolls.

Typical pedon of Kilburn gravelly sandy loam, 2 to 10 percent slopes; about 3.0 miles west and 0.5 mile north of a ranch house; about 900 feet north and 2,400 feet east of the southwest corner of sec. 6, T. 2 N., R. 3 W.

A1—0 to 10 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 15 percent gravel, 5 percent cobbles; neutral (pH 6.8); gradual wavy boundary.

A2—10 to 19 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 25 percent gravel, 5 percent cobbles; neutral (pH 6.6); gradual wavy boundary.

Bw—19 to 36 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard,

friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine tubular pores; 30 percent gravel, 10 percent cobbles; neutral (pH 6.8); gradual wavy boundary.

C1—36 to 48 inches; pale brown (10YR 6/3) very cobbly loamy sand, brown (10YR 4/3) moist; single grain; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular pores; 25 percent gravel, 15 percent cobbles; neutral (pH 6.6); gradual wavy boundary.

C2—48 to 60 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 4/3) moist; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; 35 percent gravel, 15 percent cobbles; slight effervescence; slightly alkaline (pH 7.6).

The mollic epipedon is 10 to 20 inches thick. The particle-size control section is 35 to 60 percent rock fragments.

The A horizon has value of 3 to 5 (2 or 3 moist) and chroma of 2 or 3. The content of clay is 8 to 16 percent. The content of rock fragments is 15 to 35 percent.

The Bw horizon has value of 4 to 6 (3 to 5 moist) and chroma of 3 to 5. The content of clay is 10 to 18 percent. The content of rock fragments is 35 to 60 percent.

The C horizon has value of 4 to 6 (3 to 5 moist) and chroma of 3 to 5. It is very gravelly loamy sand or very cobbly loamy sand. The content of clay is 4 to 8 percent. The content of rock fragments is 35 to 60 percent. Reaction is neutral to moderately alkaline.

Lakewin Series

The Lakewin series consists of very deep, well drained, moderately rapidly permeable soils on lake terraces. These soils formed in alluvium and lacustrine sediments derived dominantly from quartzite and limestone. Slopes range from 1 to 5 percent. Elevation is 4,700 to 5,200 feet. Average annual precipitation is 14 to 16 inches, and mean annual air temperature is 46 to 52 degrees F.

These soils are loamy-skeletal, mixed, mesic Calcic Haploxerolls.

Typical pedon of Lakewin gravelly loam, 1 to 5 percent slopes; about 1.5 miles east of Stansbury Park; about 2,300 feet east and 600 feet south of the northwest corner of sec. 24, T. 2 S., R. 4 W.

A—0 to 7 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores; 25

percent gravel; neutral (pH 7.0); clear smooth boundary.

Bw—7 to 18 inches; brown (10YR 4/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores; few thin clay films on faces of peds; 25 percent gravel; slight effervescence (3 percent calcium carbonate equivalent); carbonates are disseminated and in threads; neutral (pH 7.3); clear wavy boundary.

Bk1—18 to 30 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores; 45 percent gravel; strong effervescence (18 percent calcium carbonate equivalent); carbonates are disseminated and occur as coatings on rock fragments; moderately alkaline (pH 8.0); clear wavy boundary.

2Bk2—30 to 60 inches; pale brown (10YR 6/3) very gravelly sand, brown (10YR 4/3) moist; single grain; loose; few very fine roots; many very fine interstitial pores; 55 percent gravel; strong effervescence (25 percent calcium carbonate equivalent); carbonates are disseminated and occur as coatings on rock fragments; moderately alkaline (pH 8.4).

The calcic horizon is at a depth of 17 to 27 inches. The mollic epipedon is 10 to 20 inches thick and includes all or part of the Bw horizon. Depth to the 2Bk horizon is 20 to 35 inches.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. The content of clay is 16 to 22 percent. The content of rock fragments is 15 to 35 percent.

The Bw horizon has value of 4 or 5 (3 or 4 moist) and chroma of 2 or 3. The content of clay is 18 to 25 percent. The content of rock fragments is 15 to 35 percent. Reaction is neutral or slightly alkaline. Calcium carbonate equivalent is 0 to 10 percent.

The Bk horizon has value of 6 or 7 (4 to 6 moist) and chroma of 2 or 3. The content of clay is 10 to 15 percent. The content of rock fragments is 35 to 60 percent. Calcium carbonate equivalent is 15 to 40 percent. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The 2Bk horizon has value of 6 or 7 (4 to 6 moist) and chroma of 2 or 3. The content of clay is 0 to 5 percent. The content of rock fragments is 35 to 60 percent. Calcium carbonate equivalent is 15 to 40 percent. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

Lodar Series

The Lodar series consists of shallow, well drained, moderately permeable soils on mountainsides. These soils formed in residuum and colluvium derived dominantly from limestone. Slopes range from 30 to 60 percent. Elevation is 6,000 to 8,000 feet. Average annual precipitation is 12 to 16 inches, and mean annual air temperature is 45 to 50 degrees F.

These soils are loamy-skeletal, carbonatic, mesic Lithic Calcixerolls.

Typical pedon of Lodar very cobbly loam, in an area of Lodar-Lundy-Rock outcrop association, 30 to 60 percent slopes; about 4 miles west and 15 miles south of Ibapah; about 1,300 feet north and 1,700 feet west of the southeast corner of sec. 33, T. 23 N., R. 70 E.

A1—0 to 5 inches; brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; 20 percent gravel, 15 percent cobbles, 5 percent stones; strong effervescence (28 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.1); clear smooth boundary.

A2—5 to 8 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; 30 percent gravel, 15 percent cobbles, 5 percent stones; strong effervescence (32 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear wavy boundary.

Bk—8 to 16 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; 30 percent gravel, 20 percent cobbles, 5 percent stones; violent effervescence (52 percent calcium carbonate equivalent); carbonates are disseminated and occur as coatings on rock fragments; moderately alkaline (pH 8.2); abrupt irregular boundary.

R—16 inches; fractured limestone bedrock.

Bedrock is at a depth of 10 to 20 inches. The thickness of the mollic epipedon and depth to the calcic horizon are 7 to 10 inches. The content of rock fragments is 35 to 60 percent. The content of clay is 18 to 27 percent. The particle-size control section averages more than 40 percent calcium carbonate equivalent.

The A horizon has value of 4 or 5 (2 or 3 moist) and

chroma of 2 or 3. Calcium carbonate equivalent is 15 to 40 percent. Reaction is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 7 (4 to 6 moist) and chroma of 2 or 3. Calcium carbonate equivalent is 40 to 80 percent. Reaction is moderately alkaline or strongly alkaline.

Logan Series

The Logan series consists of very deep, poorly drained, slowly permeable soils on flood plains. These soils formed in alluvium derived from mixed rock sources. Slopes are 0 to 1 percent. Elevation is 4,200 to 5,500 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 46 to 51 degrees F.

These soils are fine-silty, mesic Typic Calciaquolls.

Typical pedon of Logan silt loam, 0 to 1 percent slopes; about 1.75 miles north of Ibapah; about 600 feet west and 1,500 feet south of the northeast corner of sec. 9, T. 9 S., R. 19 W.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak fine granular structure; hard, friable, sticky and plastic; many very fine and few fine roots; many very fine tubular pores; strong effervescence (15 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.0); gradual wavy boundary.

A2—4 to 15 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; many very fine and few fine roots; many very fine tubular pores; strong effervescence (10 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.0); clear wavy boundary.

Bkg1—15 to 23 inches; gray (2.5Y 5/1) silty clay loam, dark gray (2.5Y 4/1) moist; weak fine subangular blocky structure; hard, friable, sticky and plastic; many very fine roots; many very fine tubular pores; strong effervescence (20 percent calcium carbonate equivalent); carbonates are disseminated and in fine masses; moderately alkaline (pH 8.0); clear wavy boundary.

Bkg2—23 to 60 inches; white (2.5Y 8/1) silty clay loam, gray (2.5Y 6/1) moist; few fine distinct dark yellowish brown (10YR 4/6) mottles; weak fine subangular blocky structure; hard, friable, sticky and plastic; few very fine roots; many very fine tubular pores; violent effervescence (40 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.0).

The thickness of the mollic epipedon and depth to the calcic horizon are 12 to 16 inches. A seasonal high water table is at the surface to 2 feet below the surface from March through July. Reaction is moderately alkaline or strongly alkaline.

The A horizon has value of 3 or 4 (2 or 3 moist) and chroma of 1 or 2. The content of clay is 18 to 27 percent. Conductivity of the saturation extract is 2 to 4 mmhos/cm. Calcium carbonate equivalent is 10 to 25 percent.

The Bkg horizon has value of 5 to 8 (4 to 7 moist). The content of clay is 27 to 35 percent. Conductivity of the saturation extract is 0 to 4 mmhos/cm. Calcium carbonate equivalent is 15 to 40 percent.

Lundy Series

The Lundy series consists of shallow, well drained, moderately permeable soils on mountainsides. These soils formed in residuum and colluvium derived dominantly from limestone. Slopes range from 30 to 60 percent. Elevation is 6,000 to 8,500 feet. Average annual precipitation is 16 to 22 inches, and mean annual air temperature is 40 to 45 degrees F.

These soils are loamy-skeletal, carbonatic, frigid Lithic Calcixerolls.

Typical pedon of Lundy very cobbly loam, in an area of Lodar-Lundy-Rock outcrop association, 30 to 60 percent slopes; about 4 miles west and 15 miles south of Ibapah; about 1,000 feet north and 900 feet west of the southeast corner of sec. 33, T. 23 N., R. 70 E.

A1—0 to 2 inches; brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; 20 percent gravel, 15 percent cobbles, 5 percent stones; slight effervescence (6 percent calcium carbonate equivalent); carbonates are disseminated; slightly alkaline (pH 7.6); clear smooth boundary.

A2—2 to 11 inches; brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; 20 percent gravel, 20 percent cobbles, 10 percent stones; strong effervescence (12 percent calcium carbonate equivalent); carbonates are disseminated; slightly alkaline (pH 7.8); clear wavy boundary.

Bk—11 to 18 inches; yellowish brown (10YR 5/4) very cobbly loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky; many very fine

and few fine and medium roots; many very fine tubular pores; 25 percent gravel, 20 percent cobbles, 10 percent stones; violent effervescence (48 percent calcium carbonate equivalent); carbonates are disseminated and occur as coatings on rock fragments; moderately alkaline (pH 8.1); abrupt irregular boundary.

R—18 inches; fractured limestone.

Bedrock is at a depth of 10 to 20 inches. The thickness of the mollic epipedon and depth to the calcic horizon are 7 to 16 inches. The content of rock fragments is 35 to 60 percent. The content of clay is 18 to 27 percent. The particle-size control section averages more than 40 percent calcium carbonate equivalent.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. Calcium carbonate equivalent is 3 to 40 percent.

The Bk horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 to 4. Calcium carbonate equivalent is 40 to 60 percent.

Manassa Series

The Manassa series consists of very deep, well drained, slowly permeable soils on fan remnants and lake terraces. These soils formed in alluvium and lacustrine sediments derived dominantly from limestone and sandstone. Slopes range from 0 to 3 percent. Elevation is 4,250 to 4,800 feet. Average annual precipitation is 10 to 12 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are fine-silty, mixed (calcareous), mesic Xeric Torriorthents.

Typical pedon of Manassa silt loam, 0 to 3 percent slopes; about 2 miles south of the Tooele airport; about 2,500 feet north and 1,700 feet west of the southeast corner of sec. 12, T. 3 S., R. 5 W.

A—0 to 12 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine vesicular pores; strong effervescence (6 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.4); clear smooth boundary.

C1—12 to 23 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine tubular pores; strong effervescence (15 percent calcium carbonate equivalent); carbonates are disseminated; strongly

alkaline (pH 8.6); gradual wavy boundary.

C2—23 to 36 inches; very pale brown (10YR 8/3) silty clay loam, light yellowish brown (2.5Y 6/4) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; common very fine roots; common very fine tubular pores; strong effervescence (19 percent calcium carbonate equivalent); carbonates are disseminated; very strongly alkaline (pH 9.2); clear wavy boundary.

C3—36 to 60 inches; white (2.5Y 8/2) silty clay loam, light brownish gray (2.5Y 6/2) moist; common medium distinct (7.5YR 5/6) relict mottles; weak medium subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; few very fine tubular pores; strong effervescence (21 percent calcium carbonate equivalent); carbonates are disseminated; strongly alkaline (pH 8.8).

The A horizon has value of 6 or 7 (4 or 5 moist) and chroma of 2 or 3. The content of clay is 18 to 27 percent. Calcium carbonate equivalent is 3 to 15 percent. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

The C horizon has hue of 10YR or 2.5Y, value of 6 to 8 (4 to 7 moist), and chroma of 2 or 3. It is silty clay loam or silt loam. The content of clay is 18 to 35 percent. Calcium carbonate equivalent is 15 to 40 percent. Reaction is strongly alkaline or very strongly alkaline. Conductivity of the saturation extract is 4 to 16 mmhos/cm.

Medburn Series

The Medburn series consists of very deep, well drained, moderately rapidly permeable soils on lake terraces and fan remnants. These soils formed in lacustrine sediments and alluvium derived dominantly from sedimentary rocks. Slopes range from 2 to 8 percent. Elevation is 4,500 to 6,100 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 46 to 50 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Xeric Torriorthents.

Typical pedon of Medburn fine sandy loam, 2 to 8 percent slopes; about 8.5 miles south of Aragonite; about 2,300 feet south and 250 feet east of the northwest corner of sec. 29, T. 2 S., R. 10 W.

A—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak moderately thick platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine vesicular pores; strong effervescence; carbonates are disseminated; moderately alkaline

(pH 8.0); clear smooth boundary.

Bw1—4 to 14 inches; light yellowish brown (10YR 6/4) fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine tubular pores; strong effervescence; carbonates are disseminated; moderately alkaline (pH 8.4); clear smooth boundary.

Bw2—14 to 41 inches; light yellowish brown (10YR 6/4) fine sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; strong effervescence; carbonates are disseminated; strongly alkaline (pH 8.8); clear wavy boundary.

C—41 to 60 inches; very pale brown (10YR 7/4) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; strong effervescence; carbonates are disseminated; strongly alkaline (pH 9.0).

The content of clay is 5 to 18 percent. Calcium carbonate equivalent is 3 to 40 percent. The content of rock fragments is 0 to 15 percent.

The A horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 to 4. Conductivity of the saturation extract is 0 to 4 mmhos/cm. Reaction is moderately alkaline or strongly alkaline.

The Bw and C horizons have value of 6 or 7 (4 to 6 moist) and chroma of 2 to 4. Conductivity of the saturation extract is 0 to 16 mmhos/cm.

Onaqui Series

The Onaqui series consists of shallow, well drained, moderately permeable soils on mountainsides and ridges. These soils formed in colluvium and residuum derived dominantly from quartzite. Slopes range from 20 to 60 percent. Elevation is 7,000 to 10,000 feet. Average annual precipitation is 16 to 22 inches, and mean annual air temperature is 40 to 45 degrees F.

These soils are loamy-skeletal, mixed Lithic Haploborolls.

Typical pedon of Onaqui very cobbly loam, in an area of Podmor-Onaqui-Rock outcrop association, 20 to 60 percent slopes; about 1 mile east and 12 miles south of Vernon; about 1,700 feet east and 1,800 feet south of the northwest corner of sec. 33, T. 10 S., R. 5 W.

A1—0 to 4 inches; dark brown (10YR 4/3) very cobbly loam, very dark brown (10YR 2/2) moist; moderate very fine and fine granular structure; soft, very friable, slightly sticky and slightly plastic; common

very fine and fine and few medium roots; 25 percent gravel, 25 percent cobbles, 1 percent stones; slightly alkaline (pH 7.6); clear wavy boundary.

A2—4 to 15 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 3/3) moist; moderate very fine and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; common very fine and few fine tubular pores; 30 percent gravel, 35 percent cobbles; slightly alkaline (pH 7.6); abrupt irregular boundary.

R—15 inches; fractured quartzite.

Bedrock is at a depth of 10 to 20 inches. The mollic epipedon is 10 to 16 inches thick.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. It is very cobbly loam or extremely cobbly loam. The content of clay is 18 to 27 percent. The content of rock fragments is 35 to 75 percent. Reaction is neutral or slightly alkaline. Some pedons have a Bw horizon.

Podmor Series

The Podmor series consists of moderately deep, well drained, moderately permeable soils on mountainsides. These soils formed in residuum and colluvium derived dominantly from quartzite and sandstone. Slopes range from 30 to 60 percent. Elevation is 7,000 to 10,000 feet. Average annual precipitation is 16 to 22 inches, and mean annual air temperature is 40 to 45 degrees F.

These soils are loamy-skeletal, mixed Pachic Haploborolls.

Typical pedon of Podmor very cobbly loam, in an area of Podmor-Onaqui-Rock outcrop association, 20 to 60 percent slopes; about 7 miles north of Lookout Pass; about 1,300 feet west and 1,100 feet north of the southeast corner of sec. 7, T. 7 S., R. 6 W.

A1—0 to 3 inches; brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine and fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common very fine tubular pores; 20 percent gravel, 20 percent cobbles, 2 percent stones; neutral (pH 7.0); clear smooth boundary.

A2—3 to 8 inches; brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine and fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine tubular pores; 30 percent gravel, 10 percent cobbles; slightly alkaline (pH 7.5); clear smooth boundary.

A3—8 to 16 inches; brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common very fine and fine and few medium roots; many very fine, common fine, and few coarse tubular pores; 40 percent gravel, 15 percent cobbles; slightly alkaline (pH 7.5); clear smooth boundary.

Bw—16 to 23 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; many very fine and fine and common medium tubular pores; 30 percent gravel, 25 percent cobbles; slightly alkaline (pH 7.6); abrupt irregular boundary.

R—23 inches; fractured quartzite.

Bedrock is at a depth of 20 to 40 inches. The mollic epipedon is 16 to 27 inches thick. The particle-size control section is 35 to 60 percent rock fragments. The content of clay is 18 to 27 percent. Reaction is neutral or slightly alkaline. Some pedons have a C horizon.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3.

The B horizon has value of 5 or 6 (3 or 4 moist) and chroma of 3 or 4.

Reywat Series

The Reywat series consists of shallow, well drained, moderately slowly permeable soils on hillsides and mountainsides. These soils formed in residuum and colluvium derived dominantly from quartzite and igneous rocks. Slopes range from 30 to 60 percent. Elevation is 5,200 to 7,200 feet. Average annual precipitation is 12 to 16 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are loamy-skeletal, mixed, mesic Lithic Argixerolls.

Typical pedon of Reywat very cobbly loam, in an area of Reywat-Broad-Rock outcrop association, 30 to 60 percent slopes; about 16 miles south and 2 miles east of Dugway; about 2,900 feet east and 1,200 feet north of the southwest corner of sec. 36, T. 9 S., R. 8 W.

A—0 to 2 inches; grayish brown (10YR 5/2) very cobbly loam, very dark brown (10YR 2/2) moist; weak moderately thick platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium and coarse roots; many very fine vesicular and tubular pores; 25 percent gravel, 15 percent

cobbles; neutral (pH 7.2); clear smooth boundary.

Bt1—2 to 4 inches; grayish brown (10YR 5/2) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate very fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine and few medium roots; common very fine and fine and few medium tubular pores; common thin clay films on faces of peds and lining pores; 30 percent gravel, 10 percent cobbles; neutral (pH 7.0); clear wavy boundary.

Bt2—4 to 11 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate very fine subangular blocky structure; very hard, very firm, sticky and plastic; common very fine and fine and few medium and coarse roots; many very fine and common fine tubular pores; many thin and few moderately thick clay films on faces of peds and lining pores; 40 percent gravel, 15 percent cobbles; neutral (pH 7.0); abrupt irregular boundary.

R—11 inches; hard, fractured quartzite bedrock.

Bedrock is at a depth of 10 to 20 inches. The content of rock fragments is 35 to 60 percent.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. It is very cobbly loam or very gravelly loam. The content of clay is 15 to 20 percent. Reaction is neutral or slightly alkaline.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6 (3 or 4 moist), and chroma of 2 or 3. The content of clay is 27 to 35 percent. Reaction is neutral to moderately alkaline. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

Ridd Series

The Ridd series consists of moderately deep, well drained, moderately permeable soils on hillsides and mountainsides. These soils formed in residuum and colluvium derived dominantly from gneiss, schist, and quartzite. Slopes range from 6 to 70 percent. Elevation is 4,200 to 6,500 feet. Average annual precipitation is 14 to 16 inches, and mean annual air temperature is 45 to 51 degrees F.

These soils are loamy-skeletal, mixed, mesic Typic Argixerolls.

Typical pedon of Ridd very stony sandy loam, in an area of Ridd-Wasatch-Rock outcrop association, 6 to 30 percent slopes; about 2 miles west of the Antelope Island ranch house; about 1,100 feet south and 1,900 feet east of the northwest corner of sec. 8, T. 2 N., R. 3 W.

A—0 to 13 inches; brown (10YR 5/3) very stony sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, slightly

sticky and slightly plastic; many very fine roots; many very fine tubular pores; 30 percent gravel, 10 percent cobbles, 10 percent stones; neutral (pH 6.8); clear smooth boundary.

Bt—13 to 22 inches; yellowish brown (10YR 5/4) very stony sandy loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; many thin clay films on faces of peds; 30 percent gravel, 10 percent cobbles, 10 percent stones; neutral (pH 7.0); clear wavy boundary.

BC—22 to 30 inches; pale brown (10YR 6/3) very stony sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; 35 percent gravel, 10 percent cobbles, 10 percent stones; neutral (pH 7.2); gradual wavy boundary.

C—30 to 36 inches; light olive brown (2.5YR 5/3) very stony sandy loam, olive brown (2.5YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; 35 percent gravel, 10 percent cobbles, 10 percent stones; neutral (pH 7.2); abrupt irregular boundary.

R—36 inches; fractured gneiss and schist.

Bedrock is at a depth of 20 to 40 inches. The mollic epipedon is 10 to 20 inches thick. The content of rock fragments is 35 to 60 percent.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. The content of clay is 10 to 15 percent.

The Bt horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 to 4. The content of clay is 13 to 18 percent.

The BC and C horizons have hue of 10YR or 2.5Y, value of 5 to 7 (3 or 4 moist), and chroma of 3 or 4. The content of clay is 5 to 15 percent.

Saltair Series

The Saltair series consists of very deep, poorly drained, slowly permeable soils on lake plains. These soils formed in alluvium and lacustrine sediments derived from mixed rock sources. Slopes are 0 to 1 percent. Elevation is 4,200 to 4,300 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are fine-silty, mixed, mesic Typic Salorthids.

Typical pedon of Saltair silt loam, in an area of Saltair-Playas complex, 0 to 1 percent slopes; about 21 miles south and 1 mile east of Wendover; about 1,000

feet east and 800 feet south of the northwest corner of sec. 4, T. 5 S., R. 19 W.

Az—0 to 8 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 and fine roots; few very fine vesicular pores; strongly saline; strong effervescence; carbonates are disseminated; strongly alkaline (pH 8.6); gradual smooth boundary.

Cz—8 to 21 inches; white (2.5Y 8/2) silt loam, light brownish gray (2.5Y 6/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine tubular pores; strongly saline; strong effervescence; carbonates are disseminated; strongly alkaline (pH 9.0); clear smooth boundary.

Ckz1—21 to 32 inches; white (2.5Y 8/2) silty clay loam, light gray (2.5Y 7/2) moist; many medium prominent strong brown (7.5YR 5/6) mottles; massive; slightly hard, friable, sticky and plastic; few very fine and fine roots; many very fine and fine and common medium tubular pores; strongly saline; strong effervescence; carbonates are disseminated and segregated in concretions; very strongly alkaline (pH 9.1); clear smooth boundary.

Ckz2—32 to 44 inches; white (5Y 8/2) silty clay loam, light gray (5Y 7/2) moist; common medium distinct strong brown (7.5YR 5/6) mottles; massive; hard, friable, sticky and plastic; few very fine roots; common very fine and fine tubular pores; strongly saline; strong effervescence; carbonates are disseminated; strongly alkaline (pH 9.0); gradual wavy boundary.

Ckz3—44 to 60 inches; white (5Y 8/2) silty clay loam, light gray (5Y 7/2) moist; common medium distinct dark brown (7.5YR 4/4) mottles; massive; hard, friable, very sticky and very plastic; few very fine roots; common very fine and fine tubular pores; strongly saline; a few iron nodules; strong effervescence; carbonates are disseminated and in thin veins; strongly alkaline (pH 9.0).

In many places the surface is crusted with a thin layer of salt. A seasonal high water table is at the surface to 1 foot below the surface from March through October. Reaction is moderately alkaline to very strongly alkaline. Conductivity of the saturation extract is more than 16 mmhos/cm.

The A horizon has hue of 10YR to 5Y, value of 5 to 7 (3 to 6 moist), and chroma of 1 to 3. The content of clay is 20 to 27 percent.

The C horizon has hue of 10YR to 5Y, value of 6 to 8 (5 to 7 moist), and chroma of 1 to 3. It is silty clay loam

or silt loam. The content of clay is 20 to 35 percent.

Scalade Series

The Scalade series consists of well drained, moderately permeable soils on fan remnants. These soils are shallow over a hardpan. They formed in alluvium derived dominantly from igneous rocks. Slopes range from 2 to 5 percent. Elevation is 5,000 to 6,100 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 45 to 50 degrees F.

These soils are loamy, mixed, mesic, shallow Haploxerollic Durorthids.

Typical pedon of Scalade very fine sandy loam, moist, 2 to 5 percent slopes; about 10 miles south and 4 miles west of Ibapah; about 2,200 feet north and 2,600 feet east of the southwest corner of sec. 9, T. 23 N., R. 70 E., in White Pine County, Nevada:

A—0 to 3 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate thin platy structure; soft, very friable; many very fine and few fine and medium roots; many very fine vesicular pores; 5 percent gravel; slight effervescence (3 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—3 to 9 inches; pale brown (10YR 6/3) very fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; 5 percent gravel; slight effervescence (4 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); gradual wavy boundary.

Bkq—9 to 17 inches; very pale brown (10YR 7/3) very fine sandy loam, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; slightly hard, very friable; many very fine roots; many very fine tubular pores; 5 percent gravel; strong effervescence (29 percent calcium carbonate equivalent); carbonates are disseminated and in weakly cemented fragments that contain light yellowish brown (10YR 6/4) silica coatings; strongly alkaline (pH 8.6); abrupt wavy boundary.

Bkqm—17 to 24 inches; very pale brown (10YR 7/3), strongly silica- and carbonate-cemented hardpan, yellowish brown (10YR 5/4) moist; massive; very hard and very firm; few fine roots in fractures; many fine pores; very thin, discontinuous, randomly oriented, light yellowish brown (10YR 6/4) silica laminae; 30 percent gravel; strong effervescence

(20 percent calcium carbonate equivalent); strongly alkaline (pH 8.6); clear wavy boundary.

2Bkq—24 to 42 inches; very pale brown (10YR 7/3), weakly silica- and carbonate-cemented, stratified gravelly loam to very gravelly loamy sand, yellowish brown (10YR 5/4) moist; massive; hard, friable; brittle; few very fine roots; many very fine pores; few fine and medium light yellowish brown (10YR 6/4) silica coatings lining pores and bridging sand grains; 30 percent gravel; strong effervescence; silica and carbonate coatings on rock fragments; strongly alkaline (pH 8.6); abrupt wavy boundary.

2C—42 to 60 inches; stratified, indurated silica- and carbonate-cemented hardpans and sand and gravel.

The hardpan is at a depth of 12 to 20 inches. The content of clay is 5 to 10 percent. The content of rock fragments is 0 to 15 percent.

The A horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 or 3. Calcium carbonate equivalent is 3 to 15 percent. Reaction is slightly alkaline or moderately alkaline. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The Bw horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 to 4. Calcium carbonate equivalent is 3 to 15 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 2 to 4 mmhos/cm.

The Bkq horizon has value of 6 or 7 (5 or 6 moist) and chroma of 3 or 4. Calcium carbonate equivalent is 15 to 40 percent. Conductivity of the saturation extract is 2 to 4 mmhos/cm.

Skumpah Series

The Skumpah series consists of very deep, well drained, moderately slowly permeable soils on lake terraces. These soils formed in alluvium and lacustrine sediments derived from mixed rock sources. Slopes range from 0 to 2 percent. Elevation is 4,200 to 5,050 feet. The average annual precipitation ranges from 6 to 8 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are fine-silty, mixed, mesic Typic Natrargids.

Typical pedon of Skumpah silt loam, 0 to 2 percent slopes; about 11 miles west of Delle; about 600 feet west and 2,400 feet north of the southeast corner of sec. 31, T. 1 S., R. 11 W.

E1—0 to 1 inch; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; strong thick platy structure parting to strong thin platy; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; many very fine and fine and

- common medium vesicular pores; strong effervescence; carbonates are disseminated; strongly alkaline (pH 8.5); abrupt smooth boundary.
- E2—1 to 5 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; strong thin and moderately thick platy structure parting to strong very fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common very fine and few fine vesicular pores; strong effervescence; carbonates are disseminated; strongly alkaline (pH 8.5); abrupt smooth boundary.
- Btn1—5 to 9 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 5/4) moist; common dark yellowish brown (10YR 3/4) stains on faces of peds; strong medium and coarse columnar structure parting to strong fine and medium angular blocky; slightly hard, firm, sticky and plastic; common very fine, fine, and medium roots; common very fine and fine tubular pores; continuous thin clay films on faces of peds; strong effervescence; carbonates are disseminated; strongly alkaline (pH 9.0); abrupt smooth boundary.
- Btn2—9 to 14 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 5/4) moist; common dark yellowish brown (10YR 3/4) stains on faces of peds; moderate medium prismatic structure parting to strong thin and moderately thick platy; slightly hard, firm, sticky and plastic; few very fine and common fine and medium roots; few very fine and common fine and medium tubular pores; many thin clay films on faces of peds; strong effervescence; carbonates are disseminated; strongly alkaline (pH 9.0); clear smooth boundary.
- By—14 to 28 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; common dark yellowish brown (10YR 3/4) stains on faces of peds; strong thin and moderately thick platy structure; slightly hard, friable, sticky and plastic; few very fine roots; common very fine and fine and few medium tubular pores; common veins and flakes of gypsum; strong effervescence; carbonates are disseminated; strongly alkaline (pH 8.8); gradual smooth boundary.
- Cy1—28 to 49 inches; white (2.5Y 8/2) silty clay loam, light gray (2.5Y 7/2) moist; common fine and medium distinct dark yellowish brown (10YR 4/4) relict mottles; massive; very hard, friable, sticky and plastic; few very fine and fine tubular pores; strong effervescence; carbonates are disseminated; few fine gypsum crystals; strongly alkaline (pH 8.5); gradual wavy boundary.
- Cy2—49 to 60 inches; light gray (2.5Y 7/2) silty clay loam, light brownish gray (2.5Y 6/2) moist; few fine

and medium distinct dark yellowish brown (10YR 4/4) relict mottles; massive; very hard, friable, sticky and plastic; strong effervescence; carbonates are disseminated; many fine and medium gypsum filaments; strongly alkaline (pH 8.5).

The natric horizon is at a depth of 2 to 5 inches, and the gypsic horizon is at a depth of 9 to 20 inches. Calcium carbonate equivalent is 15 to 40 percent. A seasonal high water table is at a depth of 3.5 to more than 6.0 feet from March through July.

The E horizon has value of 6 or 7 (4 or 5 moist) and chroma of 2 or 3. The content of clay is 18 to 27 percent. Conductivity of the saturation extract is 2 to 8 mmhos/cm.

The Bt horizon has value of 5 to 7 (4 to 6 moist) and chroma of 2 to 4. The content of clay is 27 to 35 percent. Reaction is strongly alkaline or very strongly alkaline. Conductivity of the saturation extract is 4 or more mmhos/cm.

The By and C horizons have hue of 10YR or 2.5Y, value of 6 to 8 (5 to 7 moist), and chroma of 2 or 3. They are silt loam or silty clay loam. The content of clay is 18 to 35 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is more than 16 mmhos/cm.

Spager Series

The Spager series consists of somewhat excessively drained, moderately rapidly permeable soils on fan remnants. These soils are shallow over a petrocalcic horizon. They formed in alluvium derived dominantly from limestone. Slopes range from 2 to 15 percent. Elevation is 5,200 to 6,200 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are loamy-skeletal, carbonatic, mesic, shallow Xerollic Paleorthids.

Typical pedon of Spager gravelly loam, 2 to 15 percent slopes; about 7 miles north and 2 miles east of Ibapah; about 40 feet west and 30 feet north of the southeast corner of sec. 11, T. 8 S., R. 19 W.

A—0 to 3 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; many very fine vesicular pores; 30 percent gravel; strong effervescence (32 percent calcium carbonate equivalent); carbonates are disseminated; strongly alkaline (pH 8.7); clear wavy boundary.

Bk—3 to 14 inches; very pale brown (10YR 7/3) very gravelly loam, yellowish brown (10YR 5/4) moist;

weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; 40 percent gravel; violent effervescence (46 percent calcium carbonate equivalent); carbonates are disseminated and occur as coatings on undersides of rock fragments; strongly alkaline (pH 8.7); abrupt wavy boundary.

Bkqm—14 to 20 inches; indurated, carbonate-cemented hardpan.

C—20 to 60 inches; stratified very gravelly sandy loam, very gravelly loamy sand, and carbonate-cemented hardpan.

The calcic horizon is at a depth of 2 to 10 inches. Depth to the hardpan is 10 to 20 inches. The particle-size control section is 35 to 60 percent rock fragments. Calcium carbonate equivalent in the particle-size control section averages 40 to 60 percent. The content of clay is 15 to 20 percent.

The A horizon has value of 5 or 6 (3 or 4 moist) and chroma of 2 or 3. The content of rock fragments is 15 to 35 percent. Calcium carbonate equivalent is 15 to 40 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 0 to 2 mmhos/cm.

The Bk horizon has value of 6 to 8 (5 or 6 moist) and chroma of 3 or 4. The content of rock fragments is 35 to 60 percent. Calcium carbonate equivalent is 40 to 60 percent. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

Springmeyer Series

The Springmeyer series consists of very deep, well drained, moderately slowly permeable soils on fan remnants. These soils formed in alluvium derived dominantly from granite. Slopes range from 3 to 7 percent. Elevation is 5,900 to 6,500 feet. Average annual precipitation is 12 to 14 inches, and mean annual air temperature is 45 to 50 degrees F.

These soils are fine-loamy, mixed, mesic Aridic Argixerolls.

Typical pedon of Springmeyer gravelly sandy loam, 3 to 7 percent slopes; about 1.0 mile west and 11.5 miles south of Iapah; about 300 feet east and 700 feet south of the northwest corner of sec. 21, T. 11 S., R. 19 W.

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine vesicular pores; 15 percent gravel; neutral (pH 7.2); clear wavy boundary.

A2—4 to 14 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure parting to moderate fine subangular blocky; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine and medium roots; common very fine and fine and few medium tubular pores; 15 percent gravel; neutral (pH 6.8); clear wavy boundary.

Bt1—14 to 21 inches; brown (7.5YR 5/4) gravelly sandy clay loam, dark brown (7.5YR 3/4) moist; weak fine prismatic structure parting to moderate fine subangular blocky; hard, friable, sticky and plastic; few very fine and fine roots; many very fine and few fine tubular pores; many thin clay films on faces of peds and lining pores; 20 percent gravel; neutral (pH 6.8); clear wavy boundary.

Bt2—21 to 29 inches; light brown (7.5YR 6/4) gravelly sandy clay loam, dark brown (7.5YR 4/4) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; many very fine and few fine tubular pores; common thin clay films on faces of peds and lining pores; 25 percent gravel; neutral (pH 7.0); gradual wavy boundary.

C1—29 to 42 inches; light brown (7.5YR 6/4) very gravelly sandy loam, dark brown (7.5YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; 40 percent gravel; neutral (pH 6.8); gradual wavy boundary.

C2—42 to 53 inches; light yellowish brown (10YR 6/4) very gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; 40 percent gravel; slight effervescence; carbonates are disseminated; neutral (pH 6.6); gradual wavy boundary.

Ck—53 to 60 inches; yellowish brown (10YR 5/4) very gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable; 35 percent gravel; slight effervescence; carbonates are disseminated and segregated in filaments; slightly alkaline (pH 7.4).

The mollic epipedon is 9 to 15 inches thick. The particle-size control section is 15 to 35 percent rock fragments.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3. The content of clay is 10 to 20 percent. The content of rock fragments is 15 to 35 percent.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6 (3 or 4 moist), and chroma of 3 or 4. The content

of clay is 25 to 35 percent. The content of rock fragments is 15 to 35 percent.

The C horizon has hue of 10YR or 7.5YR, value of 5 or 6 (4 or 5 moist), and chroma of 3 or 4. It is very gravelly sandy loam or very gravelly loamy sand. The content of clay is 3 to 8 percent. The content of rock fragments is 35 to 60 percent.

Taylorflat Series

The Taylorflat series consists of very deep, well drained, moderately slowly permeable soils on fan remnants and lake terraces. These soils formed in alluvium and lacustrine sediments derived from mixed rock sources. Slopes range from 0 to 5 percent. Elevation is 4,300 to 6,000 feet. Average annual precipitation is 10 to 12 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are fine-loamy, mixed, mesic Xerollic Calciorthids.

Typical pedon of Taylorflat loam, 1 to 5 percent slopes; about 4 miles east and 1 mile south of Vernon; about 2,700 feet west and 2,400 feet south of the northeast corner of sec. 25, T. 8 S., R. 5 W.

A—0 to 4 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; weak thin platy structure parting to weak fine granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine tubular pores; 5 percent gravel; strong effervescence (13 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—4 to 9 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine tubular pores; 5 percent gravel; strong effervescence (14 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.4); clear smooth boundary.

Bk—9 to 51 inches; very pale brown (10YR 7/4) loam, yellowish brown (10YR 5/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; 5 percent gravel; violent effervescence (21 percent calcium carbonate equivalent); carbonates are disseminated and in masses; strongly alkaline (pH 8.6); clear wavy boundary.

C—51 to 60 inches; very pale brown (10YR 7/4) loam,

yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; 5 percent gravel; strong effervescence (15 percent calcium carbonate equivalent); carbonates are disseminated; strongly alkaline (pH 8.6).

The calcic horizon is at a depth of 9 to 20 inches. The content of clay is 18 to 27 percent. The content of rock fragments is 0 to 15 percent.

The A horizon has value of 5 to 7 (3 to 5 moist) and chroma of 2 to 4. Calcium carbonate equivalent is 3 to 15 percent. Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

The Bw horizon has value of 6 or 7 (4 or 5 moist) and chroma of 3 or 4. Calcium carbonate equivalent is 3 to 15 percent. Reaction is moderately alkaline to very strongly alkaline. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

The Bk and C horizons have value of 6 to 8 (4 to 6 moist) and chroma of 3 or 4. Calcium carbonate equivalent is 15 to 40 percent. Reaction is strongly alkaline or very strongly alkaline. Conductivity of the saturation extract is 2 to 16 mmhos/cm.

Theriot Series

The Theriot series consists of shallow, well drained, moderately permeable soils on hillsides and mountainsides. These soils formed in residuum and colluvium derived dominantly from limestone. Slopes range from 15 to 70 percent. Elevation is 4,250 to 6,300 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 50 to 52 degrees F.

These soils are loamy-skeletal, carbonatic, mesic Lithic Torriorthents.

Typical pedon of Theriot very stony loam, in an area of Theriot-Rock outcrop complex, 15 to 70 percent slopes; about 0.25 mile north of Wendover; about 400 feet east and 2,000 feet south of the northwest corner of sec. 17, T. 1 S., R. 19 W.

A—0 to 3 inches; light brownish gray (10YR 6/2) very stony loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; few very fine and fine vesicular pores; 25 percent gravel, 10 percent cobbles, 15 percent stones; violent effervescence; carbonates are disseminated; strongly alkaline (pH 8.6); clear smooth boundary.

C—3 to 14 inches; very pale brown (10YR 7/3) very cobbly loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; soft, friable, slightly

sticky and slightly plastic; common very fine and fine and few medium roots; 30 percent gravel, 25 percent cobbles, 5 percent stones; violent effervescence; carbonates are disseminated; strongly alkaline (pH 8.6); abrupt irregular boundary. R—14 inches; fractured limestone bedrock.

Bedrock is at a depth of 10 to 20 inches. The particle-size control section is 50 to 80 percent rock fragments. Calcium carbonate equivalent is 40 to 60 percent. The content of clay is 8 to 14 percent. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

The A and C horizons have value of 6 or 7 (4 or 5 moist) and chroma of 2 or 3.

Timpie Series

The Timpie series consists of very deep, well drained, moderately slowly permeable soils on lake terraces and fan remnants. These soils formed in alluvium and lacustrine sediments derived dominantly from limestone and quartzite. Slopes range from 0 to 4 percent. Elevation is 4,200 to 5,300 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 47 to 52 degrees F.

These soils are fine-silty, mixed (calcareous), mesic Typic Torriorthents.

Typical pedon of Timpie silt loam, saline, 0 to 4 percent slopes; about 9 miles west of Timpie; about 500 feet west and 2,580 feet south of the northeast corner of sec. 10, T. 1 S., R. 9 W.

A—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure parting to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine vesicular pores; strong effervescence (26 percent calcium carbonate equivalent); carbonates are disseminated; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bw1—3 to 7 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine, medium, and coarse roots; many very fine tubular pores; strong effervescence (24 percent calcium carbonate equivalent); carbonates are disseminated; strongly alkaline (pH 8.8); gradual smooth boundary.

Bw2—7 to 21 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many

very fine and few fine, medium, and coarse roots; many very fine tubular pores; strong effervescence (23 percent calcium carbonate equivalent); carbonates are disseminated; strongly alkaline (pH 9.0); clear smooth boundary.

C—21 to 60 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine, medium, and coarse roots; many very fine tubular pores; strong effervescence (28 percent calcium carbonate equivalent); carbonates are disseminated; strongly alkaline (pH 8.8).

The content of clay is 18 to 27 percent. Calcium carbonate equivalent is 15 to 40 percent.

The A horizon has value of 6 or 7 (4 or 5 moist) and chroma of 2 or 3. Reaction is moderately alkaline to very strongly alkaline. Conductivity of the saturation extract is 0 to 8 mmhos/cm.

The Bw and C horizons have value of 6 or 7 (4 to 6 moist) and chroma of 3 or 4. Reaction is strongly alkaline or very strongly alkaline. Conductivity of the saturation extract is 8 to 32 mmhos/cm.

Tooele Series

The Tooele series consists of very deep, well drained, moderately rapidly permeable soils on lake terraces and fan remnants. These soils formed in eolian material, lacustrine sediments, and alluvium derived from mixed rock sources. Slopes range from 0 to 5 percent. Elevation is 4,200 to 6,000 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 45 to 50 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Typic Torriorthents.

Typical pedon of Tooele fine sandy loam, 0 to 5 percent slopes; about 7 miles northwest of Delle; about 800 feet south and 1,900 feet east of the northwest corner of sec. 3, T. 1 N., R. 9 W.

A1—0 to 3 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine and few fine pores; violent effervescence; carbonates are disseminated; moderately alkaline (pH 8.4); clear smooth boundary.

A2—3 to 9 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and

few fine pores; violent effervescence; carbonates are disseminated; strongly alkaline (pH 8.8); clear smooth boundary.

Bw—9 to 1.7 inches; very pale brown (10YR 7/4) fine sandy loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine pores; violent effervescence; carbonates are disseminated; strongly alkaline (pH 8.8); clear smooth boundary.

C1—17 to 33 inches; very pale brown (10YR 7/4) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine and few fine pores; violent effervescence; carbonates are disseminated; very strongly alkaline (pH 9.2); gradual smooth boundary.

C2—33 to 42 inches; very pale brown (10YR 7/4) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine and fine pores; violent effervescence; carbonates are disseminated; very strongly alkaline (pH 9.2); gradual smooth boundary.

C3—42 to 60 inches; very pale brown (10YR 7/4) fine sand, yellowish brown (10YR 5/4) moist; single grain; loose; few very fine roots; few very fine pores; strong effervescence; carbonates are disseminated; very strongly alkaline (pH 9.2).

Calcium carbonate equivalent is 15 to 40 percent. Reaction is moderately alkaline to very strongly alkaline. The particle-size control section is 5 to 15 percent clay.

The A horizon has value of 6 or 7 (4 or 5 moist) and chroma of 2 or 3. Conductivity of the saturation extract is 2 to 8 mmhos/cm.

The Bw and C horizons have value of 6 or 7 (4 or 5 moist) and chroma of 2 to 4. They are typically fine sandy loam, but fine sand is below a depth of 40 inches in some pedons. Conductivity of the saturation extract is 4 to 16 mmhos/cm.

Wasatch Series

The Wasatch series consists of very deep, excessively drained, rapidly permeable soils on fan remnants. These soils formed in alluvium derived from mixed rock sources. Slopes range from 6 to 25 percent. Elevation is 4,200 to 5,300 feet. Average annual precipitation is 14 to 16 inches, and mean annual air temperature is 46 to 52 degrees F.

These soils are sandy, mixed, mesic Entic Haploxerolls.

Typical pedon of Wasatch loamy coarse sand, in an

area of Ridd-Wasatch-Rock outcrop association, 6 to 30 percent slopes; about 2 miles west of the Antelope Island ranch house; about 2,000 feet south and 1,200 feet west of the northeast corner of sec. 8, T. 2 N., R. 3 W.

A—0 to 18 inches; brown (10YR 4/3) loamy coarse sand, dark brown (10YR 3/3) moist; weak fine granular structure; soft, loose, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 5 percent gravel; neutral (pH 6.8); gradual wavy boundary.

C1—18 to 30 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; single grain; loose; many very fine roots; many very fine interstitial pores; 10 percent gravel; neutral (pH 6.8); gradual wavy boundary.

C2—30 to 42 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; single grain; loose; many very fine roots; many very fine interstitial pores; 10 percent gravel; neutral (pH 7.2); gradual wavy boundary.

C3—42 to 60 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; single grain; loose; common very fine roots; many very fine interstitial pores; 10 percent gravel; neutral (pH 7.0).

The mollic epipedon is 10 to 20 inches thick. The content of rock fragments is 0 to 15 percent. The content of clay is 1 to 10 percent.

The A horizon has value of 4 or 5 (2 or 3 moist) and chroma of 2 or 3.

The C horizon has value of 5 or 6 (3 or 4 moist) and chroma of 3 or 4.

Yeates Hollow Series

The Yeates Hollow series consists of very deep, well drained, slowly permeable soils on fan remnants. These soils formed in alluvium derived dominantly from quartzite and sandstone. Slopes range from 6 to 40 percent. Elevation is 5,400 to 8,000 feet. Average annual precipitation is 14 to 20 inches, and mean annual air temperature is 38 to 45 degrees F.

These soils are clayey-skeletal, montmorillonitic, frigid Typic Argixerolls.

Typical pedon of Yeates Hollow cobbly loam, 6 to 20 percent slopes; about 2 miles east of Tooele; about 2,000 feet north and 1,800 feet west of the southeast corner of sec. 24, T. 3 S., R. 4 W.

A1—0 to 4 inches; brown (10YR 4/3) cobbly 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 few fine,

medium, and coarse roots; many very fine vesicular pores; 15 percent gravel, 10 percent cobbles, 5 percent stones; slightly acid (pH 6.2); clear smooth boundary.

A2—4 to 12 inches; brown (10YR 4/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; very hard, friable, sticky and plastic; many very fine and few fine, medium, and coarse roots; common very fine tubular pores; 15 percent gravel, 10 percent cobbles, 5 percent stones; slightly acid (pH 6.2); clear wavy boundary.

Bt1—12 to 22 inches; brown (7.5YR 5/4) very cobbly clay loam, brown (7.5YR 4/4) moist; strong fine angular blocky structure; extremely hard, firm, very sticky and very plastic; many very fine and few fine, medium, and coarse roots; few very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 20 percent gravel, 15 percent cobbles, 5 percent stones; slightly acid (pH 6.2); gradual wavy boundary.

Bt2—22 to 36 inches; brown (7.5YR 5/4) very cobbly clay loam, strong brown (7.5YR 4/6) moist; strong fine angular blocky structure; extremely hard, firm, very sticky and very plastic; many very fine and few fine roots; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 20 percent gravel, 15 percent cobbles, 5 percent stones; slightly acid (pH 6.2); gradual wavy boundary.

Bt3—36 to 44 inches; light brown (7.5YR 6/4) very cobbly clay loam, brown (7.5YR 4/4) moist; moderate fine subangular blocky structure; very hard, firm, sticky and plastic; common very fine roots; common very fine tubular pores; few thin clay films on faces of peds; 30 percent gravel, 20 percent cobbles, 5 percent stones; slightly acid (pH 6.4); gradual wavy boundary.

BC—44 to 60 inches; light yellowish brown (10YR 6/4) extremely cobbly sandy clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; 40 percent gravel, 25 percent cobbles, 10 percent stones; neutral (pH 6.6).

The mollic epipedon is 10 to 20 inches thick. The particle-size control section is 35 to 60 percent rock fragments.

The A horizon has value of 3 to 5 (2 or 3 moist) and chroma of 2 or 3. It is very cobbly loam or cobbly loam.

The content of clay is 18 to 27 percent. The content of rock fragments is 15 to 60 percent. Reaction is slightly acid or neutral.

The Bt horizon has value of 5 or 6 (3 to 5 moist) and chroma of 4 to 6. The content of clay is 35 to 40 percent. The content of rock fragments is 35 to 60 percent. Reaction is slightly acid or neutral.

The BC horizon has hue of 10YR or 7.5YR, value of 5 or 6 (4 or 5 moist), and chroma of 3 or 4. The content of clay is 20 to 27 percent. The content of rock fragments is 60 to 80 percent.

Yenrab Series

The Yenrab series consists of very deep, somewhat excessively drained, rapidly permeable soils on hummocky, stabilized sand dunes on fan remnants, lake terraces, and lake plains. These soils formed in eolian sands from mixed rock sources. Slopes range from 2 to 15 percent. Elevation is 4,200 to 5,000 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 45 to 52 degrees F.

These soils are mixed, mesic Typic Torripsamments.

Typical pedon of Yenrab fine sand, 2 to 15 percent slopes; about 14 miles south and 10 miles west of Dugway; about 300 feet south and 2,000 feet west of the northeast corner of sec. 35, T. 9 S., R. 10 W.

A—0 to 15 inches; pale brown (10YR 6/3) fine sand, dark brown (10YR 4/3) moist; single grain; loose; common very fine and few fine roots; strong effervescence; carbonates are disseminated; moderately alkaline (pH 8.2); gradual wavy boundary.

C—15 to 60 inches; light yellowish brown (10YR 6/4) fine sand, dark yellowish brown (10YR 4/4) moist; single grain; loose; common very fine and few fine roots; strong effervescence; carbonates are disseminated; strongly alkaline (pH 8.6).

Calcium carbonate equivalent is 3 to 15 percent. Reaction is moderately alkaline or strongly alkaline.

The A horizon has value of 6 or 7 (4 or 5 moist) and chroma of 2 or 3. It is fine sand or loamy fine sand. The content of clay is 2 to 10 percent. Conductivity of the saturation extract is 0 to 4 mmhos/cm.

The C horizon has value of 6 or 7 (4 to 6 moist) and chroma of 3 or 4. The content of clay is 2 to 5 percent. Conductivity of the saturation extract is 0 to 8 mmhos/cm.

Formation of the Soils

In this section, the factors of soil formation are identified and their relationship to the soils in the survey area are described.

Soil is formed by the interaction of five major soil-forming factors. Each of these factors modifies the effects of the others. The five factors are: (1) the physical, chemical, and mineralogical composition of the parent material; (2) relief, or topography; (3) the plant and animal life in and on the soil; (4) the climate under which the soil material has accumulated and has existed since accumulation; and (5) the length of time these forces have acted on the parent material. All of these factors are important to soil formation, but some may be more important than others, depending on variations in location and local conditions.

Parent Material

Parent material is the weathered rock or unconsolidated material from which soils form. It determines to a great extent the chemical and mineralogical composition of the soils. The main sources of parent material in the survey area are Lake Bonneville sediments; eolian deposits; and alluvium, residuum, and colluvium from sedimentary, metamorphic, and igneous rocks.

Lake Bonneville sediments tend to be saline, alkali, and calcareous. The salt content is typically highest in soils on the valley bottoms. The strongly saline Saltair soils are examples. Skumpah soils on low lake terraces are alkali affected. The higher lake terraces generally represent the coarser textured old beach sediments. Izamatch soils formed in these materials.

Berent, Yenrab, and Dynal soils formed in sandy eolian deposits.

Soils that formed in sedimentary limestone in the survey area are typically strongly or very strongly calcareous. Lodar and Lundy soils are examples. Soils that formed in shale, such as Cristo soils, are generally fine textured.

Metamorphic and igneous rocks contain fewer carbonates than the sedimentary rocks. Soils that formed in metamorphic and igneous rocks are

noncalcareous. Examples are Reywat, Ridd, Podmor, and Checkett soils.

Relief

Relief, or lay of the land, influences soil formation through its effect on drainage, erosion, and microclimate. The steepness and aspect of slopes, shape of the surface, and other features of relief affect the development of soils.

The nearly level and gently sloping valley floors and flood plains have relatively little relief. Some of the soils that formed in these areas are ponded or have a high water table. The saturated condition of these soils changes some of the physical and chemical properties by limiting the oxygen supply, reducing soil temperature, and facilitating the lateral movement of solutes and suspended material in the ground water. A high water table may result in the accumulation of soluble salts in the soils. This condition is characteristic of the Saltair, Kanosh, and Bramwell soils that are affected by salt and alkali. Wetness also results in an abundant production of plant matter. Soils that formed in wet areas may have a high content of organic matter. Logan soils are examples.

The foothills and mountains in the survey area consist of strongly sloping to very steep areas intermingled with small valleys and ridges. The aspect and degree of slope have been important soil-forming factors in these areas. The influence of aspect is reflected in the differences in vegetation on north- and south-facing side slopes. In general, the soils on north-facing side slopes support more vegetation, have lower soil temperatures, and have a higher content of organic matter than the soils on south-facing side slopes. Dateman soils, for example, which are dominantly on north-facing slopes, have a dark surface layer. Lodar and Amtoft soils, which are dominantly on south-facing slopes, have a thinner, lighter colored surface layer than the Dateman soils.

The steepness of slope influences soil formation through its effects on runoff and erosion. Soils on the steeper side slopes generally have a thinner surface

layer and show less development in the subsoil than the soils in nearly level areas. On very steep mountainsides, the rate of erosion may equal or exceed the rate of soil formation, particularly on south- and west-facing slopes.

Living Organisms

Plants and animals are important in developing the chemical and physical characteristics of soils. Plants strongly influence the kind and amount of organic matter and contribute to the porosity, structure, and chemical composition and fertility of the soils. Micro-organisms, insects, and burrowing animals mix the soil material, improve soil fertility, and convert vegetation from one form to another.

The lush vegetation on the wet flood plains and valley bottoms provides the organic matter that is characteristic of Logan soils. These soils have a thick, dark surface layer.

Climate

Climatic features that significantly affect soil formation are rainfall, temperature, humidity, and wind velocity. The amount of precipitation and variations in temperature influence the content of organic matter in the soil, the kind and abundance of native vegetation, the physical movement of substances in suspension or solution, and the rate of chemical processes.

In general, as rainfall increases, soil reaction decreases, depth to carbonates increases, and the translocation of clay and minerals increases. The flow of surface water caused by heavy rains or snowmelt continuously detaches, mixes, and redeposits parent material. Birdow and Logan soils formed in sediment deposited by water.

Soil temperature influences the rate of chemical processes, the physical condition of the soil, and the

activities of micro-organisms. Alternate periods of freezing and thawing speed the mechanical weathering process by breaking down particles into smaller sizes. The rates of chemical and biological activity increase as the temperature increases.

Climate also influences the kind and amount of vegetation produced and thus has a direct effect on the content of organic matter in the soils. Generally, the content of organic matter increases as the amount of precipitation increases. Soils in areas that have relatively low precipitation, such as Tooele soils, typically have a thin, light colored surface layer. Soils in areas that have higher precipitation, such as Doyce soils, typically have a dark surface layer.

Wind transfers soil material from one place to another. Dynal, Yenrab, and Berent soils formed in material deposited by the wind.

Time

Time is necessary for the formation of soils. The development of distinct horizons in the soil profile requires a certain amount of time. The soils in the survey area range from young soils that exhibit little or no horizon development to older soils that have well developed profiles.

The youngest soils in the survey area are on lake terraces, in areas of eolian deposits, and on steep, actively eroding side slopes. Timpie, Medburn, Yenrab, and Tooele soils are examples. They exhibit little or no horizon development. Hiko Peak, Hiko Springs, and Taylorsflat soils, which formed in slightly older deposits than those in which the youngest soils formed, have a horizon of calcium carbonate accumulation.

The oldest and most well developed soils in the survey area are on the upper fan terraces and mountainsides. Yeates Hollow, Kapod, and Flygare soils are examples. These soils have a thick, dark surface layer and a well developed subsoil.

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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 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.

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 2.5
Low	2.5 to 5.0
Moderate	5.0 to 7.5
High	7.5 to 10
Very high	more than 10

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

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.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

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.

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.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs.

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 is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

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.

Closed depression. A low area completely surrounded by higher ground and having no natural outlet.

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.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

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.

Conductivity of the saturation extract. The standard measure of salinity. Electrical conductivity is related to the amount of salts more soluble than gypsum. (See Saline soil.)

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.

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.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or over other material that restricts the penetration of plant roots.

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.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by

upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

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. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune. A mound, ridge, or hill of loose, windblown granular material (generally sand), either bare or covered with vegetation.

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.

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.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
Erosion (geologic). Erosion caused by geologic

processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. 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.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of 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 remnant. 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 oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Flaggy soil material. Material that is, 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.

Foot slope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

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 is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A 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.

Gypsum. A mineral consisting of hydrous calcium sulfate.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special

equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Heavy metal. Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.

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.

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.

Increasesers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers 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

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.

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.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

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.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-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.

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 deep soil. A soil that is 20 to 40 inches deep over bedrock or over other material that restricts the penetration of plant roots.

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.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal

structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Observed rooting depth. Depth to which roots have been observed to penetrate.

Oolitic sand. Round or oblong, sand-sized fragments composed of calcium carbonate.

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*.

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.

Pediment. 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 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:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid.....	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

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.

Quartzite, metamorphic. Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

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.

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.

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.

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

Moderately saline	8 to 16
Strongly saline	more than 16

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.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas in which more than 90 percent of the surface is covered by stones or boulders. Voids contain no soil material and virtually no vegetation other than lichens. The areas commonly are at the base of mountain slopes, but some are on mountain slopes as deposits of cobbles, stones, and boulders left by Pleistocene glaciation or by periglacial phenomena.

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.

Salinity. The electrical conductivity of a saline soil. Terms describing salinity, expressed in millimhos per centimeter, are as follows:

Nonsaline	0 to 2
Very slightly saline	2 to 4
Slightly saline	4 to 8

Salty water (in tables). Water that is too salty for consumption by livestock.

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.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sedimentary rock. 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.

Seeding suitability for rangeland. This suitability rating is a relative rating suggestive of the number of successful seedings that might be expected during a given period for establishment of the plants best suited to the climate and soil properties in the area. A rating of *good* indicates that a wide selection of plants may be successfully seeded in 7 years out of 10. A rating of *fair* indicates that fewer plants are adapted and can be successfully seeded in 5 to 7 years out of 10. A rating of *poor* indicates that only the most drought-tolerant plants can be successfully seeded in 4 or 5 years out of 10. A rating of *very poor* indicates that soils are generally not suitable for seeding. Seeding should only be considered under emergency circumstances, such as after construction or other disturbances.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. 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.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or over other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (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.

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.

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.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. The slope classes used in this survey are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Moderately sloping	5 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 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.

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.

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.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide

vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

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.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

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.

Understory. Any plants in a forest community that grow to a height of less than 5 feet.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley. An elongated depressional area primarily developed by stream action.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Very deep soil. A soil that is more than 60 inches deep over bedrock or over other material that restricts the penetration of plant roots.

Very shallow soil. A soil that is less than 10 inches deep over bedrock or over other material that restricts the penetration of plant roots.

Water-supplying capacity. Soil moisture at the start of the growing season plus precipitation added during the growing season that is available for plant growth.

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 oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION
(Recorded in the period 1961-90 at Dugway, Ibapah, and Tooele, Utah)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	° F	° F	° F	° F	° F	Units	In	In	In	In	
DUGWAY:											
January----	36.7	15.1	25.9	58	-12	11	0.46	0.20	0.75	1	3.8
February----	44.9	22.8	33.8	66	-4	34	.57	.19	.91	2	2.2
March-----	53.1	28.7	40.9	76	9	111	.84	.27	1.30	3	2.2
April-----	62.6	35.5	49.0	84	19	282	.81	.29	1.23	2	.9
May-----	72.9	44.2	58.5	92	26	574	1.06	.36	1.71	3	.4
June-----	84.7	53.2	69.0	103	36	862	.53	.13	1.04	1	.0
July-----	94.4	61.9	78.2	105	47	1,169	.57	.11	1.00	1	.0
August-----	91.4	59.4	75.4	103	42	1,077	.61	.15	1.05	1	.0
September--	79.9	48.1	64.0	97	28	719	.72	.25	1.27	1	.0
October----	65.9	36.2	51.1	86	19	349	.81	.34	1.20	2	.1
November---	50.5	26.7	38.6	72	7	83	.59	.24	.88	2	1.9
December---	38.2	17.4	27.8	59	-8	11	.59	.17	1.02	2	4.5
Yearly:											
Average----	64.6	37.4	51.0	---	---	---	---	---	---	---	---
Extreme----	---	---	---	105	-16	---	---	---	---	---	---
Total-----	---	---	---	---	---	5,282	8.16	5.56	9.97	21	15.9
IBAPAH:											
January----	41.7	9.6	25.6	62	-20	8	0.57	0.19	0.92	1	6.2
February----	47.1	15.9	31.5	68	-14	17	.65	.24	1.09	2	5.8
March-----	53.9	21.5	37.7	75	-1	65	.98	.53	1.44	3	7.3
April-----	62.2	26.9	44.6	83	9	175	1.08	.44	1.70	3	4.1
May-----	71.7	33.8	52.7	89	17	392	1.32	.60	2.02	3	1.6
June-----	81.7	40.0	60.9	98	25	592	1.13	.34	2.08	2	.0
July-----	91.7	46.3	69.0	102	32	875	.79	.20	1.37	2	.0
August-----	89.9	44.6	67.2	100	28	817	.83	.20	1.43	2	.0
September--	80.1	35.3	57.7	95	17	519	.91	.31	1.64	2	.1
October----	67.6	26.2	46.9	87	7	237	.94	.28	1.53	2	1.1
November---	52.9	19.0	35.9	74	-2	45	.52	.18	.80	1	2.9
December---	42.2	10.7	26.5	64	-18	7	.50	.25	.88	1	5.3
Yearly:											
Average----	65.2	27.5	46.4	---	---	---	---	---	---	---	---
Extreme----	---	---	---	102	-24	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,749	10.20	5.94	12.40	24	34.4

See footnote at end of table.

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	° F	° F	° F	° F	° F	Units	In	In	In		In
TOOELE:											
January----	37.5	19.5	28.5	59	-3	13	1.07	0.66	1.51	3	12.7
February----	43.2	24.2	33.7	63	2	31	1.33	.63	1.94	3	14.1
March-----	50.7	30.3	40.5	72	12	109	2.33	1.36	3.19	6	16.0
April-----	59.8	37.3	48.6	80	22	280	2.49	1.33	3.50	5	8.1
May-----	69.7	46.2	57.9	88	28	558	1.91	.60	2.97	4	1.8
June-----	80.1	55.2	67.6	96	37	829	1.11	.36	1.80	3	.0
July-----	88.5	63.1	75.8	98	48	1,108	.92	.31	1.54	2	.0
August-----	86.1	60.8	73.5	97	45	1,037	.94	.35	1.62	2	.0
September--	75.9	50.8	63.4	92	33	702	1.42	.32	2.29	3	.1
October----	63.3	39.9	51.6	81	22	372	1.81	.88	2.74	4	3.8
November---	48.7	29.6	39.2	69	12	88	1.69	.85	2.42	4	10.2
December---	38.3	21.0	29.6	59	0	15	1.48	.61	2.20	4	16.8
Yearly:											
Average----	61.8	39.8	50.8	---	---	---	---	---	---	---	---
Extreme----	---	---	---	99	-7	---	---	---	---	---	---
Total-----	---	---	---	---	---	5,142	18.50	14.76	22.04	43	83.6

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1961-90 at Dugway, Ibapah, and Tooele, Utah)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
DUGWAY:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 2	May 10	May 27
2 years in 10 later than--	Apr. 24	May 5	May 21
5 years in 10 later than--	Apr. 9	Apr. 27	May 10
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 7	Sept. 28	Sept. 13
2 years in 10 earlier than--	Oct. 13	Oct. 4	Sept. 18
5 years in 10 earlier than--	Oct. 26	Oct. 15	Sept. 28
IBAPAH:			
Last freezing temperature in spring:			
1 year in 10 later than--	June 6	June 25	July 5
2 years in 10 later than--	May 29	June 18	June 30
5 years in 10 later than--	May 15	June 4	June 19
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 4	Aug. 26	Aug. 18
2 years in 10 earlier than--	Sept. 10	Sept. 1	Aug. 22
5 years in 10 earlier than--	Sept. 21	Sept. 12	Aug. 31

TABLE 2.--FREEZE DATES IN SPRING AND FALL--Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
TOOELE:			
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 23	May 6	May 21
2 years in 10 later than--	Apr. 15	May 1	May 16
5 years in 10 later than--	Mar. 30	Apr. 21	May 5
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 26	Oct. 8	Sept. 28
2 years in 10 earlier than--	Oct. 31	Oct. 14	Oct. 4
5 years in 10 earlier than--	Nov. 9	Oct. 27	Oct. 15

TABLE 3.--GROWING SEASON

(Recorded in the period 1961-90 at Dugway,
Ibapah, and Tooele, Utah)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<u>Days</u>	<u>Days</u>	<u>Days</u>
DUGWAY:			
9 years in 10	169	149	116
8 years in 10	179	157	124
5 years in 10	200	172	141
2 years in 10	220	187	157
1 year in 10	231	194	166
IBAPAH:			
9 years in 10	105	72	52
8 years in 10	114	82	60
5 years in 10	130	100	74
2 years in 10	147	119	88
1 year in 10	156	129	95
TOOELE:			
9 years in 10	195	160	135
8 years in 10	205	170	144
5 years in 10	223	188	163
2 years in 10	242	206	181
1 year in 10	252	216	191

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
1	Abela gravelly loam, 2 to 8 percent slopes-----	23,918	0.5
2	Abela very gravelly loam, 5 to 15 percent slopes-----	35,924	0.7
3	Amtoft, dry-Rock outcrop complex, 30 to 70 percent slopes-----	84,957	1.6
4	Amtoft-Rock outcrop complex, 30 to 70 percent slopes-----	281,422	5.3
5	Berent-Hiko Peak complex, 2 to 15 percent slopes-----	42,759	0.8
6	Birdow loam, 1 to 4 percent slopes-----	13,669	0.3
7	Borvant gravelly loam, 2 to 15 percent slopes-----	63,741	1.2
8	Bramwell silt loam, 0 to 2 percent slopes-----	14,918	0.3
10	Broad, moist-Reywat, moist-Rock outcrop association, 30 to 60 percent slopes-----	17,916	0.3
11	Checkett-Rock outcrop complex, 10 to 40 percent slopes-----	63,718	1.2
12	Cliffdown gravelly sandy loam, 2 to 15 percent slopes-----	149,874	2.8
13	Cristo loam, 10 to 60 percent slopes-----	8,322	0.2
14	Dateman-Podmor-Rock outcrop association, 30 to 70 percent slopes-----	20,870	0.4
14A	Dateman-Podmor, moist-Rock outcrop association, 30 to 70 percent slopes-----	24,816	0.5
15	Doyce loam, 2 to 8 percent slopes-----	5,291	0.1
16	Dune land-----	29,300	0.6
17	Dynal sand, 2 to 15 percent slopes-----	22,921	0.4
18	Dynal-Tooele, saline, complex, 0 to 15 percent slopes-----	60,320	1.1
19	Erda silt loam, 1 to 5 percent slopes-----	24,975	0.5
20	Flygare-Dateman-Rock outcrop association, 30 to 70 percent slopes-----	8,638	0.2
21	Hiko Peak gravelly loam, 2 to 15 percent slopes-----	106,878	2.0
22	Hiko Peak very stony loam, 2 to 8 percent slopes-----	26,682	0.5
23	Hiko Peak-Checkett complex, 2 to 40 percent slopes-----	6,278	0.1
24	Hiko Peak-Taylorflat complex, 1 to 15 percent slopes-----	53,098	1.0
25	Hiko Springs gravelly sandy loam, 2 to 4 percent slopes-----	21,270	0.4
26	Holmes very stony sandy loam, 5 to 15 percent slopes-----	6,786	0.1
27	Izamatch-Cliffdown, alkali, complex, 2 to 8 percent slopes-----	95,577	1.8
28	Izamatch, alkali-Cliffdown complex, 2 to 15 percent slopes-----	18,662	0.4
29	Jericho gravelly sandy loam, dry, 2 to 8 percent slopes-----	18,623	0.4
30	Junkett gravelly loam, 2 to 5 percent slopes-----	6,285	0.1
31	Kanosh loam, 0 to 2 percent slopes-----	3,564	*
32	Kanosh-Saltair-Logan complex, 0 to 2 percent slopes-----	40,914	0.8
33	Kapod gravelly loam, 2 to 10 percent slopes-----	2,333	*
34	Kapod stony loam, 5 to 30 percent slopes-----	5,681	0.1
35	Kapod very cobbly loam, 5 to 30 percent slopes-----	44,202	0.8
36	Kilburn gravelly sandy loam, 2 to 10 percent slopes-----	9,403	0.2
37	Lakewin gravelly loam, 1 to 5 percent slopes-----	9,988	0.2
38	Lodur-Lundy-Rock outcrop association, 30 to 60 percent slopes-----	143,366	2.7
39	Logan silt loam, 0 to 1 percent slopes-----	7,241	0.1
40	Lundy-Dateman-Rock outcrop association, 30 to 70 percent slopes-----	23,896	0.5
41	Manassa silt loam, 0 to 3 percent slopes-----	15,339	0.3
42	Medburn fine sandy loam, 2 to 8 percent slopes-----	30,713	0.6
43	Medburn fine sandy loam, saline, 2 to 4 percent slopes-----	24,429	0.5
44	Pits-----	2,066	*
45	Playas-----	1,008,872	19.1
46	Playas-Saltair complex, 0 to 1 percent slopes-----	456,647	8.6
46A	Podmor, moist-Dateman-Rock outcrop association, 30 to 70 percent slopes-----	33,805	0.6
47	Podmor-Onaqui-Rock outcrop association, 20 to 60 percent slopes-----	58,408	1.1
48	Reywat-Broad-Rock outcrop association, 30 to 60 percent slopes-----	106,197	2.0
49	Ridd-Rock outcrop complex, 30 to 70 percent slopes-----	4,042	*
50	Ridd-Wasatch-Rock outcrop association, 6 to 30 percent slopes-----	13,247	0.3
51	Rock outcrop-Lundy complex, 30 to 60 percent slopes-----	10,530	0.2
52	Salt flats-----	127,436	2.4
53	Saltair-Playas complex, 0 to 1 percent slopes-----	153,985	2.9
54	Scalade very fine sandy loam, moist, 2 to 5 percent slopes-----	12,600	0.2
55	Scalade-Jericho-Medburn association, 2 to 15 percent slopes-----	34,185	0.6
56	Skumpah silt loam, 0 to 2 percent slopes-----	196,942	3.7
57	Skumpah silt loam, wet substratum, 0 to 1 percent slopes-----	7,910	0.2
58	Skumpah silt loam, wet substratum, saline, 0 to 1 percent slopes-----	23,933	0.5
59	Skumpah silt loam, saline, 0 to 2 percent slopes-----	90,267	1.7
60	Skumpah-Yenrab complex, saline, 0 to 15 percent slopes-----	58,741	1.1
61	Slickens and mine dumps-----	1,568	*
62	Spager gravelly loam, 2 to 15 percent slopes-----	26,366	0.5
63	Springmeyer gravelly sandy loam, 3 to 7 percent slopes-----	4,443	*

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
64	Taylorflat loam, 1 to 5 percent slopes-----	48,555	0.9
65	Taylorflat loam, saline, 0 to 3 percent slopes-----	35,984	0.7
65A	Theriot-Rock outcrop complex, 15 to 70 percent slopes-----	6,141	0.1
66	Timpie silt loam, 0 to 3 percent slopes-----	97,132	1.8
67	Timpie silt loam, saline, 0 to 4 percent slopes-----	58,408	1.1
68	Timpie-Tooele complex, saline, 0 to 5 percent slopes-----	20,825	0.4
69	Tooele fine sandy loam, 0 to 5 percent slopes-----	217,704	4.1
70	Tooele fine sandy loam, saline, 0 to 5 percent slopes-----	31,859	0.6
71	Yeates Hollow cobbly loam, 6 to 20 percent slopes-----	6,468	0.1
72	Yeates Hollow very cobbly loam, 6 to 40 percent slopes-----	4,167	*
73	Yenrab fine sand, 2 to 15 percent slopes-----	26,549	0.5
74	Yenrab-Badlands complex, 2 to 15 percent slopes-----	15,960	0.3
75	Yenrab-Tooele complex, saline, 0 to 15 percent slopes-----	59,722	1.1
	Water-----	528,713	10.0
	Total-----	5,309,854	100.0

* Less than 0.1 percent.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE

(Yields in the "N" columns are for nonirrigated soils; those in the "I" column 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		Barley		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons		Bu		AUM*		Bu	
1----- Abela	VIIs	IIIe	2.0	5.0	---	80	---	7.0	22	---
2----- Abela	VIIs	---	2.0	5.0	---	80	---	7.0	22	---
3, 4----- Amtoft----- Rock outcrop----	VIIe	---	---	---	---	---	---	---	---	---
5----- Berent----- Hiko Peak-----	VIIIs	---	---	---	---	---	---	---	---	---
6----- Birdow	VIIs	IIe	---	7.0	---	100	---	7.0	---	---
7----- Borvant	VIIIs	---	---	---	---	---	---	---	---	---
8----- Bramwell	VIIw	IVw	---	---	---	90	4.0	8.0	---	---
10----- Broad----- Reywat----- Rock outcrop----	VIIe	---	---	---	---	---	---	---	---	---
11----- Checkett----- Rock outcrop----	VIIIs	---	---	---	---	---	---	---	---	---
12----- Cliffdown	VIIIs	IVe	---	5.0	---	80	---	7.0	---	---
13----- Cristo	VIIe	---	---	---	---	---	---	---	---	---
14, 14A----- Dateman----- Podmor----- Rock outcrop----	VIIe	---	---	---	---	---	---	---	---	---
15----- Doyce	IVs	IIIe	2.0	6.0	---	100	---	7.0	15	---

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons		Bu		AUM*		Bu	
16----- Dune land	VIIIe	---	---	---	---	---	---	---	---	---
17----- Dynal	VIIIs	---	---	---	---	---	---	---	---	---
18----- Dynal-----	VIIIs	---	---	---	---	---	---	---	---	---
Tooele-----	VIIIs	IVs								
19----- Erda	IVs	IIe	2.0	7.0	---	100	---	7.0	22	---
20----- Flygare-----	VIIe	---	---	---	---	---	---	---	---	---
Dateman-----	VIIe	---								
Rock outcrop----	VIIIIs	---								
21----- Hiko Peak	VIIs	IVe	---	5.0	---	80	---	7.0	---	---
22----- Hiko Peak	VIIIs	---	---	---	---	---	---	---	---	---
23----- Hiko Peak-----	VIIs	IVe	---	5.0	---	80	---	7.0	---	---
Checkett-----	VIIIs	---								
24----- Hiko Peak-----	VIIs	IVe	---	5.0	---	80	---	7.0	---	---
Taylor's flat----	VIIs	IIIIs								
25----- Hiko Springs	VIIIs	---	---	---	---	---	---	---	---	---
26----- Holmes	VIIs	---	---	---	---	---	---	---	---	---
27----- Izamatch-----	VIIIs	---	---	---	---	---	---	---	---	---
Cliffdown-----	VIIIs	---								
28----- Izamatch-----	VIIIs	---	---	---	---	---	---	---	---	---
Cliffdown-----	VIIIs	IVe								
29----- Jericho	VIIIs	---	---	---	---	---	---	---	---	---
30----- Junkett	VIIIs	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons		Bu		AUM*		Bu	
31----- Kanosh	VIIw	IIIw	---	6.0	---	80	---	6.0	---	---
32----- Kanosh	VIIw	IIIw	---	6.0	---	80	---	6.0	---	---
Saltair-----	VIIIIs	---								
Logan-----	VIIw	---								
33----- Kapod	IVs	IIIe	2.0	6.0	---	90	---	7.0	25	---
34, 35----- Kapod	VIIs	---	---	---	---	---	---	---	---	---
36----- Kilburn	VIIs	---	---	---	---	---	---	---	---	---
37----- Lakewin	VIIs	IVs	2.0	6.0	---	90	---	7.0	25	---
38----- Lodar	VIIe	---	---	---	---	---	---	---	---	---
Lundy-----	VIIe	---								
Rock outcrop----	VIIIIs	---								
39----- Logan	VIIw	---	---	---	---	---	---	---	---	---
40----- Lundy	VIIe	---	---	---	---	---	---	---	---	---
Dateman-----	VIIe	---								
Rock outcrop----	VIIIIs	---								
41----- Manassa	VIIs	IIIe	---	7.0	---	90	---	7.0	---	---
42----- Medburn	VIIIs	IIIe	---	6.0	---	90	---	7.0	---	---
43----- Medburn	VIIIs	IVs	---	6.0	---	90	---	7.0	---	---
44----- Pits	VIIIIs	---	---	---	---	---	---	---	---	---
45----- Playas	VIIIw	---	---	---	---	---	---	---	---	---
46----- Playas	VIIIw	---	---	---	---	---	---	---	---	---
Saltair-----	VIIIIs	---								

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons		Bu		AUM*		Bu	
46A----- Podmor-----	VIIe	---	---	---	---	---	---	---	---	---
Dateman-----	VIIe	---								
Rock outcrop----	VIIIIs	---								
47----- Podmor-----	VIIe	---	---	---	---	---	---	---	---	---
Onaqui-----	VIIe	---								
Rock outcrop----	VIIIIs	---								
48----- Reywat-----	VIIe	---	---	---	---	---	---	---	---	---
Broad-----	VIIe	---								
Rock outcrop----	VIIIIs	---								
49----- Ridd-----	VIIe	---	---	---	---	---	---	---	---	---
Rock outcrop----	VIIIIs	---								
50----- Ridd-----	VIIIs	---	---	---	---	---	---	---	---	---
Wasatch-----	VIIs	---								
Rock outcrop----	VIIIIs	---								
51----- Rock outcrop----	VIIIIs	---	---	---	---	---	---	---	---	---
Lundy-----	VIIe	---								
52----- Salt flats	VIIIw	---	---	---	---	---	---	---	---	---
53----- Saltair-----	VIIIIs	---	---	---	---	---	---	---	---	---
Playas-----	VIIIw	---								
54----- Scalade	VIIIs	---	---	---	---	---	---	---	---	---
55----- Scalade-----	VIIIs	---	---	---	---	---	---	---	---	---
Jericho-----	VIIIs	---								
Medburn-----	VIIIs	IIIe								
56----- Skumpah	VIIIs	IVs	---	3.5	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Tons		Bu		AUM*		Bu	
57, 58, 59----- Skumpah	VIIIs	---	---	---	---	---	---	---	---	---
60----- Skumpah-----	VIIIs	---	---	---	---	---	---	---	---	---
Yenrab-----	VIIIs	---	---	---	---	---	---	---	---	---
61----- Slickens and mine dumps	VIIIIs	---	---	---	---	---	---	---	---	---
62----- Spager	VIIIs	---	---	---	---	---	---	---	---	---
63----- Springmeyer	VIIs	---	---	---	---	---	---	---	---	---
64----- Taylorsflat	VIIs	IIIIs	---	6.0	---	80	---	7.0	---	---
65----- Taylorsflat	VIIs	IVs	---	6.0	---	80	---	7.0	---	---
65A----- Theriot-----	VIIIs	---	---	---	---	---	---	---	---	---
Rock outcrop----	VIIIIs	---	---	---	---	---	---	---	---	---
66, 67----- Timpie	VIIIs	IVs	---	6.0	---	80	---	7.0	---	---
68----- Timpie-----	VIIIs	IVs	---	---	---	---	---	---	---	---
Tooele-----	VIIIs	IVs	---	---	---	---	---	---	---	---
69, 70----- Tooele	VIIIs	IVs	---	6.0	---	80	---	7.0	---	---
71----- Yeates Hollow	IVe	---	---	---	---	---	---	---	---	---
72----- Yeates Hollow	VIe	---	---	---	---	---	---	---	---	---
73----- Yenrab	VIIIs	---	---	---	---	---	---	---	---	---
74----- Yenrab-----	VIIIs	---	---	---	---	---	---	---	---	---
Badlands-----	VIIIIs	---	---	---	---	---	---	---	---	---
75----- Yenrab-----	VIIIs	---	---	---	---	---	---	---	---	---
Tooele-----	VIIIs	IVs	---	---	---	---	---	---	---	---

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
1----- Abela	Upland Gravelly Loam (Mountain Big Sagebrush)	Favorable	1,000	Bluebunch wheatgrass-----	25
		Normal	800	Mountain big sagebrush-----	25
		Unfavorable	400	Bluegrass-----	15
				Antelope bitterbrush-----	10
				Other perennial forbs-----	5
				Needleandthread-----	5
				Other perennial grasses-----	5
				Phlox-----	5
		Other shrubs-----	5		
2----- Abela	Upland Stony Loam (Pinyon-Utah Juniper)	Favorable	750	Bluebunch wheatgrass-----	15
		Normal	550	Mountain big sagebrush-----	15
		Unfavorable	350	Birchleaf mountainmahogany-----	10
				Indian ricegrass-----	10
				Black sagebrush-----	10
				Bluegrass-----	10
				Antelope bitterbrush-----	10
				Other perennial grasses-----	5
				Other perennial forbs-----	5
				Needleandthread-----	5
		Other shrubs-----	5		
3: Amtoft-----	Semidesert Shallow Loam (Utah Juniper-Salina Wildrye)	Favorable	350	Saline wildrye-----	30
		Normal	250	Black sagebrush-----	25
		Unfavorable	175	Indian ricegrass-----	10
				Shadscale-----	10
				Nevada bluegrass-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Globemallow-----	5
Rock outcrop.					
4: Amtoft-----	Semidesert Shallow Loam (Utah Juniper-Bluebunch Wheatgrass)	Favorable	350	Black sagebrush-----	30
		Normal	250	Bluebunch wheatgrass-----	25
		Unfavorable	175	Indian ricegrass-----	10
				Other perennial grasses-----	10
				Nevada bluegrass-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Shadscale-----	5
				Globemallow-----	5
Rock outcrop.					
5: Berent-----	Semidesert Sand (Utah Juniper)	Favorable	920	Needleandthread-----	20
		Normal	750	Indian ricegrass-----	15
		Unfavorable	570	Fourwing saltbush-----	10
				Other perennial forbs-----	10
				Basin big sagebrush-----	5
				Bud sagebrush-----	5
				Other perennial grasses-----	5
				Spiny hopsage-----	5
				Lemon scurfpea-----	5
				Skunkbush sumac-----	5
				Scarlet globemallow-----	5
				Sand dropseed-----	5
				Other shrubs-----	5

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
5: Hiko Peak-----	Semidesert Gravelly Loam (Wyoming Big Sagebrush) North	Favorable	1,000	Wyoming big sagebrush-----	25
		Normal	800	Bluebunch wheatgrass-----	20
		Unfavorable	500	Indian ricegrass-----	10
				Douglas rabbitbrush-----	5
				Rose pussytoes-----	5
				Hood phlox-----	5
				Shadscale-----	5
				Nevada bluegrass-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
		6----- Birdow	Loamy Bottom (Basin Wildrye)	Favorable	2,500
Normal	1,500			Basin big sagebrush-----	10
Unfavorable	1,000			Other perennial grasses-----	10
				Rubber rabbitbrush-----	5
				Western wheatgrass-----	5
				Other shrubs-----	5
				Nevada bluegrass-----	5
				Other perennial forbs-----	5
				Tapertip hawksbeard-----	5
7----- Borvant	Upland Shallow Hardpan (Pinyon- Utah Juniper)	Favorable	850	Black sagebrush-----	20
		Normal	700	Bluebunch wheatgrass-----	15
		Unfavorable	400	Wyoming big sagebrush-----	10
				Antelope bitterbrush-----	10
				Indian ricegrass-----	10
				Phlox-----	5
				Needleandthread-----	5
				Bluegrass-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Mexican cliffrose-----	5
				Other shrubs-----	5
8----- Bramwell	Alkali Bottom (Alkali Sacaton)	Favorable	2,500	Alkali sacaton-----	20
		Normal	1,700	Coastal saltgrass-----	20
		Unfavorable	1,000	Alkali bluegrass-----	15
				Basin wildrye-----	10
				Black greasewood-----	5
				Douglas sedge-----	5
10: Broad-----	Mountain Gravelly Loam (Oak)	Favorable	2,300	Gambel oak-----	30
		Normal	1,900	Bearded wheatgrass-----	15
		Unfavorable	1,500	Bigtooth maple-----	5
				Bluebunch wheatgrass-----	5
				Mountain big sagebrush-----	5
				Aster-----	5
				Mountain brome-----	5
				Birchleaf mountainmahogany-----	5
				Nevada bluegrass-----	5
		Mountain snowberry-----	5		

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo-
		Kind of year	Dry weight		sition
			Lb/acre		Pct
10: Reywat-----	Upland Shallow Loam (Black Sagebrush)	Favorable	800	Black sagebrush-----	30
		Normal	600	Bluebunch wheatgrass-----	25
		Unfavorable	300	Bluegrass-----	10
				Other shrubs-----	10
				Needleandthread-----	5
				Douglas rabbitbrush-----	5
				Hood phlox-----	5
				Other perennial forbs-----	5
Other perennial grasses-----	5				
11: Checkett-----	Semidesert Shallow Loam (Black Sagebrush)	Favorable	700	Black sagebrush-----	25
		Normal	550	Bluebunch wheatgrass-----	20
		Unfavorable	400	Indian ricegrass-----	10
				Horsebrush-----	10
				Shadscale-----	5
				Nevada bluegrass-----	5
				Douglas rabbitbrush-----	5
				Other perennial forbs-----	5
				Bottlebrush squirreltail-----	5
				Other shrubs-----	5
Needleandthread-----	5				
Rock outcrop.					
12----- Cliffdown	Desert Gravelly Loam (Shadscale)	Favorable	500	Shadscale-----	20
		Normal	400	Galleta-----	20
		Unfavorable	300	Bud sagebrush-----	10
				Indian ricegrass-----	10
				Winterfat-----	5
				Douglas rabbitbrush-----	5
				Mormon tea-----	5
				Other perennial forbs-----	5
				Horsebrush-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
				Other shrubs-----	5
				13----- Cristo	Mountain Gravelly Loam (Mountain Big Sagebrush)
Normal	1,325	Birchleaf mountainmahogany-----	15		
Unfavorable	800	Mountain big sagebrush-----	10		
		Bluegrass-----	10		
		Phlox-----	5		
		Western wheatgrass-----	5		
		Other perennial forbs-----	5		
		Saskatoon serviceberry-----	5		
		Other perennial grasses-----	5		
		Mountain snowberry-----	5		
		Antelope bitterbrush-----	5		
		Gambel oak-----	5		
		Needlegrass-----	5		

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
14: Dateman-----	High Mountain Stony Loam (Conifer)	Favorable Normal Unfavorable	320 160 80	Mountain brome----- Sedge----- Oregongrape----- Mountain snowberry----- Other perennial grasses----- Currant----- Bluegrass----- Violet----- Other perennial forbs----- Mountain big sagebrush----- Sheep fescue----- Other shrubs----- Slender wheatgrass----- Fendler meadowrue-----	10 10 10 10 10 10 5 5 5 5 5 5 5 5
Podmor-----	Mountain Stony Loam (Antelope Bitterbrush)	Favorable Normal Unfavorable	1,750 1,500 850	Bluebunch wheatgrass----- Other perennial grasses----- Bulbous oniongrass----- Antelope bitterbrush----- Other shrubs----- Arrowleaf balsamroot----- Idaho fescue----- Other perennial forbs----- Mountain big sagebrush----- Prairie junegrass-----	25 20 10 10 10 5 5 5 5 5
Rock outcrop.					
14A: Dateman-----	High Mountain Stony Loam (Conifer)	Favorable Normal Unfavorable	320 160 80	Mountain brome----- Sedge----- Oregongrape----- Mountain snowberry----- Other perennial grasses----- Currant----- Bluegrass----- Violet----- Other perennial forbs----- Mountain big sagebrush----- Sheep fescue----- Other shrubs----- Slender wheatgrass----- Fendler meadowrue-----	10 10 10 10 10 10 5 5 5 5 5 5 5
Podmor-----	Mountain Gravelly Loam (Oak)	Favorable Normal Unfavorable	2,300 1,900 1,500	Gambel oak----- Bearded wheatgrass----- Other shrubs----- Other perennial grasses----- Mountain snowberry----- Mountain big sagebrush----- Bluebunch wheatgrass----- Other perennial forbs-----	30 15 10 10 5 5 5 5
Rock outcrop.					

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
15----- Doyce	Upland Loam (Basin Big Sagebrush)	Favorable	1,400	Bluebunch wheatgrass-----	25
		Normal	1,200	Mountain big sagebrush-----	15
		Unfavorable	700	Bluegrass-----	10
				Indian ricegrass-----	10
				Douglas rabbitbrush-----	5
				Western wheatgrass-----	5
				Arrowleaf balsamroot-----	5
				Other perennial forbs-----	5
				Other shrubs-----	5
				Other perennial grasses-----	5
		Antelope bitterbrush-----	5		
		Bottlebrush squirreltail-----	5		
17----- DynaI	Desert Oolitic Dunes (Black Greasewood)	Favorable	500	Black greasewood-----	30
		Normal	400	Fourwing saltbush-----	20
		Unfavorable	200	Torrey seepweed-----	20
				Shadscale-----	10
				Other annual forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
				Other shrubs-----	5
18: DynaI-----	Desert Oolitic Dunes (Black Greasewood)	Favorable	500	Black greasewood-----	30
		Normal	400	Fourwing saltbush-----	20
		Unfavorable	200	Torrey seepweed-----	20
				Shadscale-----	10
				Other annual forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
				Other shrubs-----	5
Tooele-----	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood-----	50
		Normal	700	Bottlebrush squirreltail-----	15
		Unfavorable	300	Other perennial grasses-----	5
				Shadscale-----	5
				Other annual forbs-----	5
				Seepweed-----	5
				Trident saltbush-----	5
				Alkali sacaton-----	5
				Other shrubs-----	5
19----- Erda	Upland Loam (Basin Big Sagebrush)	Favorable	1,400	Bluebunch wheatgrass-----	25
		Normal	1,200	Mountain big sagebrush-----	15
		Unfavorable	700	Bluegrass-----	10
				Indian ricegrass-----	10
				Douglas rabbitbrush-----	5
				Western wheatgrass-----	5
				Arrowleaf balsamroot-----	5
				Other perennial forbs-----	5
				Other shrubs-----	5
				Other perennial grasses-----	5
		Antelope bitterbrush-----	5		
		Bottlebrush squirreltail-----	5		

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
20: Flygare-----	High Mountain Loam (Aspen)	Favorable	3,250	Mountain brome-----	10
		Normal	2,275	Blue wildrye-----	10
		Unfavorable	1,300	Other perennial grasses-----	10
				Mountain snowberry-----	10
				Other shrubs-----	10
				Nodding bluegrass-----	5
				Bearded wheatgrass-----	5
				Other perennial forbs-----	5
				Edible valerian-----	5
				Oregongrape-----	5
				Common chokecherry-----	5
				Butterweed-----	5
				Aspen peavine-----	5
				Sweetanise-----	5
				Fendler meadowrue-----	5
Dateman-----	High Mountain Stony Loam (Conifer)	Favorable	320	Mountain brome-----	10
		Normal	160	Sedge-----	10
		Unfavorable	80	Oregongrape-----	10
				Mountain snowberry-----	10
				Other perennial grasses-----	10
				Currant-----	10
				Bluegrass-----	5
				Violet-----	5
				Other perennial forbs-----	5
				Mountain big sagebrush-----	5
				Sheep fescue-----	5
				Other shrubs-----	5
				Slender wheatgrass-----	5
				Fendler meadowrue-----	5
Rock outcrop.					
21----- Hiko Peak	Semidesert Gravelly Loam (Wyoming Big Sagebrush) North	Favorable	1,000	Wyoming big sagebrush-----	25
		Normal	800	Bluebunch wheatgrass-----	20
		Unfavorable	500	Indian ricegrass-----	10
				Douglas rabbitbrush-----	5
				Rose pussytoes-----	5
				Hood phlox-----	5
				Shadscale-----	5
				Nevada bluegrass-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
22----- Hiko Peak	Semidesert Stony Loam (Black Sagebrush)	Favorable	700	Black sagebrush-----	30
		Normal	600	Indian ricegrass-----	15
		Unfavorable	400	Shadscale-----	10
				Bluebunch wheatgrass-----	10
				Other shrubs-----	10
				Douglas rabbitbrush-----	5
				Winterfat-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
23: Hiko Peak-----	Semidesert Gravelly Loam (Wyoming Big Sagebrush) North	Favorable	1,000	Wyoming big sagebrush-----	25
		Normal	800	Bluebunch wheatgrass-----	20
		Unfavorable	500	Indian ricegrass-----	10
				Douglas rabbitbrush-----	5
				Rose pussytoes-----	5
				Hood phlox-----	5
				Shadscale-----	5
				Nevada bluegrass-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
		Checkett-----	Semidesert Shallow Loam (Black Sagebrush)	Favorable	700
Normal	550			Bluebunch wheatgrass-----	20
Unfavorable	400			Indian ricegrass-----	10
				Horsebrush-----	10
				Shadscale-----	5
				Nevada bluegrass-----	5
				Douglas rabbitbrush-----	5
				Other perennial forbs-----	5
				Bottlebrush squirreltail-----	5
				Other shrubs-----	5
		Needleandthread-----	5		
24: Hiko Peak-----	Semidesert Gravelly Loam (Wyoming Big Sagebrush) North	Favorable	1,000	Wyoming big sagebrush-----	25
		Normal	800	Bluebunch wheatgrass-----	20
		Unfavorable	500	Indian ricegrass-----	10
				Douglas rabbitbrush-----	5
				Rose pussytoes-----	5
				Hood phlox-----	5
				Shadscale-----	5
				Nevada bluegrass-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
		Taylorsflat-----	Semidesert Loam (Wyoming Big Sagebrush)	Favorable	900
Normal	700			Wyoming big sagebrush-----	20
Unfavorable	500			Indian ricegrass-----	10
				Other shrubs-----	10
				Bottlebrush squirreltail-----	10
				Needleandthread-----	5
				Hood phlox-----	5
				Douglas rabbitbrush-----	5
				Scarlet globemallow-----	5
				Penstemon-----	5
25----- Hiko Springs	Desert Sandy Loam (Shadscale)	Favorable	600	Indian ricegrass-----	30
		Normal	450	Shadscale-----	15
		Unfavorable	200	Winterfat-----	15
				Galleta-----	5
				Douglas rabbitbrush-----	5
				Bud sagebrush-----	5
				Needleandthread-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
				Other shrubs-----	5

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo-
		Kind of year	Dry weight		sition
			Lb/acre		Pct
26----- Holmes	Upland Gravelly Loam (Mountain Big Sagebrush)	Favorable	1,000	Bluebunch wheatgrass-----	25
		Normal	800	Mountain big sagebrush-----	25
		Unfavorable	400	Bluegrass-----	15
				Antelope bitterbrush-----	10
				Other perennial forbs-----	5
				Needleandthread-----	5
				Other perennial grasses-----	5
				Phlox-----	5
				Other shrubs-----	5
27: Izamatch-----	Desert Gravelly Sandy Loam (Indian Ricegrass)	Favorable	600	Indian ricegrass-----	25
		Normal	500	Shadscale-----	15
		Unfavorable	400	Winterfat-----	10
				Galleta-----	10
				Horsebrush-----	10
				Bottlebrush squirreltail-----	5
				Needleandthread-----	5
				Bud sagebrush-----	5
Cliffdown-----	Desert Alkali Bench (Bud Sagebrush)	Favorable	350	Bud sagebrush-----	40
		Normal	250	Galleta-----	15
		Unfavorable	150	Shadscale-----	10
				Mormon tea-----	5
				Green molly kochia-----	5
				Other shrubs-----	5
				Indian ricegrass-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
		Bottlebrush squirreltail-----	5		
28: Izamatch-----	Desert Alkali Bench (Bud Sagebrush)	Favorable	350	Bud sagebrush-----	40
		Normal	250	Bottlebrush squirreltail-----	15
		Unfavorable	150	Shadscale-----	10
				Galleta-----	5
				Mormon tea-----	5
				Green molly kochia-----	5
				Indian ricegrass-----	5
Cliffdown-----	Desert Gravelly Loam (Shadscale)	Favorable	500	Shadscale-----	20
		Normal	400	Galleta-----	20
		Unfavorable	300	Bud sagebrush-----	10
				Indian ricegrass-----	10
				Winterfat-----	5
				Douglas rabbitbrush-----	5
				Mormon tea-----	5
				Other perennial forbs-----	5
				Horsebrush-----	5
		Other perennial grasses-----	5		
		Bottlebrush squirreltail-----	5		
		Other shrubs-----	5		
29----- Jericho	Semidesert Shallow Hardpan (8-10 Ppt)	Favorable	600	Black sagebrush-----	30
		Normal	400	Indian ricegrass-----	20
		Unfavorable	250	Needleandthread-----	10
				Other perennial grasses-----	10
				Phlox-----	5
				Winterfat-----	5
				Other perennial forbs-----	5
				Douglas rabbitbrush-----	5
				Bottlebrush squirreltail-----	5
		Other shrubs-----	5		

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
30----- Junkett	Semidesert Loam (Wyoming Big Sagebrush)	Favorable	900	Bluebunch wheatgrass-----	25
		Normal	700	Wyoming big sagebrush-----	20
		Unfavorable	500	Indian ricegrass-----	10
				Other shrubs-----	10
				Bottlebrush squirreltail-----	10
				Needleandthread-----	5
				Hood phlox-----	5
				Douglas rabbitbrush-----	5
				Scarlet globemallow-----	5
Penstemon-----	5				
31----- Kanosh	Alkali Bottom (Alkali Sacaton)	Favorable	2,500	Alkali sacaton-----	20
		Normal	1,750	Inland saltgrass-----	20
		Unfavorable	1,000	Alkali bluegrass-----	15
				Basin wildrye-----	10
				Sedge-----	5
				Rush-----	5
				Other perennial forbs-----	5
				Other shrubs-----	5
				Other perennial grasses-----	5
				Black greasewood-----	5
				Trident saltbush-----	5
				32: Kanosh-----	Alkali Bottom (Alkali Sacaton)
Normal	1,750	Inland saltgrass-----	20		
Unfavorable	1,000	Alkali bluegrass-----	15		
		Basin wildrye-----	10		
		Sedge-----	5		
		Rush-----	5		
		Other perennial forbs-----	5		
		Other shrubs-----	5		
		Other perennial grasses-----	5		
		Black greasewood-----	5		
		Trident saltbush-----	5		
		Saltair-----	Desert Salty Silt (Pickleweed)		
Normal	200			Inland saltgrass-----	35
Unfavorable	100			Europe swampfire-----	5
				Seepweed-----	5
Logan-----	Wet Saline Meadow	Favorable	4,000	Alkali sacaton-----	20
		Normal	3,000	Rush-----	10
		Unfavorable	2,000	Sedge-----	10
				Inland saltgrass-----	10
				Europe swampfire-----	10
				Bulrush-----	10
				Western seepweed-----	5
				Alkali bluegrass-----	5
				Showy milkweed-----	5
				Pickleweed-----	5
				Common reed-----	5
				Alkali cordgrass-----	5

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
33, 34----- Kapod	Upland Gravelly Loam (Mountain Big Sagebrush)	Favorable	1,000	Bluebunch wheatgrass-----	25
		Normal	800	Mountain big sagebrush-----	25
		Unfavorable	400	Bluegrass-----	15
				Antelope bitterbrush-----	10
				Other perennial forbs-----	5
				Needleandthread-----	5
				Other perennial grasses-----	5
				Phlox-----	5
				Other shrubs-----	5
35----- Kapod	Upland Stony Loam (Pinyon-Utah Juniper)	Favorable	750	Bluebunch wheatgrass-----	15
		Normal	550	Mountain big sagebrush-----	15
		Unfavorable	350	Birchleaf mountainmahogany-----	10
				Indian ricegrass-----	10
				Black sagebrush-----	10
				Bluegrass-----	10
				Antelope bitterbrush-----	10
				Other perennial grasses-----	5
				Other perennial forbs-----	5
		Needleandthread-----	5		
		Other shrubs-----	5		
36----- Kilburn	Upland Gravelly Loam (Mountain Big Sagebrush)	Favorable	1,000	Bluebunch wheatgrass-----	25
		Normal	800	Mountain big sagebrush-----	25
		Unfavorable	400	Bluegrass-----	15
				Antelope bitterbrush-----	10
				Other perennial forbs-----	5
				Needleandthread-----	5
				Other perennial grasses-----	5
				Phlox-----	5
				Other shrubs-----	5
37----- Lakewin	Upland Gravelly Loam (Mountain Big Sagebrush)	Favorable	1,000	Bluebunch wheatgrass-----	25
		Normal	800	Mountain big sagebrush-----	25
		Unfavorable	400	Bluegrass-----	15
				Antelope bitterbrush-----	10
				Other perennial forbs-----	5
				Needleandthread-----	5
				Other perennial grasses-----	5
				Phlox-----	5
				Other shrubs-----	5
38: Lodar-----	Upland Shallow Loam (Pinyon- Utah Juniper)	Favorable	700	Bluebunch wheatgrass-----	20
		Normal	500	Black sagebrush-----	15
		Unfavorable	200	Indian ricegrass-----	10
				Bluegrass-----	10
				Birchleaf mountainmahogany-----	5
				Mexican cliffrose-----	5
				Mountain big sagebrush-----	5
				Blue grama-----	5
				Other perennial forbs-----	5
				Needleandthread-----	5
				Other perennial grasses-----	5
				Antelope bitterbrush-----	5
				Other shrubs-----	5

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
38: Lundy----- Rock outcrop.	Mountain Shallow Loam (Low Sagebrush)	Favorable	1,300	Bluebunch wheatgrass-----	30
		Normal	1,100	Black sagebrush-----	15
		Unfavorable	600	Other shrubs-----	10
				Antelope bitterbrush-----	10
				Bluegrass-----	10
				Arrowleaf balsamroot-----	5
				Low sagebrush-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Indian ricegrass-----	5
		39----- Logan	Wet Saline Meadow	Favorable	4,000
Normal	3,000			Rush-----	10
Unfavorable	2,000			Sedge-----	10
				Inland saltgrass-----	10
				Europe swampfire-----	10
				Bulrush-----	10
				Western seepweed-----	5
				Alkali bluegrass-----	5
				Showy milkweed-----	5
				Pickleweed-----	5
				Common reed-----	5
				Alkali cordgrass-----	5
40: Lundy-----	Mountain Shallow Loam (Low Sagebrush)			Favorable	1,300
		Normal	1,100	Black sagebrush-----	15
		Unfavorable	600	Other shrubs-----	10
				Antelope bitterbrush-----	10
				Bluegrass-----	10
				Arrowleaf balsamroot-----	5
				Low sagebrush-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Indian ricegrass-----	5
		Dateman-----	High Mountain Stony Loam (Conifer)	Favorable	320
Normal	160			Sedge-----	10
Unfavorable	80			Oregongrape-----	10
				Mountain snowberry-----	10
				Other perennial grasses-----	10
				Currant-----	10
				Bluegrass-----	5
				Violet-----	5
				Other perennial forbs-----	5
				Mountain big sagebrush-----	5
				Sheep fescue-----	5
				Other shrubs-----	5
				Slender wheatgrass-----	5
		Fendler meadowrue-----	5		
Rock outcrop.					

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
41----- Manassa	Semidesert Alkali Loam (Black Greasewood)	Favorable	750	Wyoming big sagebrush-----	20
		Normal	600	Black greasewood-----	20
		Unfavorable	300	Bottlebrush squirreltail-----	15
				Indian ricegrass-----	5
				Milkvetch-----	5
				Nevada bluegrass-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Shadscale-----	5
				Douglas rabbitbrush-----	5
		Scarlet globemallow-----	5		
42----- Medburn	Semidesert Loam (Wyoming Big Sagebrush)	Favorable	900	Bluebunch wheatgrass-----	25
		Normal	700	Wyoming big sagebrush-----	20
		Unfavorable	500	Indian ricegrass-----	10
				Other shrubs-----	10
				Bottlebrush squirreltail-----	10
				Needleandthread-----	5
				Hood phlox-----	5
				Douglas rabbitbrush-----	5
				Scarlet globemallow-----	5
				Penstemon-----	5
43----- Medburn	Semidesert Alkali Loam (Black Greasewood)	Favorable	750	Wyoming big sagebrush-----	20
		Normal	600	Black greasewood-----	20
		Unfavorable	300	Bottlebrush squirreltail-----	15
				Indian ricegrass-----	5
				Milkvetch-----	5
				Nevada bluegrass-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Shadscale-----	5
				Douglas rabbitbrush-----	5
		Scarlet globemallow-----	5		
46: Playas.	Saltair----- Desert Salty Silt (Pickleweed)	Favorable	250	Pickleweed-----	50
		Normal	200	Seepweed-----	5
		Unfavorable	100	Other shrubs-----	5
				Europe swampfire-----	5
				Inland saltgrass-----	35
46A: Podmor-----	Mountain Gravelly Loam (Oak)	Favorable	2,300	Gambel oak-----	30
		Normal	1,900	Bearded wheatgrass-----	15
		Unfavorable	1,500	Other shrubs-----	10
				Other perennial grasses-----	10
				Mountain snowberry-----	5
				Mountain big sagebrush-----	5
				Bluebunch wheatgrass-----	5
		Other perennial forbs-----	5		

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
46A: Dateman-----	High Mountain Stony Loam (Conifer)	Favorable	320	Mountain brome-----	10
		Normal	160	Sedge-----	10
		Unfavorable	80	Oregongrape-----	10
				Mountain snowberry-----	10
				Other perennial grasses-----	10
				Currant-----	10
				Bluegrass-----	5
				Violet-----	5
				Other perennial forbs-----	5
				Mountain big sagebrush-----	5
				Sheep fescue-----	5
				Other shrubs-----	5
				Slender wheatgrass-----	5
				Fendler meadowrue-----	5
Rock outcrop.					
47: Podmor-----	Mountain Stony Loam (Antelope Bitterbrush)	Favorable	1,750	Bluebunch wheatgrass-----	25
		Normal	1,500	Other perennial grasses-----	20
		Unfavorable	850	Bulbous oniongrass-----	10
				Antelope bitterbrush-----	10
				Other shrubs-----	10
				Arrowleaf balsamroot-----	5
				Idaho fescue-----	5
				Other perennial forbs-----	5
				Mountain big sagebrush-----	5
				Prairie junegrass-----	5
Onaqui-----	Mountain Windswept Ridge	Favorable	350	Low sagebrush-----	20
		Normal	250	Bluebunch wheatgrass-----	15
		Unfavorable	150	Idaho fescue-----	10
				Other perennial grasses-----	10
				Other shrubs-----	10
				Other perennial forbs-----	10
				Stemless goldenweed-----	5
				Bluegrass-----	5
				Douglas rabbitbrush-----	5
				Hood phlox-----	5
				Wormleaf stonecrop-----	5
Rock outcrop.					
48: Reywat-----	Upland Shallow Loam (Pinyon- Utah Juniper)	Favorable	700	Bluebunch wheatgrass-----	20
		Normal	500	Black sagebrush-----	15
		Unfavorable	200	Bluegrass-----	10
				Indian ricegrass-----	10
				Birchleaf mountainmahogany-----	5
				Mountain big sagebrush-----	5
				Blue grama-----	5
				Other perennial forbs-----	5
				Needleandthread-----	5
				Other perennial grasses-----	5
				Antelope bitterbrush-----	5
				Other shrubs-----	5

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
48: Broad-----	Mountain Stony Loam (Antelope Bitterbrush)	Favorable	1,750	Bluebunch wheatgrass-----	25
		Normal	1,500	Antelope bitterbrush-----	10
		Unfavorable	850	Bulbous oniongrass-----	10
				Idaho fescue-----	5
				Arrowleaf balsamroot-----	5
				Prairie junegrass-----	5
				Mountain big sagebrush-----	5
Rock outcrop.					
49: Ridd-----	Upland Stony Loam (Wyoming Big Sagebrush)	Favorable	1,500	Bluebunch wheatgrass-----	20
		Normal	900	Wyoming big sagebrush-----	20
		Unfavorable	500	Other shrubs-----	10
				Other perennial grasses-----	10
				Douglas rabbitbrush-----	5
				Hood phlox-----	5
				Prairie junegrass-----	5
				Muttongrass-----	5
				Other perennial forbs-----	5
				Indian ricegrass-----	5
				Antelope bitterbrush-----	5
				Bottlebrush squirreltail-----	5
Rock outcrop.					
50: Ridd-----	Upland Stony Loam (Wyoming Big Sagebrush)	Favorable	1,500	Bluebunch wheatgrass-----	20
		Normal	900	Wyoming big sagebrush-----	20
		Unfavorable	500	Other shrubs-----	10
				Other perennial grasses-----	10
				Douglas rabbitbrush-----	5
				Hood phlox-----	5
				Prairie junegrass-----	5
				Muttongrass-----	5
				Other perennial forbs-----	5
				Indian ricegrass-----	5
				Antelope bitterbrush-----	5
				Bottlebrush squirreltail-----	5
Wasatch-----		Upland Sand (Indian Ricegrass)	Favorable	1,400	Indian ricegrass-----
	Normal		900	Needleandthread-----	15
	Unfavorable		700	Antelope bitterbrush-----	10
				Other perennial forbs-----	10
				Western wheatgrass-----	10
				Rubber rabbitbrush-----	5
				Basin big sagebrush-----	5
				Arrowleaf balsamroot-----	5
				Other perennial grasses-----	5
				Louisiana sagewort-----	5
				Sand dropseed-----	5
				Other shrubs-----	5
Rock outcrop.					
51: Rock outcrop.					

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
51: Lundy-----	Mountain Shallow Loam (Low Sagebrush)	Favorable	1,300	Bluebunch wheatgrass-----	30
		Normal	1,100	Other perennial grasses-----	5
		Unfavorable	600	Other perennial forbs-----	5
				Indian ricegrass-----	5
				Arrowleaf balsamroot-----	5
				Low sagebrush-----	5
				Other shrubs-----	10
				Antelope bitterbrush-----	10
				Bluegrass-----	10
				Black sagebrush-----	15
53: Saltair-----	Desert Salty Silt (Pickleweed)	Favorable	250	Pickleweed-----	50
		Normal	200	Inland saltgrass-----	35
		Unfavorable	100	Europe swampfire-----	5
				Seepweed-----	5
				Other shrubs-----	5
Playas.					
54----- Scalade	Semidesert Loam (Wyoming Big Sagebrush)	Favorable	900	Bluebunch wheatgrass-----	25
		Normal	700	Wyoming big sagebrush-----	20
		Unfavorable	500	Other shrubs-----	10
				Indian ricegrass-----	10
				Bottlebrush squirreltail-----	10
				Penstemon-----	5
				Douglas rabbitbrush-----	5
				Hood phlox-----	5
				Needleandthread-----	5
				Scarlet globemallow-----	5
				Winterfat-----	0
				Other perennial grasses-----	0
				Other perennial forbs-----	0
		Phlox-----	0		
		Black sagebrush-----	0		
55: Scalade-----	Semidesert Shallow Hardpan (8-10 Ppt)	Favorable	600	Black sagebrush-----	30
		Normal	400	Indian ricegrass-----	20
		Unfavorable	250	Needleandthread-----	10
				Other perennial grasses-----	10
				Winterfat-----	5
				Douglas rabbitbrush-----	5
				Other perennial forbs-----	5
				Other shrubs-----	5
				Phlox-----	5
				Bottlebrush squirreltail-----	5
				Bluebunch wheatgrass-----	0
				Hood phlox-----	0
				Wyoming big sagebrush-----	0
		Scarlet globemallow-----	0		
		Penstemon-----	0		

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
55: Jericho-----	Semidesert Shallow Hardpan (Utah Juniper)	Favorable	600	Black sagebrush-----	20
		Normal	400	Bluebunch wheatgrass-----	15
		Unfavorable	300	Indian ricegrass-----	15
				Winterfat-----	10
				Other shrubs-----	10
				Douglas rabbitbrush-----	5
				Mormon tea-----	5
				Other perennial forbs-----	5
				Needleandthread-----	5
				Bottlebrush squirreltail-----	5
		Thickstem wildcabbage-----	5		
Medburn-----	Semidesert Loam (Wyoming Big Sagebrush)	Favorable	900	Bluebunch wheatgrass-----	25
		Normal	700	Wyoming big sagebrush-----	20
		Unfavorable	500	Indian ricegrass-----	10
				Other shrubs-----	10
				Bottlebrush squirreltail-----	10
				Needleandthread-----	5
				Hood phlox-----	5
				Douglas rabbitbrush-----	5
				Scarlet globemallow-----	5
				Penstemon-----	5
56----- Skumpah	Desert Flat (Shadscale)	Favorable	650	Shadscale-----	55
		Normal	450	Winterfat-----	10
		Unfavorable	350	Bottlebrush squirreltail-----	10
				Gray molly-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Bud sagebrush-----	5
57----- Skumpah	Alkali Bottom (Alkali Sacaton)	Favorable	2,500	Alkali sacaton-----	20
		Normal	1,750	Inland saltgrass-----	20
		Unfavorable	1,000	Alkali bluegrass-----	15
				Basin wildrye-----	10
				Sedge-----	5
				Rush-----	5
				Other perennial forbs-----	5
				Other shrubs-----	5
				Other perennial grasses-----	5
				Black greasewood-----	5
		Trident saltbush-----	5		
58----- Skumpah	Desert Salt Flat (Sickle Saltbush)	Favorable	400	Sickle saltbush-----	55
		Normal	300	Gray molly-----	15
		Unfavorable	100	Other shrubs-----	10
				Other perennial grasses-----	5
				Seepweed-----	5
				Bottlebrush squirreltail-----	5
		Other perennial forbs-----	5		
59----- Skumpah	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood-----	50
		Normal	700	Bottlebrush squirreltail-----	15
		Unfavorable	350	Other perennial grasses-----	5
				Shadscale-----	5
				Other annual forbs-----	5
				Seepweed-----	5
				Trident saltbush-----	5
				Alkali sacaton-----	5
		Other shrubs-----	5		

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
60: Skumpah-----	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood-----	50
		Normal	700	Bottlebrush squirreltail-----	15
		Unfavorable	350	Other perennial grasses-----	5
			Shadscale-----	5	
			Other annual forbs-----	5	
			Seepweed-----	5	
			Trident saltbush-----	5	
			Alkali sacaton-----	5	
			Other shrubs-----	5	
Yenrab-----	Desert Alkali Sand (Fourwing Saltbush)	Favorable	700	Indian ricegrass-----	30
		Normal	500	Fourwing saltbush-----	15
		Unfavorable	350	Douglas rabbitbrush-----	10
			Other shrubs-----	10	
			Alkali sacaton-----	10	
			Black greasewood-----	10	
			Other perennial grasses-----	5	
			Bottlebrush squirreltail-----	5	
			Other perennial forbs-----	5	
62----- Spager	Semidesert Shallow Hardpan (8-10 Ppt)	Favorable	600	Black sagebrush-----	30
		Normal	400	Indian ricegrass-----	20
		Unfavorable	250	Needleandthread-----	10
			Other perennial grasses-----	10	
			Phlox-----	5	
			Winterfat-----	5	
			Other perennial forbs-----	5	
			Douglas rabbitbrush-----	5	
			Bottlebrush squirreltail-----	5	
			Other shrubs-----	5	
63----- Springmeyer	Upland Gravelly Loam (Mountain Big Sagebrush)	Favorable	1,000	Bluebunch wheatgrass-----	25
		Normal	800	Mountain big sagebrush-----	25
		Unfavorable	400	Bluegrass-----	15
			Antelope bitterbrush-----	10	
			Other perennial forbs-----	5	
			Needleandthread-----	5	
			Other perennial grasses-----	5	
			Phlox-----	5	
			Other shrubs-----	5	
64----- Taylorsflat	Semidesert Loam (Wyoming Big Sagebrush)	Favorable	900	Bluebunch wheatgrass-----	25
		Normal	700	Wyoming big sagebrush-----	20
		Unfavorable	500	Indian ricegrass-----	10
			Other shrubs-----	10	
			Bottlebrush squirreltail-----	10	
			Needleandthread-----	5	
			Hood phlox-----	5	
			Douglas rabbitbrush-----	5	
			Scarlet globemallow-----	5	
			Penstemon-----	5	

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
65----- Taylorsflat	Semidesert Alkali Loam (Black Greasewood)	Favorable	750	Wyoming big sagebrush-----	20
		Normal	600	Black greasewood-----	20
		Unfavorable	300	Bottlebrush squirreltail-----	15
				Indian ricegrass-----	5
				Milkvetch-----	5
				Nevada bluegrass-----	5
				Other shrubs-----	5
				Other perennial forbs-----	5
				Shadscale-----	5
				Douglas rabbitbrush-----	5
		Scarlet globemallow-----	5		
65A: Theriot-----	Desert Shallow Loam (Shadscale)	Favorable	300	Shadscale-----	30
		Normal	200	Bud sagebrush-----	10
		Unfavorable	100	Galleta-----	10
				Indian ricegrass-----	10
				Bottlebrush squirreltail-----	5
				Douglas rabbitbrush-----	5
				Winterfat-----	5
Rock outcrop.					
66----- Timpie	Desert Loam (Shadscale)	Favorable	600	Indian ricegrass-----	20
		Normal	500	Shadscale-----	20
		Unfavorable	400	Bud sagebrush-----	10
				Winterfat-----	10
				Bottlebrush squirreltail-----	10
				Other shrubs-----	10
				Milkvetch-----	5
				Other perennial grasses-----	5
				Other perennial forbs-----	5
				Scarlet globemallow-----	5
67----- Timpie	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood-----	50
		Normal	700	Bottlebrush squirreltail-----	15
		Unfavorable	350	Other perennial grasses-----	5
				Shadscale-----	5
				Other annual forbs-----	5
				Seepweed-----	5
				Trident saltbush-----	5
				Alkali sacaton-----	5
		Other shrubs-----	5		
68: Timpie-----	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood-----	50
		Normal	700	Bottlebrush squirreltail-----	15
		Unfavorable	350	Other perennial grasses-----	5
				Shadscale-----	5
				Other annual forbs-----	5
				Seepweed-----	5
				Trident saltbush-----	5
				Alkali sacaton-----	5
		Other shrubs-----	5		

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
68: Tooele-----	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood-----	50
		Normal	700	Bottlebrush squirreltail-----	15
		Unfavorable	300	Other perennial grasses-----	5
				Shadscale-----	5
				Other annual forbs-----	5
				Seepweed-----	5
				Trident saltbush-----	5
				Alkali sacaton-----	5
				Other shrubs-----	5
69----- Tooele	Desert Loam (Shadscale)	Favorable	600	Indian ricegrass-----	20
		Normal	500	Shadscale-----	20
		Unfavorable	400	Bud sagebrush-----	10
				Winterfat-----	10
				Bottlebrush squirreltail-----	10
				Other shrubs-----	10
				Milkvetch-----	5
				Other perennial grasses-----	5
				Other perennial forbs-----	5
		Scarlet globemallow-----	5		
70----- Tooele	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood-----	50
		Normal	700	Bottlebrush squirreltail-----	15
		Unfavorable	300	Other perennial grasses-----	5
				Shadscale-----	5
				Other annual forbs-----	5
				Seepweed-----	5
				Trident saltbush-----	5
				Alkali sacaton-----	5
				Other shrubs-----	5
71----- Yeates Hollow	Mountain Gravelly Loam (Mountain Big Sagebrush)	Favorable	2,000	Bluebunch wheatgrass-----	20
		Normal	1,325	Birchleaf mountainmahogany-----	15
		Unfavorable	800	Mountain big sagebrush-----	10
				Bluegrass-----	10
				Phlox-----	5
				Western wheatgrass-----	5
				Other perennial forbs-----	5
				Saskatoon serviceberry-----	5
				Other perennial grasses-----	5
				Mountain snowberry-----	5
				Antelope bitterbrush-----	5
				Gambel oak-----	5
				Needlegrass-----	5
72----- Yeates Hollow	Upland Claypan (Low Sagebrush)	Favorable	700	Low sagebrush-----	25
		Normal	500	Bluebunch wheatgrass-----	15
		Unfavorable	300	Other perennial grasses-----	15
				Bluegrass-----	10
				Mountain big sagebrush-----	5
				Other perennial forbs-----	5
				Phlox-----	5
				Western wheatgrass-----	5
				Needlegrass-----	5
				Antelope bitterbrush-----	5
				Other shrubs-----	5

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Map symbol and soil name	Range site or woodland site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
73----- Yenrab	Desert Sand (Fourwing Saltbush)	Favorable	800	Indian ricegrass-----	25
		Normal	550	Fourwing saltbush-----	20
		Unfavorable	300	Winterfat-----	10
				Spiny hopsage-----	5
				Milkvetch-----	5
				Galleta-----	5
				Horsebrush-----	5
				Mormon tea-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
		Other shrubs-----	5		
74: Yenrab-----	Desert Sand (Fourwing Saltbush)	Favorable	800	Indian ricegrass-----	25
		Normal	550	Fourwing saltbush-----	20
		Unfavorable	300	Winterfat-----	10
				Spiny hopsage-----	5
				Milkvetch-----	5
				Galleta-----	5
				Horsebrush-----	5
				Mormon tea-----	5
				Other perennial forbs-----	5
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
		Other shrubs-----	5		
Badlands. 75: Yenrab-----	Desert Alkali Sand (Fourwing Saltbush)	Favorable	700	Indian ricegrass-----	30
		Normal	500	Fourwing saltbush-----	15
		Unfavorable	350	Douglas rabbitbrush-----	10
				Other shrubs-----	10
				Alkali sacaton-----	10
				Black greasewood-----	10
				Other perennial grasses-----	5
				Bottlebrush squirreltail-----	5
				Other perennial forbs-----	5
Tooele-----	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood-----	50
		Normal	700	Bottlebrush squirreltail-----	15
		Unfavorable	300	Other perennial grasses-----	5
				Shadscale-----	5
				Other annual forbs-----	5
				Seepweed-----	5
				Trident saltbush-----	5
				Alkali sacaton-----	5
		Other shrubs-----	5		

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

(Only the soils suitable for production of commercial trees are listed)

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Wind-throw hazard	Plant competition	Common trees	Site index	Productivity class*	
2----- Abela	OF	Slight	Slight	Severe	Slight	Moderate	Utah juniper-- Pinyon-----	50 50	--- ---	Utah juniper, pinyon.
3, 4: Amtoft----- Rock outcrop.	OR	Severe	Severe	Severe	Severe	Severe	Utah juniper--	30	---	Utah juniper.
5: Berent----- Hiko Peak.	OS	Slight	Slight	Severe	Slight	Moderate	Utah juniper--	25	---	Utah juniper.
7----- Borvant	OD	Moderate	Slight	Moderate	Slight	Slight	Utah juniper-- Pinyon-----	40 40	--- ---	Utah juniper, pinyon.
14, 14A: Dateman----- Podmor. Rock outcrop.	1R	Severe	Severe	Slight	Slight	Moderate	Douglas-fir--- White fir-----	65 60	1 9	Douglas-fir.
20: Flygare----- Dateman----- Rock outcrop.	2R 1R	Severe Severe	Severe Severe	Slight Slight	Slight Slight	Moderate Moderate	Quaking aspen- White fir----- Douglas-fir--- White fir-----	55 31 65 60	2 4 1 9	--- Douglas-fir.
38: Lodar----- Lundy. Rock outcrop.	OR	Severe	Severe	Severe	Severe	Moderate	Utah juniper-- Pinyon-----	40 40	--- ---	Utah juniper, pinyon.
40: Lundy. Dateman----- Rock outcrop.	1R	Severe	Severe	Slight	Slight	Moderate	Douglas-fir--- White fir-----	65 60	1 9	Douglas-fir.
46A: Podmor. Dateman----- Rock outcrop.	1R	Severe	Severe	Slight	Slight	Moderate	Douglas-fir--- White fir-----	65 60	1 9	Douglas-fir.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Wind-throw hazard	Plant competition	Common trees	Site index	Productivity class*	
48: Reywat----- Broad. Rock outcrop.	OR	Severe	Severe	Severe	Severe	Moderate	Utah juniper-- Pinyon-----	40 40	--- ---	Utah juniper, pinyon.
55: Scalade. Jericho-----	OD	Moderate	Severe	Moderate	Severe	Severe	Utah juniper--	15	---	---

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

TABLE 8.--RECREATIONAL DEVELOPMENT

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1----- Abela	Moderate: small stones, dusty.	Moderate: small stones, dusty.	Severe: small stones.	Moderate: dusty.	Moderate: small stones, large stones, droughty.
2----- Abela	Severe: small stones.	Severe: small stones.	Severe: slope, small stones.	Moderate: dusty.	Severe: small stones.
3, 4: Antoft----- Rock outcrop.	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.
5: Berent-----	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty, slope.
Hiko Peak-----	Moderate: slope, small stones, dusty.	Moderate: slope, small stones, dusty.	Severe: slope, small stones.	Moderate: dusty.	Moderate: small stones, large stones, droughty.
6----- Birdow	Severe: flooding.	Moderate: dusty.	Moderate: slope, dusty.	Moderate: dusty.	Slight.
7----- Borvant	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, small stones, cemented pan.	Moderate: dusty.	Severe: droughty, cemented pan.
8----- Bramwell	Severe: excess salt.	Severe: excess salt.	Severe: excess salt.	Moderate: dusty.	Severe: excess salt.
10: Broad-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Reywat----- Rock outcrop.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
11: Checkett----- Rock outcrop.	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
12----- Cliffdown	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: small stones, droughty, slope.
13----- Cristo	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
14, 14A: Dateman-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Podmor----- Rock outcrop.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.	Severe: large stones, slope.
15----- Doyce	Moderate: dusty.	Moderate: dusty.	Moderate: slope, small stones, dusty.	Moderate: dusty.	Slight.
16. Dune land.					
17----- Dynal	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
18: Dynal-----	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
Tooele-----	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight-----	Severe: excess sodium.
19----- Erda	Moderate: dusty.	Moderate: dusty.	Moderate: slope, dusty.	Moderate: dusty.	Slight.
20: Flygare-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Dateman----- Rock outcrop.	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
21----- Hiko Peak	Moderate: slope, small stones, dusty.	Moderate: slope, small stones, dusty.	Severe: slope, small stones.	Moderate: dusty.	Moderate: small stones, large stones, droughty.
22----- Hiko Peak	Severe: small stones.	Severe: small stones.	Severe: large stones, small stones.	Moderate: dusty.	Severe: small stones.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
23: Hiko Peak-----	Moderate: slope, small stones, dusty.	Moderate: slope, small stones, dusty.	Severe: slope, small stones.	Moderate: dusty.	Moderate: small stones, large stones, droughty.
Checkett-----	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.
24: Hiko Peak-----	Moderate: slope, small stones, dusty.	Moderate: slope, small stones, dusty.	Severe: slope, small stones.	Moderate: dusty.	Moderate: small stones, large stones, droughty.
Taylorflat-----	Moderate: dusty.	Moderate: dusty.	Moderate: slope, small stones, dusty.	Moderate: dusty.	Slight.
25----- Hiko Springs	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight-----	Moderate: small stones, droughty.
26----- Holmes	Severe: small stones.	Severe: small stones.	Severe: large stones, slope, small stones.	Slight-----	Severe: small stones.
27: Izamat-----	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight-----	Severe: droughty.
Cliffdown-----	Severe: small stones.	Severe: small stones.	Severe: small stones.	Severe: small stones.	Severe: small stones, droughty.
28: Izamat-----	Severe: small stones.	Severe: small stones.	Severe: small stones.	Severe: small stones.	Severe: small stones, droughty.
Cliffdown-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: small stones, droughty, slope.
29----- Jericho	Severe: cemented pan.	Severe: cemented pan.	Severe: small stones, cemented pan.	Slight-----	Severe: droughty, cemented pan.
30----- Junkett	Moderate: small stones, dusty.	Moderate: small stones, dusty.	Severe: small stones.	Moderate: dusty.	Moderate: small stones, droughty.
31----- Kanosh	Moderate: wetness, dusty, excess salt.	Moderate: wetness, excess salt, dusty.	Moderate: wetness, dusty.	Moderate: dusty.	Moderate: excess salt, droughty.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
32: Kanosh-----	Moderate: wetness, dusty, excess salt.	Moderate: wetness, excess salt, dusty.	Moderate: wetness, dusty.	Moderate: dusty.	Moderate: excess salt, droughty.
Saltair-----	Severe: flooding, wetness, excess salt.	Severe: wetness, excess salt.	Severe: wetness, flooding, excess salt.	Severe: wetness	Severe: excess salt, wetness, flooding.
Logan-----	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
33----- Kapod	Moderate: small stones, dusty.	Moderate: small stones, dusty.	Severe: slope, small stones.	Moderate: dusty.	Moderate: small stones, large stones, droughty.
34----- Kapod	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, dusty.	Moderate: small stones, large stones, droughty.
35----- Kapod	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones, slope, dusty.	Severe: small stones, large stones.
36----- Kilburn	Moderate: small stones.	Moderate: small stones.	Severe: slope, small stones.	Slight-----	Moderate: small stones, droughty.
37----- Lakewin	Moderate: small stones, dusty.	Moderate: small stones, dusty.	Severe: small stones.	Moderate: dusty.	Moderate: small stones, large stones, droughty.
38: Lodar-----	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.
Lundy-----	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.
Rock outcrop.					
39----- Logan	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
40: Lundy-----	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
40: Dateman----- Rock outcrop.	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
41----- Manassa	Moderate: dusty.	Moderate: dusty.	Moderate: dusty.	Moderate: dusty.	Slight.
42----- Medburn	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Moderate: droughty.
43----- Medburn	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight-----	Severe: excess sodium.
44. Pits					
45. Playas					
46: Playas. Saltair-----	Severe: flooding, wetness, excess salt.	Severe: wetness, excess salt.	Severe: wetness, flooding, excess salt.	Severe: wetness.	Severe: excess salt, wetness, flooding.
46A: Podmor----- Dateman----- Rock outcrop.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.	Severe: large stones, slope.
47: Podmor----- Onaqui----- Rock outcrop.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.	Severe: large stones, slope.
48: Reywat-----	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
48: Broad----- Rock outcrop.	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
49: Ridd----- Rock outcrop.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, slope.
50: Ridd----- Wasatch----- Rock outcrop.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: small stones, slope.
51: Rock outcrop. Lundy-----	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: slope.
52. Salt flats					Severe: small stones, large stones, slope.
53: Saltair----- Playas.	Severe: flooding, wetness, excess salt.	Severe: wetness, excess salt.	Severe: wetness, flooding, excess salt.	Severe: wetness.	Severe: excess salt, wetness, flooding.
54----- Scalade	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Moderate: dusty.	Severe: cemented pan.
55: Scalade----- Jericho-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Moderate: dusty.	Severe: cemented pan.
Medburn-----	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, small stones, cemented pan.	Slight-----	Severe: droughty, cemented pan.
56----- Skumpah	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Moderate: droughty.
	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Moderate: dusty.	Severe: excess sodium, droughty.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
57, 58, 59----- Skumpah	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Moderate: dusty.	Severe: excess sodium.
60: Skumpah-----	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Moderate: dusty.	Severe: excess sodium.
Yenrab-----	Severe: excess sodium.	Severe: excess sodium.	Severe: slope, excess sodium.	Moderate: too sandy.	Severe: excess sodium.
61. Slickens and mine dumps					
62----- Spager	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, small stones, cemented pan.	Moderate: dusty.	Severe: droughty.
63----- Springmeyer	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight-----	Moderate: small stones, droughty.
64----- Taylorsflat	Moderate: dusty.	Moderate: dusty.	Moderate: slope, small stones, dusty.	Moderate: dusty.	Slight.
65----- Taylorsflat	Moderate: dusty.	Moderate: dusty.	Moderate: small stones, dusty.	Moderate: dusty.	Slight.
65A: Theriot----- Rock outcrop.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, droughty, slope.
66----- Timpie	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Moderate: dusty.	Severe: excess sodium.
67----- Timpie	Moderate: dusty, excess salt.	Moderate: excess salt, dusty.	Moderate: slope, dusty, excess salt.	Moderate: dusty.	Moderate: excess salt, droughty.
68: Timpie-----	Moderate: dusty, excess salt.	Moderate: excess salt, dusty.	Moderate: slope, dusty, excess salt.	Moderate: dusty.	Moderate: excess salt, droughty.
Tooele-----	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight-----	Severe: excess sodium.
69----- Tooele	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
70----- Tooele	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight-----	Severe: excess sodium.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
71----- Yeates Hollow	Moderate: slope, large stones, dusty.	Moderate: slope, large stones, dusty.	Severe: large stones, slope, small stones.	Moderate: large stones, dusty.	Moderate: small stones, large stones, droughty.
72----- Yeates Hollow	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Moderate: large stones, slope, dusty.	Severe: small stones, large stones.
73----- Yenrab	Severe: too sandy, excess sodium.	Severe: too sandy, excess sodium.	Severe: slope, too sandy, excess sodium.	Severe: too sandy.	Severe: excess sodium.
74: Yenrab-----	Severe: too sandy, excess sodium.	Severe: too sandy, excess sodium.	Severe: slope, too sandy, excess sodium.	Severe: too sandy.	Severe: excess sodium.
Badlands.					
75: Yenrab-----	Severe: excess sodium.	Severe: excess sodium.	Severe: slope, excess sodium.	Moderate: too sandy.	Severe: excess sodium.
Tooele-----	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Slight-----	Severe: excess sodium.

TABLE 9.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
1, 2----- Abela	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
3, 4: Amtoft----- Rock outcrop.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
5: Berent----- Hiko Peak-----	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
6----- Birdow	Poor	Poor	Fair	Poor	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
7----- Borvant	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
8----- Bramwell	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Fair	---	---	---	---
10: Broad----- Reywat----- Rock outcrop.	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
11: Checkett----- Rock outcrop.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
12----- Cliffdown	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
13----- Cristo	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
14, 14A: Dateman----- Podmor----- Rock outcrop.	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
15----- Doyce	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.

TABLE 9.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
54----- Scalade	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor.
55: Scalade-----	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Poor.
Jericho-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Medburn-----	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
56----- Skumpah	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
57, 58----- Skumpah	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.
59----- Skumpah	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
60: Skumpah-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Yenrab-----	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
61. Slickens and mine dumps											
62----- Spager	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
63----- Springmeyer	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
64, 65----- Taylorsflat	Poor	Poor	Fair	Poor	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
65A: Theriot-----	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Rock outcrop.											
66, 67----- Timpie	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
68: Timpie-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Tooele-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
69----- Tooele	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.

TABLE 9.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
70----- Tooele	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
71, 72----- Yeates Hollow	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
73----- Yenrab	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
74: Yenrab----- Badlands.	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
75: Yenrab-----	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Tooele-----	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.

TABLE 10.--BUILDING SITE DEVELOPMENT

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1----- Abela	Slight-----	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Moderate: small stones, large stones, droughty.
2----- Abela	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Severe: small stones.
3, 4: Amtoft----- Rock outcrop.	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: small stones, large stones, slope.
5: Berent-----	Severe: cutbanks cave	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
Hiko Peak-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, large stones, droughty.
6----- Birdow	Slight-----	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Slight.
7----- Borvant	Severe: cemented pan, cutbanks cave.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.	Severe: droughty, cemented pan.
8----- Bramwell	Moderate: wetness.	Slight-----	Moderate: wetness, shrink-swell.	Slight-----	Severe: low strength, frost action.	Severe: excess salt.
10: Broad-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Reywat----- Rock outcrop.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, slope.
11: Checkett----- Rock outcrop.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, large stones, slope.

TABLE 10.--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
12----- Cliffdown	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, droughty, slope.
13----- Cristo	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
14, 14A: Dateman-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Podmor----- Rock outcrop.	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
15----- Doyce	Slight-----	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Slight.
16. Dune land						
17----- Dynal	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: droughty.
18: Dynal-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: droughty.
Tooele-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Severe: excess sodium.
19----- Erda	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: low strength, frost action.	Slight.
20: Flygare-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Dateman----- Rock outcrop.	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
21----- Hiko Peak	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, large stones, droughty.
22----- Hiko Peak	Slight-----	Slight-----	Slight-----	Moderate: slope.	Slight-----	Severe: small stones.
23: Hiko Peak-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, large stones, droughty.

TABLE 10.--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
23: Checkett-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, large stones, slope.
24: Hiko Peak-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, large stones, droughty.
Taylorflat-----	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Slight.
25----- Hiko Springs	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: small stones, droughty.
26----- Holmes	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, frost action, large stones.	Severe: small stones.
27: Izamatch-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Severe: droughty.
Cliffdown-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Slight-----	Severe: small stones, droughty.
28: Izamatch-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Severe: small stones, droughty.
Cliffdown-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, droughty, slope.
29----- Jericho	Severe: cemented pan, cutbanks cave.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: slope, cemented pan.	Moderate: cemented pan, frost action.	Severe: droughty, cemented pan.
30----- Junkett	Severe: cemented pan, cutbanks cave.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.	Moderate: small stones, droughty.
31----- Kanosh	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: excess salt, droughty.
32: Kanosh-----	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: excess salt, droughty.
Saltair-----	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: excess salt, wetness, flooding.

TABLE 10.--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
32: Logan-----	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
33----- Kapod	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: frost action, large stones.	Moderate: small stones, large stones, droughty.
34----- Kapod	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: small stones, large stones, droughty.
35----- Kapod	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, large stones.
36----- Kilburn	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Moderate: small stones, droughty.
37----- Lakewin	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Moderate: small stones, large stones, droughty.
38: Lodar-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, large stones, slope.
Lundy-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, large stones, slope.
Rock outcrop.						
39----- Logan	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
40: Lundy-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, large stones, slope.
Dateman-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop.						
41----- Manassa	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, low strength, frost action.	Slight.

TABLE 10.--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
42----- Medburn	Slight-----	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Moderate: droughty.
43----- Medburn	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Severe: excess sodium.
44. Pits						
45. Playas						
46: Playas.						
Saltair-----	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: excess salt, wetness, flooding.
46A: Podmor-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Dateman-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop.						
47: Podmor-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Onaqui-----	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: small stones, large stones, slope.
Rock outcrop.						
48: Reywat-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, large stones, slope.
Broad-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop.						
49: Ridd-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Rock outcrop.						

TABLE 10.--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
50: Ridd-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Wasatch----- Rock outcrop.	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
51: Rock outcrop.						
Lundy-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, large stones, slope.
52. Salt flats						
53: Saltair-----	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: excess salt, wetness, flooding.
Playas.						
54----- Scalade	Severe: cemented pan, cutbanks cave.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan, frost action.	Severe: cemented pan.
55: Scalade-----	Severe: cemented pan, cutbanks cave.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan, frost action.	Severe: cemented pan.
Jericho-----	Severe: cemented pan, cutbanks cave.	Moderate: slope, cemented pan.	Severe: cemented pan.	Severe: slope.	Moderate: cemented pan, slope, frost action.	Severe: droughty, cemented pan.
Medburn-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Moderate: droughty.
56----- Skumpah	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Severe: excess sodium, droughty.
57, 58----- Skumpah	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Severe: excess sodium.
59----- Skumpah	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Severe: excess sodium.
60: Skumpah-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Severe: excess sodium.

TABLE 10.--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
60: Yenrab-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: excess sodium.
61. Slickens and mine dumps						
62----- Spager	Severe: cemented pan, cutbanks cave.	Severe: cemented pan.	Severe: cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan.	Severe: droughty.
63----- Springmeyer	Severe: cutbanks cave.	Moderate: shrink-swell.	Slight-----	Moderate: shrink-swell, slope.	Moderate: shrink-swell, frost action.	Moderate: small stones, droughty.
64, 65----- Taylorsflat	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Slight.
65A: Theriot-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, droughty, slope.
Rock outcrop.						
66----- Timpie	Slight-----	Slight-----	Slight-----	Slight-----	Severe: frost action.	Severe: excess sodium.
67----- Timpie	Slight-----	Slight-----	Slight-----	Slight-----	Severe: frost action.	Moderate: excess salt, droughty.
68: Timpie-----	Slight-----	Slight-----	Slight-----	Slight-----	Severe: frost action.	Moderate: excess salt, droughty.
Tooele-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Severe: excess sodium.
69----- Tooele	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
70----- Tooele	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Severe: excess sodium.
71----- Yeates Hollow	Moderate: large stones, slope.	Moderate: shrink-swell, slope, large stones.	Moderate: slope, shrink-swell, large stones.	Severe: slope.	Moderate: shrink-swell, slope, frost action.	Moderate: small stones, large stones, droughty.
72----- Yeates Hollow	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, large stones.
73----- Yenrab	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: excess sodium.

TABLE 10.--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
74: Yenrab----- Badlands.	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: excess sodium.
75: Yenrab-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: excess sodium.
Tooele-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Severe: excess sodium.

TABLE 11.--SANITARY FACILITIES

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1----- Abela	Slight-----	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: small stones.
2----- Abela	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: seepage, small stones.
3, 4: Antoft----- Rock outcrop.	Severe: depth to rock, slope, large stones.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: slope.	Poor: depth to rock, small stones, slope.
5: Berent-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
Hiko Peak-----	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: small stones.
6----- Birdow	Moderate: flooding, percs slowly.	Moderate: seepage, slope.	Moderate: flooding.	Moderate: flooding.	Good.
7----- Borvant	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan, too sandy, large stones.	Severe: cemented pan.	Poor: cemented pan, seepage, too sandy.
8----- Bramwell	Severe: wetness, percs slowly.	Slight-----	Severe: wetness.	Severe: wetness.	Fair: wetness.
10: Broad-----	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Reywat----- Rock outcrop.	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
11: Checkett----- Rock outcrop.	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope.	Poor: depth to rock, small stones, slope.

TABLE 11.--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
12----- Cliffdown	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: small stones.
13----- Cristo	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
14, 14A: Dateman-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Podmor----- Rock outcrop.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: depth to rock, large stones, slope.
15----- Doyce	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
16. Dune land					
17----- Dynal	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy.
18: Dynal-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy.
Tooele-----	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
19----- Erda	Severe: percs slowly.	Moderate: slope.	Slight-----	Slight-----	Good.
20: Flygare-----	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Severe: slope.	Poor: small stones, slope.
Dateman----- Rock outcrop.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
21----- Hiko Peak	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: small stones.
22----- Hiko Peak	Slight-----	Severe: seepage.	Slight-----	Slight-----	Poor: seepage, small stones.

TABLE 11.--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
23: Hiko Peak-----	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: small stones.
Checkett-----	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope.	Poor: depth to rock, small stones, slope.
24: Hiko Peak-----	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: small stones.
Taylorsflat-----	Severe: percs slowly.	Moderate: slope.	Slight-----	Slight-----	Good.
25----- Hiko Springs	Slight-----	Severe: seepage.	Slight-----	Slight-----	Fair: small stones.
26----- Holmes	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: seepage, small stones.
27: Izamatch-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
Cliffdown-----	Slight-----	Severe: seepage.	Slight-----	Slight-----	Poor: small stones.
28: Izamatch-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
Cliffdown-----	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: small stones.
29----- Jericho	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan.	Moderate: cemented pan, too sandy.	Slight-----	Poor: cemented pan, seepage, small stones.
30----- Junkett	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan, too sandy.	Slight-----	Poor: cemented pan, seepage, too sandy.
31----- Kanosh	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
32: Kanosh-----	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.

TABLE 11.--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
32: Saltair-----	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, excess salt.	Severe: flooding, wetness.	Poor: wetness.
Logan-----	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
33----- Kapod	Moderate: percs slowly, large stones.	Moderate: seepage, slope, large stones.	Moderate: large stones.	Slight-----	Poor: small stones.
34----- Kapod	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
35----- Kapod	Severe: slope.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
36----- Kilburn	Severe: poor filter.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: seepage, small stones.
37----- Lakewin	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy, small stones.
38: Lodar-----	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Lundy-----	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Rock outcrop.					
39----- Logan	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
40: Lundy-----	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Dateman-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.

TABLE 11.--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
40: Rock outcrop.					
41----- Manassa	Severe: percs slowly.	Slight-----	Slight-----	Slight-----	Good.
42, 43----- Medburn	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
44. Pits					
45. Playas					
46: Playas.					
Saltair-----	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, excess salt.	Severe: flooding, wetness.	Poor: wetness.
46A: Podmor-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: depth to rock, large stones, slope.
Dateman-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Rock outcrop.					
47: Podmor-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: depth to rock, large stones, slope.
Onaqui-----	Severe: depth to rock, slope, large stones.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Rock outcrop.					
48: Reywat-----	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Broad-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Rock outcrop.					

TABLE 11.--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
49: Ridd----- Rock outcrop.	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
50: Ridd----- Wasatch----- Rock outcrop.	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
51: Rock outcrop. Lundy-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: seepage, slope, too sandy.	Severe: seepage, slope.	Poor: seepage, too sandy, slope.
52. Salt flats	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
53: Saltair----- Playas.	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, excess salt.	Severe: flooding, wetness.	Poor: wetness.
54----- Scalade	Severe: cemented pan.	Severe: seepage, cemented pan.	Moderate: cemented pan, too sandy.	Slight-----	Poor: cemented pan, seepage, small stones.
55: Scalade----- Jericho-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Moderate: cemented pan, too sandy.	Slight-----	Poor: cemented pan, seepage, small stones.
Medburn-----	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan, slope.	Moderate: cemented pan, slope, too sandy.	Moderate: slope.	Poor: cemented pan, seepage, small stones.
56----- Skumpah	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
	Severe: percs slowly.	Slight-----	Severe: excess salt.	Slight-----	Good.

TABLE 11.--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
57, 58----- Skumpah	Severe: wetness, percs slowly.	Moderate: wetness.	Severe: wetness, excess salt.	Moderate: wetness.	Good.
59----- Skumpah	Severe: percs slowly.	Slight-----	Severe: excess salt.	Slight-----	Good.
60: Skumpah-----	Severe: percs slowly.	Slight-----	Severe: excess salt.	Slight-----	Good.
Yenrab-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
61: Slickens and mine dumps					
62----- Spager	Severe: cemented pan.	Severe: seepage, cemented pan, slope.	Severe: cemented pan, too sandy.	Moderate: slope.	Poor: cemented pan, seepage, too sandy.
63----- Springmeyer	Severe: percs slowly.	Severe: seepage.	Moderate: too sandy.	Slight-----	Poor: seepage, small stones.
64----- Taylorsflat	Severe: percs slowly.	Moderate: slope.	Slight-----	Slight-----	Good.
65----- Taylorsflat	Severe: percs slowly.	Slight-----	Slight-----	Slight-----	Good.
65A: Theriot-----	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope.	Poor: depth to rock, small stones, slope.
Rock outcrop.					
66----- Timpie	Severe: percs slowly.	Slight-----	Severe: excess salt.	Slight-----	Good.
67----- Timpie	Severe: percs slowly.	Moderate: slope.	Severe: excess salt.	Slight-----	Good.
68: Timpie-----	Severe: percs slowly.	Moderate: slope.	Severe: excess salt.	Slight-----	Good.
Tooele-----	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
69----- Tooele	Slight-----	Severe: seepage.	Slight-----	Slight-----	Fair: thin layer.
70----- Tooele	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
71----- Yeates Hollow	Severe: percs slowly.	Severe: slope.	Severe: large stones.	Moderate: slope.	Poor: small stones.

TABLE 11.--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
72----- Yeates Hollow	Severe: percs slowly, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Poor: small stones, slope.
73----- Yenrab	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
74: Yenrab----- Badlands.	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
75: Yenrab-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
Tooele-----	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.

TABLE 12.--CONSTRUCTION MATERIALS

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1----- Abela	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
2----- Abela	Good-----	Improbable: small stones.	Probable-----	Poor: small stones, area reclaim.
3, 4: Amtoft----- Rock outcrop.	Poor: depth to rock, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: depth to rock, small stones, slope.
5: Berent-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
Hiko Peak-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
6----- Birdow	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
7----- Borvant	Poor: cemented pan.	Probable-----	Probable-----	Poor: cemented pan, small stones, area reclaim.
8----- Bramwell	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
10: Broad-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Reywat----- Rock outcrop.	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
11: Checkett----- Rock outcrop.	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
12----- Cliffdown	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
13----- Cristo	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
14, 14A: Dateman-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Podmor-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
15----- Doyce	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
16. Dune land				
17----- Dynal	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
18: Dynal-----	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
Tooele-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
19----- Erda	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
20: Flygare-----	Poor: slope.	Improbable: small stones.	Probable-----	Poor: small stones, area reclaim, slope.
Dateman-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
21----- Hiko Peak	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
22----- Hiko Peak	Good-----	Improbable: small stones.	Probable-----	Poor: small stones, area reclaim.
23: Hiko Peak-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Checkett-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
24: Hiko Peak-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Taylor's flat-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
25----- Hiko Springs	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
26----- Holmes	Fair: large stones.	Probable-----	Probable-----	Poor: small stones, area reclaim.
27: Izamatc-----	Good-----	Probable-----	Probable-----	Poor: too sandy, small stones, area reclaim.
Cliffdown-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, excess salt.
28: Izamatc-----	Good-----	Probable-----	Probable-----	Poor: too sandy, small stones, area reclaim.
Cliffdown-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
29----- Jericho	Poor: thin layer.	Improbable: small stones.	Improbable: thin layer.	Poor: cemented pan, small stones.
30----- Junkett	Poor: cemented pan.	Probable-----	Probable-----	Poor: small stones, area reclaim.
31----- Kanosh	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
32: Kanosh-----	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
Saltair-----	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness.
Logan-----	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
33----- Kapod	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
34, 35----- Kapod	Fair: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
36----- Kilburn	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
37----- Lakewin	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
38: Lodar-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Lundy-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Rock outcrop.				
39----- Logan	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
40: Lundy-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Dateman-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
41----- Manassa	Fair: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
42----- Medburn	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
43----- Medburn	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
44. Pits				
45. Playas				
46: Playas.				
Saltair-----	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
46A: Podmor-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Dateman-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
47: Podmor-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Onaqui-----	Poor: depth to rock, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: depth to rock, small stones, slope.
Rock outcrop.				
48: Reywat-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Broad-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
49: Ridd-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop.				
50: Ridd-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Wasatch-----	Fair: slope.	Probable-----	Improbable: too sandy.	Poor: too sandy, slope.
Rock outcrop.				
51: Rock outcrop.				
Lundy-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
52. Salt flats				

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
53: Saltair----- Playas.	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness.
54----- Scalade	Poor: thin layer.	Improbable: thin layer.	Improbable: thin layer.	Poor: cemented pan, small stones, area reclaim.
55: Scalade-----	Poor: thin layer.	Improbable: thin layer.	Improbable: thin layer.	Poor: cemented pan, small stones, area reclaim.
Jericho-----	Poor: thin layer.	Improbable: small stones.	Improbable: thin layer.	Poor: cemented pan, small stones.
Medburn-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
56, 57, 58, 59--- Skumpah	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
60: Skumpah-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
Yenrab-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, excess sodium.
61. Slickens and mine dumps				
62----- Spager	Poor: cemented pan.	Probable-----	Probable-----	Poor: cemented pan, small stones, area reclaim.
63----- Springmeyer	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
64, 65----- Taylorsflat	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
65A: Theriot-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Rock outcrop.				

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
66----- Timpie	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
67----- Timpie	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
68: Timpie-----	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
Tooele-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
69----- Tooele	Good-----	Probable-----	Improbable: too sandy.	Fair: small stones, excess salt.
70----- Tooele	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
71----- Yeates Hollow	Fair: large stones.	Improbable: small stones.	Probable-----	Poor: small stones, area reclaim.
72----- Yeates Hollow	Fair: large stones, slope.	Improbable: small stones.	Probable-----	Poor: small stones, area reclaim, slope.
73----- Yenrab	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, excess sodium.
74: Yenrab-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, excess sodium.
Badlands.				
75: Yenrab-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, excess sodium.
Tooele-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.

TABLE 13.--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--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1----- Abela	Severe: seepage.	Moderate: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty.	Favorable-----	Droughty.
2----- Abela	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty.	Slope, large stones.	Large stones, slope, droughty.
3, 4: Antoft----- Rock outcrop.	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Too arid, large stones, slope.
5: Berent-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Too arid, slope, droughty.
Hiko Peak-----	Severe: seepage, slope.	Moderate: seepage, piping, large stones.	Severe: no water.	Deep to water	Slope, droughty.	Slope, large stones.	Too arid, large stones, slope.
6----- Birdow	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Favorable-----	Favorable-----	Favorable.
7----- Borvant	Severe: cemented pan, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, cemented pan.	Large stones, slope, droughty.
8----- Bramwell	Slight-----	Severe: piping.	Severe: slow refill.	Percs slowly, frost action, excess salt.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Too arid, excess salt, erodes easily.
10: Broad-----	Severe: slope.	Moderate: thin layer, large stones.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Reywat-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.

TABLE 13.--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
10: Rock outcrop.							
11: Checkett----- Rock outcrop.	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Too arid, large stones, slope.
12----- Cliffdown	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, excess salt.	Slope-----	Too arid, slope, droughty.
13----- Cristo	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, depth to rock.	Slope, droughty, depth to rock.
14, 14A: Dateman-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Podmor----- Rock outcrop.	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
15----- Doyce	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope-----	Favorable-----	Favorable.
16. Dune land							
17----- Dynal	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Too arid, slope, excess salt.
18: Dynal-----	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Too arid, slope, excess salt.
Tooele-----	Severe: seepage.	Severe: piping, excess sodium.	Severe: no water.	Deep to water	Droughty, soil blowing.	Erodes easily, soil blowing.	Too arid, excess salt, excess sodium.

TABLE 13.--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
19----- Erda	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, excess salt.	Erodes easily	Erodes easily.
20: Flygare-----	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Large stones, slope, droughty.
Dateman----- Rock outcrop.	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
21----- Hiko Peak	Severe: seepage, slope.	Moderate: seepage, piping, large stones.	Severe: no water.	Deep to water	Slope, droughty.	Slope, large stones.	Too arid, large stones, slope.
22----- Hiko Peak	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty.	Large stones---	Too arid, large stones, droughty.
23: Hiko Peak-----	Severe: seepage, slope.	Moderate: seepage, piping, large stones.	Severe: no water.	Deep to water	Slope, droughty.	Slope, large stones.	Too arid, large stones, slope.
Checkett-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Too arid, large stones, slope.
24: Hiko Peak-----	Severe: seepage, slope.	Moderate: seepage, piping, large stones.	Severe: no water.	Deep to water	Slope, droughty.	Slope, large stones.	Too arid, large stones, slope.
Taylorsflat-----	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, excess salt.	Erodes easily	Too arid, erodes easily.
25----- Hiko Springs	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, excess salt.	Favorable-----	Too arid, droughty.

TABLE 13.--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
26----- Holmes	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, too sandy.	Large stones, slope, droughty.
27: Izamatc-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, rooting depth.	Too sandy-----	Too arid, droughty.
Cliffdown-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, excess salt.	Favorable-----	Too arid, droughty.
28: Izamatc-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, rooting depth.	Too sandy-----	Too arid, droughty.
Cliffdown-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, excess salt.	Slope-----	Too arid, slope, droughty.
29----- Jericho	Severe: seepage, cemented pan.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, cemented pan.	Large stones, cemented pan.	Too arid, large stones.
30----- Junkett	Moderate: seepage, cemented pan, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, cemented pan.	Large stones, cemented pan.	Too arid, large stones.
31----- Kanosh	Severe: seepage.	Severe: piping.	Moderate: deep to water, salty water.	Frost action, excess salt.	Wetness, droughty, excess salt.	Erodes easily, wetness	Too arid, excess salt, erodes easily.
32: Kanosh-----	Severe: seepage.	Severe: piping.	Moderate: deep to water, salty water.	Frost action, excess salt.	Wetness, droughty, excess salt.	Erodes easily, wetness.	Too arid, excess salt, erodes easily.
Saltair-----	Slight-----	Severe: wetness, excess salt.	Severe: slow refill, salty water.	Percs slowly, flooding, frost action.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Too arid, wetness, excess salt.
Logan-----	Slight-----	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding, frost action.	Wetness, percs slowly, flooding.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.

TABLE 13.--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
33----- Kapod	Moderate: seepage, slope.	Moderate: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Large stones---	Large stones, droughty.
34, 35: Kapod-----	Severe: seepage, slope.	Severe: seepage, large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Large stones, slope, droughty.
36----- Kilburn	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, soil blowing.	Too sandy, soil blowing.	Droughty.
37----- Lakewin	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty.	Too sandy-----	Droughty.
38: Lodar-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Lundy-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Rock outcrop.							
39----- Logan	Slight-----	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding, frost action.	Wetness, percs slowly, flooding.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
40: Lundy-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Dateman-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Rock outcrop.							
41----- Manassa	Slight-----	Severe: piping.	Severe: no water.	Deep to water	Percs slowly, erodes easily, excess salt.	Erodes easily, percs slowly.	Too arid, erodes easily, percs slowly.

TABLE 13.--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
42----- Medburn	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope, droughty, soil blowing.	Soil blowing---	Too arid, droughty.
43----- Medburn	Severe: seepage.	Severe: piping, excess sodium.	Severe: no water.	Deep to water	Slope, droughty, soil blowing.	Soil blowing---	Too arid, excess sodium, droughty.
44. Pits							
45. Playas							
46: Playas.							
Saltair-----	Slight-----	Severe: wetness, excess salt.	Severe: slow refill, salty water.	Percs slowly, flooding, frost action.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Too arid, wetness, excess salt.
46A: Podmor-----	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Dateman-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Rock outcrop.							
47: Podmor-----	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Onaqui-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Rock outcrop.							
48: Reywat-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.

TABLE 13.--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
48: Broad----- Rock outcrop.	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
49: Ridd----- Rock outcrop.	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
50: Ridd----- Wasatch----- Rock outcrop.	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
51: Rock outcrop. Lundy-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
52. Salt flats							
53: Saltair----- Playas.	Slight-----	Severe: wetness, excess salt.	Severe: slow refill, salty water.	Percs slowly, flooding, frost action.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Too arid, wetness, excess salt.
54----- Scalade	Severe: seepage, cemented pan.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, soil blowing.	Cemented pan, erodes easily, too sandy.	Too arid, erodes easily, droughty.

TABLE 13.--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
55: Scalade-----	Severe: seepage, cemented pan.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, soil blowing.	Cemented pan, erodes easily, too sandy.	Too arid, erodes easily, droughty.
Jericho-----	Severe: seepage, cemented pan, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, cemented pan.	Slope, large stones, cemented pan.	Too arid, large stones, slope.
Medburn-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope, droughty, soil blowing.	Soil blowing---	Too arid, droughty.
56----- Skumpah	Slight-----	Severe: piping, excess sodium, excess salt.	Severe: no water.	Deep to water	Droughty, erodes easily, excess sodium.	Erodes easily	Too arid, excess salt, excess sodium.
57, 58----- Skumpah	Slight-----	Severe: piping, excess sodium, excess salt.	Severe: slow refill, salty water.	Deep to water	Droughty, erodes easily, excess sodium.	Erodes easily	Too arid, excess sodium, erodes easily.
59----- Skumpah	Slight-----	Severe: piping, excess sodium, excess salt.	Severe: no water.	Deep to water	Droughty, erodes easily, excess sodium.	Erodes easily	Too arid, excess salt, excess sodium.
60: Skumpah-----	Slight-----	Severe: piping, excess sodium, excess salt.	Severe: no water.	Deep to water	Droughty, erodes easily, excess sodium.	Erodes easily	Too arid, excess salt, excess sodium.
Yenrab-----	Severe: seepage, slope.	Severe: piping, excess sodium.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Too arid, slope, excess sodium.
61. Slickens and mine dumps							
62----- Spager	Severe: cemented pan, slope.	Severe: seepage.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, cemented pan.	Too arid, large stones, slope.

TABLE 13.--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
63----- Springmeyer	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty.	Too sandy-----	Too arid, droughty.
64----- Taylorsflat	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, excess salt.	Erodes easily	Too arid, erodes easily.
65----- Taylorsflat	Slight-----	Severe: piping.	Severe: no water.	Deep to water	Excess salt----	Erodes easily	Too arid, erodes easily.
65A: Theriot----- Rock outcrop.	Severe: depth to rock, slope.	Severe: seepage, large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Too arid, large stones, slope.
66----- Timpie	Slight-----	Severe: piping, excess sodium, excess salt.	Severe: no water.	Deep to water	Droughty-----	Erodes easily	Too arid, excess sodium, erodes easily.
67----- Timpie	Slight-----	Severe: piping, excess salt.	Severe: no water.	Deep to water	Droughty, erodes easily.	Erodes easily	Too arid, excess salt, erodes easily.
68: Timpie-----	Slight-----	Severe: piping, excess salt.	Severe: no water.	Deep to water	Droughty, erodes easily.	Erodes easily	Too arid, excess salt, erodes easily.
Tooele-----	Severe: seepage.	Severe: piping, excess sodium.	Severe: no water.	Deep to water	Droughty, soil blowing.	Erodes easily, soil blowing.	Too arid, excess salt, excess sodium.
69----- Tooele	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Soil blowing, erodes easily.	Erodes easily, soil blowing.	Too arid, erodes easily.
70----- Tooele	Severe: seepage.	Severe: piping, excess sodium.	Severe: no water.	Deep to water	Droughty, soil blowing.	Erodes easily, soil blowing.	Too arid, excess salt, excess sodium.
71, 72----- Yeates Hollow	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water	Slope, large stones, droughty.	Slope, large stones, percs slowly.	Large stones, slope, droughty.
73----- Yenrab	Severe: seepage, slope.	Severe: piping, excess sodium.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Too arid, slope, excess sodium.

TABLE 13.--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
74: Yenrab----- Badlands.	Severe: seepage, slope.	Severe: piping, excess sodium.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Too arid, slope, excess sodium.
75: Yenrab-----	Severe: seepage, slope.	Severe: piping, excess sodium.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Too arid, slope, excess sodium.
Tooele-----	Severe: seepage.	Severe: piping, excess sodium.	Severe: no water.	Deep to water	Droughty, soil blowing.	Erodes easily, soil blowing.	Too arid, excess salt, excess sodium.

TABLE 14.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
1----- Abela	0-10	Gravelly loam	GM-GC, GM, SC-SM, SM	A-4	0	0-10	60-80	55-75	45-65	35-50	20-30	NP-10
	10-20	Gravelly loam	GM-GC, GM, SC-SM, SM	A-4	0	0-10	60-80	55-75	45-65	35-50	20-30	NP-10
	20-60	Very gravelly loam.	GM-GC, GM	A-2, A-4	0	0-15	45-60	40-55	35-50	25-40	20-30	NP-10
2----- Abela	0-11	Very gravelly loam.	GM-GC, GM, GC	A-2, A-4	0	0-15	45-60	40-55	35-50	25-40	20-30	NP-10
	11-22	Very gravelly loam.	GM-GC, GM, GC	A-2, A-4	0	0-15	45-60	40-55	35-50	25-40	20-30	NP-10
	22-60	Extremely gravelly sandy loam.	GM-GC, GM, GP-GM	A-2, A-1	0	0-20	20-35	15-30	10-20	5-15	20-30	NP-10
3: Amtoft-----	0-11	Very cobbly loam.	GM-GC, GC	A-2, A-4	0-5	25-45	45-60	40-55	30-50	25-40	20-30	5-10
	11-17	Extremely cobbly loam.	GM-GC, GP-GC, GC	A-2	0-5	30-60	25-40	20-35	15-30	10-25	20-30	5-10
	17-27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
4: Amtoft-----	0-9	Very cobbly loam.	GM-GC, GC	A-2, A-4	0-5	25-45	45-60	40-55	30-50	25-40	20-30	5-10
	9-16	Extremely cobbly loam.	GM-GC, GP-GC, GC	A-2	0-5	30-60	25-40	20-35	15-30	10-25	20-30	5-10
	16-26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
5: Berent-----	0-6	Loamy fine sand	SM	A-2, A-4	0	0	100	100	75-90	30-45	0-20	NP-5
	6-60	Fine sand-----	SM	A-2	0	0	100	100	65-80	20-35	0-10	NP
Hiko Peak-----	0-4	Gravelly loam	GM-GC, GM, SC-SM, SM	A-2, A-4	0	0-10	60-80	55-75	40-65	30-50	20-30	NP-10
	4-12	Very gravelly loam.	GM-GC, GM	A-2, A-4	0	5-20	40-60	35-55	25-50	20-40	20-30	NP-10
	12-60	Very gravelly loam.	GM-GC, GM	A-2, A-4	0	5-20	40-60	35-55	25-50	20-40	20-30	NP-10

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
6----- Birdow	0-10	Loam-----	CL-ML	A-4	0	0	100	90-100	85-95	60-75	25-35	5-10
	10-28	Loam-----	CL-ML	A-4	0	0	100	90-100	85-95	60-75	25-35	5-10
	28-60	Loam-----	CL-ML	A-4	0	0	100	90-100	85-95	60-75	25-35	5-10
7----- Borvant	0-7	Gravelly loam	GM-GC, GM, SC-SM, SM	A-2, A-4	0	0-10	60-80	55-75	45-65	30-50	20-30	NP-10
	7-18	Very gravelly loam.	GM-GC, GM	A-1, A-2, A-4	0	0-20	35-55	30-50	25-45	20-40	20-30	NP-10
	18-25	Indurated-----	---	---	---	---	---	---	---	---	0-14	NP
	25-60	Stratified sand and gravel to indurated.	GP	A-1	0-10	15-45	25-45	20-40	10-30	0-10	20-25	NP-5
8----- Bramwell	0-6	Silt loam-----	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	6-20	Silt loam-----	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-45	5-20
	20-28	Silty clay loam	CL, CL-ML	A-6	0	0	100	100	95-100	75-95	30-40	10-20
	28-36	Silty clay loam	CL, CL-ML	A-6	0	0	100	100	95-100	75-95	30-40	10-20
	36-60	Silty clay loam	CL, CL-ML	A-6	0	0	100	100	95-100	75-95	30-40	10-20
10: Broad-----	0-4	Gravelly loam	GM-GC, SC-SM, GC	A-4	0-5	0-10	55-80	50-75	40-65	30-50	20-30	5-10
	4-10	Gravelly loam	GM-GC, SC-SM, GC	A-4	0-5	0-10	55-80	50-75	40-65	30-50	20-30	5-10
	10-20	Very gravelly clay loam.	GC	A-6	0-5	0-20	35-65	30-60	25-55	20-50	30-40	10-15
	20-38	Extremely cobble loam.	GM-GC, SC-SM, GC	A-4	0-10	30-35	40-75	35-70	30-65	25-50	20-30	5-10
	38-42	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Reywat-----	0-4	Very gravelly loam.	GM-GC	A-2	0-5	0-15	35-55	30-50	25-45	20-35	20-30	5-10
	4-13	Very gravelly clay loam, very cobbly clay loam.	GC, CL, SC	A-2, A-6	0-10	0-45	35-75	30-70	25-60	20-55	30-40	10-15
	13-23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
11: Checkett-----	0-3	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-10	15-45	45-75	40-70	35-60	25-40	25-30	5-10
	3-14	Very cobbly clay loam, very cobbly loam.	GM-GC, SC-SM, GC, SC	A-2, A-4, A-6	0-15	10-45	45-75	40-70	35-65	25-50	25-35	5-15
	14-24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
12----- Cliffdown	0-5	Gravelly sandy loam.	GM, GM-GC, SM, SC-SM	A-1, A-2	0	0-5	55-80	50-75	30-50	15-30	15-25	NP-10
	5-60	Very gravelly sandy loam.	GM, GM-GC	A-1, A-2	0	0-15	35-55	30-50	25-35	15-20	15-25	NP-10
13----- Cristo	0-9	Loam-----	CL-ML	A-4	0	0	90-100	85-100	70-95	55-75	25-35	5-10
	9-22	Gravelly clay loam.	CL, GC, SC	A-7	0	0	55-80	50-75	45-70	35-55	40-45	15-20
	22-35	Extremely gravelly clay loam.	GC, GP-GC	A-2	0	0	15-35	10-25	5-25	5-20	30-45	10-20
	35-45	Weathered bedrock.	---	---	---	---	---	---	---	---	0-14	NP
14: Dateman-----	0-11	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	11-22	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	22-36	Very cobbly loam.	GM-GC, GC	A-2, A-4	0	25-45	45-70	40-65	35-55	25-45	25-30	5-10
	36-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	0-14	NP
Podmor-----	0-3	Very cobbly loam.	GM-GC, GC, SC-SM, SC	A-2, A-4, A-6	0-10	20-55	55-75	50-70	40-65	30-50	25-35	5-15
	3-16	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	0-20	35-65	30-55	25-50	20-40	25-35	5-15
	16-23	Very cobbly loam.	GM-GC, GC, SC-SM, SC	A-2, A-4, A-6	0-10	20-55	55-75	50-70	40-65	30-50	25-35	5-15
	23-43	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
14A: Dateman-----	0-11	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	11-22	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	22-36	Very cobbly loam.	GM-GC, GC	A-2, A-4	0	25-45	45-70	40-65	35-55	25-45	25-30	5-10
	36-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	0-14	NP
Podmor-----	0-3	Very cobbly loam.	GM-GC, GC, SC-SM, SC	A-2, A-4, A-6	0-10	20-55	55-75	50-70	40-65	30-50	25-35	5-15
	3-16	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	0-20	35-65	30-55	25-50	20-40	25-35	5-15
	16-23	Very cobbly loam.	GM-GC, GC, SC-SM, SC	A-2, A-4, A-6	0-10	20-55	55-75	50-70	40-65	30-50	25-35	5-15
	23-33	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
15-----	0-10	Loam-----	CL, CL-ML	A-4	0	0	85-100	80-95	65-85	50-70	25-30	5-10
Doyce	10-21	Clay loam-----	CL	A-6	0	0	85-100	80-95	70-90	55-70	30-40	10-15
	21-60	Loam-----	CL, CL-ML	A-4	0	0	85-100	80-95	65-85	50-70	25-30	5-10
16. Dune land												
17-----	0-1	Sand-----	SP-SM, SM	A-3, A-2	0	0	100	95-100	70-80	5-15	---	NP
Dynal	1-60	Sand, fine sand	SM, SP-SM	A-3, A-2	0	0	100	95-100	50-75	5-15	---	NP
18: Dynal-----	0-6	Sand-----	SP-SM, SM	A-3, A-2	0	0	100	95-100	70-80	5-15	---	NP
	6-60	Sand, fine sand	SM, SP-SM	A-3, A-2	0	0	100	95-100	50-75	5-15	---	NP
Tooele-----	0-10	Fine sandy loam	SM, ML	A-4	0	0	95-100	90-100	65-85	35-55	20-25	NP-5
	10-60	Fine sandy loam	SM, ML	A-4	0	0	95-100	90-100	65-85	35-55	20-25	NP-5
19-----	0-8	Silt loam-----	CL-ML, CL	A-4	0	0	100	100	90-100	80-90	25-30	5-10
Erda	8-14	Silt loam-----	CL-ML, CL	A-4	0	0	100	100	90-100	80-90	25-30	5-10
	14-39	Silt loam-----	CL-ML, CL	A-4	0	0	100	100	90-100	80-90	25-30	5-10
	39-60	Silt loam-----	CL-ML, CL	A-4	0	0	100	100	90-100	80-90	25-30	5-10

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
20: Flygare-----	0-22	Cobbly loam----	SC-SM, CL-ML	A-4	0-5	10-30	75-95	70-90	60-80	40-60	25-30	5-10
	22-36	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-15	10-45	50-70	45-65	35-55	25-45	25-30	5-10
	36-50	Very cobbly sandy clay loam.	GC, SC	A-2	0-15	10-45	50-70	45-65	35-55	15-35	30-40	10-15
	50-60	Extremely cobbly loam.	GM-GC, GP-GM	A-2	0-20	15-55	25-45	20-40	15-35	10-30	25-35	5-10
Dateman-----	0-11	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	11-22	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	22-36	Very cobbly loam.	GM-GC, GC	A-2, A-4	0	25-45	45-70	40-65	35-55	25-45	25-30	5-10
	36-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	0-14	NP
Rock outcrop.												
21----- Hiko Peak	0-4	Gravelly loam	GM-GC, GM, SC-SM, SM	A-2, A-4	0	0-10	60-80	55-75	40-65	30-50	20-30	NP-10
	4-12	Very gravelly loam.	GM-GC, GM	A-2, A-4	0	5-20	40-60	35-55	25-50	20-40	20-30	NP-10
	12-60	Very gravelly loam.	GM-GC, GM	A-2, A-4	0	5-20	40-60	35-55	25-50	20-40	20-30	NP-10
22----- Hiko Peak	0-4	Very stony loam	GM-GC, GM, SC-SM, SM	A-2, A-4	10-20	10-20	45-75	40-70	35-65	25-45	20-30	NP-10
	4-12	Very stony loam	GM-GC, GM, SC-SM, SM	A-2, A-4	10-20	10-20	45-75	40-70	35-65	25-45	20-30	NP-10
	12-60	Extremely gravelly sandy loam.	GM-GC, GM, GP-GM, GC	A-2	10-20	10-20	20-35	15-30	10-20	5-15	20-30	NP-10
23: Hiko Peak-----	0-4	Gravelly loam	GM-GC, GM, SC-SM, SM	A-2, A-4	0	0-10	60-80	55-75	40-65	30-50	20-30	NP-10
	4-12	Very gravelly loam.	GM-GC, GM	A-2, A-4	0	5-20	40-60	35-55	25-50	20-40	20-30	NP-10
	12-60	Very gravelly loam.	GM-GC, GM	A-2, A-4	0	5-20	40-60	35-55	25-50	20-40	20-30	NP-10

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
23: Checkett-----	0-3	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-10	15-45	45-75	40-70	35-60	25-40	25-30	5-10
	3-14	Very cobbly clay loam, very cobbly loam.	GM-GC, SC-SM, GC, SC	A-2, A-4, A-6	0-15	10-45	45-75	40-70	35-65	25-50	25-35	5-15
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
24: Hiko Peak-----	0-4	Gravelly loam	GM-GC, GM, SC-SM, SM	A-2, A-4	0	0-10	60-80	55-75	40-65	30-50	20-30	NP-10
	4-12	Very gravelly loam.	GM-GC, GM	A-2, A-4	0	5-20	40-60	35-55	25-50	20-40	20-30	NP-10
	12-60	Very gravelly loam.	GM-GC, GM	A-2, A-4	0	5-20	40-60	35-55	25-50	20-40	20-30	NP-10
Taylorsflat----	0-4	Loam-----	CL-ML	A-4	0	0	85-100	80-100	65-95	50-75	25-35	5-10
	4-9	Loam-----	CL-ML	A-4	0	0	85-100	80-100	65-95	50-75	25-35	5-10
	9-60	Loam-----	CL-ML	A-4	0	0	85-100	80-100	65-95	50-75	25-35	5-10
25----- Hiko Springs	0-4	Gravelly sandy loam.	SM, GM	A-1, A-2	0	0	55-80	50-75	30-50	15-30	20-25	NP-5
	4-18	Gravelly sandy loam.	SM, GM	A-1, A-2	0	0	55-80	50-75	30-50	15-30	20-25	NP-5
	18-60	Gravelly sandy loam.	SM, GM	A-1, A-2	0	0	55-80	50-75	30-50	15-30	20-25	NP-5
26----- Holmes	0-10	Very stony sandy loam.	GM-GC, SC-SM	A-2	15-30	15-25	45-75	40-70	25-45	10-25	20-30	5-10
	10-29	Very stony sandy clay loam.	GC, SC	A-2	15-30	15-25	45-75	40-70	30-60	15-35	30-40	10-15
	29-37	Very stony sandy loam.	GM-GC, SC-SM	A-2	15-25	15-25	45-75	40-70	25-45	10-25	20-30	5-10
	37-60	Extremely stony loamy coarse sand.	GP, GP-GM	A-1	15-30	15-30	25-45	20-45	10-30	0-10	0-10	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
27: Izamatch-----	0-3	Gravelly sandy loam.	GM, SM	A-1, A-2	0	0-5	55-80	50-75	30-50	15-30	15-25	NP-5
	3-10	Gravelly sandy loam, very gravelly sandy loam.	GM, SM	A-1, A-2	0	0-5	40-80	35-75	25-50	20-35	15-25	NP-5
	10-30	Very gravelly loamy sand, very gravelly sand, very gravelly loamy coarse sand.	GM, GP-GM	A-1	0	0-5	30-55	25-50	15-30	5-15	---	NP
	30-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP, GP-GM, GM, SP-SM	A-1	0	0-5	20-60	15-55	5-35	0-15	---	NP
Cliffdown-----	0-3	Very gravelly sandy loam.	GM, GM-GC	A-1, A-2	0	0-5	35-55	30-50	15-35	10-20	15-25	NP-10
	3-60	Very gravelly sandy loam.	GM, GM-GC	A-1, A-2	0	0-5	35-55	30-50	15-35	10-20	15-25	NP-10
28: Izamatch-----	0-5	Very gravelly sandy loam.	GM, GP-GM	A-1	0	0-5	30-55	25-50	15-35	5-20	15-25	NP-5
	5-10	Gravelly sandy loam, very gravelly sandy loam.	GM, SM	A-1, A-2	0	0-5	40-80	35-75	25-50	20-35	15-25	NP-5
	10-24	Very gravelly loamy sand, very gravelly sand, very gravelly loamy coarse sand.	GM, GP-GM	A-1	0	0-5	30-55	25-50	15-30	5-15	---	NP
	24-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP, GP-GM, GM, SP-SM	A-1	0	0-5	20-60	15-55	5-35	0-15	---	NP
Cliffdown-----	0-5	Gravelly sandy loam.	GM, GM-GC, SM, SC-SM	A-1, A-2	0	0-5	55-80	50-75	30-50	15-30	15-25	NP-10
	5-60	Very gravelly sandy loam.	GM, GM-GC	A-1, A-2	0	0-15	35-55	30-50	25-35	15-20	15-25	NP-10

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
29----- Jericho	0-3	Gravelly sandy loam.	GM-GC, SC-SM, GM, SM	A-2, A-1	0	0-10	60-80	50-75	30-50	15-30	20-30	NP-10
	3-9	Gravelly sandy loam.	GM-GC, SC-SM, GM, SM	A-2, A-1	0	0-10	60-80	50-75	30-50	15-30	20-30	NP-10
	9-14	Very gravelly sandy loam.	GM-GC, SC-SM, GM, SM	A-2, A-1	0	0-20	35-60	30-55	15-35	10-20	20-30	NP-10
	14-19	Indurated-----	---	---	---	---	---	---	---	---	0-14	NP
	19-33	Extremely gravelly loamy coarse sand.	GP	A-1	0	0-20	20-30	15-25	10-20	0-10	20-25	NP-5
	33-60	Stratified indurated to sand and gravel.	---	---	---	---	---	---	---	---	0-14	NP
30----- Junkett	0-5	Gravelly loam	GM, GM-GC, SC-SM, SM	A-2, A-4	0	0-5	60-80	55-75	40-65	30-50	20-30	NP-10
	5-11	Gravelly clay loam.	SC, CL, GC	A-6	0	0-5	60-80	55-75	45-70	35-55	30-40	10-15
	11-16	Gravelly clay loam.	SC, CL, GC	A-6	0	0-5	60-80	55-75	45-70	35-55	30-40	10-15
	16-24	Gravelly loam	GM-GC, GM, SM, SC-SM	A-2, A-4	0	0-5	60-80	55-75	40-65	30-50	20-30	NP-10
	24-30	Indurated-----	---	---	---	---	---	---	---	---	0-14	NP
	30-60	Stratified sand and gravel to indurated.	GP	A-1	0-10	15-45	25-45	20-40	10-30	0-10	20-25	NP-5
31----- Kanosh	0-4	Loam-----	ML, CL-ML	A-4	0	0	100	100	80-90	60-75	20-30	NP-10
	4-8	Loam-----	ML, CL-ML	A-4	0	0	100	100	80-90	60-75	20-30	NP-10
	8-27	Fine sandy loam	SM, ML, CL-ML, SC-SM	A-4	0	0	100	95-100	70-85	40-60	20-30	NP-10
	27-60	Fine sandy loam	SM, ML, CL-ML, SC-SM	A-4	0	0	100	95-100	70-85	40-60	20-30	NP-10
32: Kanosh-----	0-4	Loam-----	ML, CL-ML	A-4	0	0	100	100	80-90	60-75	20-30	NP-10
	4-8	Loam-----	ML, CL-ML	A-4	0	0	100	100	80-90	60-75	20-30	NP-10
	8-27	Fine sandy loam	SM, ML, CL-ML, SC-SM	A-4	0	0	100	95-100	70-85	40-60	20-30	NP-10
	27-60	Fine sandy loam	SM, ML, CL-ML, SC-SM	A-4	0	0	100	95-100	70-85	40-60	20-30	NP-10

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
32: Saltair-----	0-8	Silt loam-----	CL, CL-ML	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	8-21	Silt loam-----	CL-ML, CL	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	21-60	Silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	30-40	10-20
Logan-----	0-4	Silt loam-----	CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	4-15	Silt loam-----	CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	15-60	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	30-40	10-20
33-----	0-11	Gravelly loam	SC-SM, GM-GC	A-4	0	5-10	70-80	65-75	55-65	40-50	25-35	5-10
Kapod	11-30	Very cobbly clay loam.	GC, SC, CL	A-6	0	30-40	55-75	50-70	45-65	35-55	30-40	10-15
	30-60	Very cobbly sandy clay loam.	GM-GC, SC-SM	A-2, A-4	0	30-40	55-75	50-70	40-60	20-40	25-35	5-10
34-----	0-12	Stony loam-----	GM-GC, CL-ML	A-4	5-15	0-25	70-90	65-85	55-75	40-60	25-35	5-10
Kapod	12-26	Very cobbly sandy clay loam.	GM, GC, SM, SC	A-2, A-6, A-7	0-15	5-45	45-65	40-60	30-55	15-40	35-45	10-20
	26-60	Very cobbly sandy loam.	GM, SM	A-2, A-1	0-15	5-45	45-65	40-60	25-40	10-35	20-25	NP-5
35-----	0-11	Very cobbly loam.	GM-GC	A-2, A-4	0	30-45	45-65	40-60	35-55	25-45	25-35	5-10
Kapod	11-25	Very cobbly sandy clay loam.	GM, GC, SM, SC	A-2, A-6, A-7	0-15	5-45	45-65	40-60	30-55	15-40	35-45	10-20
	25-60	Very cobbly sandy loam.	GM, SM	A-2, A-1	0-15	5-45	45-65	40-60	25-40	10-35	20-25	NP-5
36-----	0-10	Gravelly sandy loam.	SM, GM	A-1	0	0-5	55-80	50-75	30-50	15-25	15-25	NP-5
Kilburn	10-19	Gravelly sandy loam.	SM, GM	A-1	0	0-5	55-80	50-75	30-50	15-25	15-25	NP-5
	19-36	Very gravelly sandy loam.	GM, GP-GM	A-1	0	5-10	35-55	30-50	15-30	10-20	20-25	NP-5
	36-60	Very cobbly loamy sand, very gravelly loamy sand.	GM, GP-GM	A-1	0	5-30	35-55	30-50	15-30	5-15	0-10	NP
37-----	0-7	Gravelly loam	GM-GC, GM, SC-SM, SM	A-4	0	0-10	60-80	55-75	45-65	35-50	20-30	NP-10
Lakewin	7-18	Gravelly sandy clay loam.	GM-GC, SC-SM	A-2, A-4	0	0-10	60-80	55-75	45-65	20-40	25-35	5-10
	18-30	Very gravelly sandy loam.	GM	A-1	0	0-10	35-55	30-50	15-35	10-20	20-25	NP-5
	30-60	Very gravelly sand.	GP, SP	A-1	0	0-10	35-55	30-50	15-35	0-5	0-10	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
		In			Pct	Pct					Pct	
38:												
Lodar-----	0-8	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-10	15-40	45-75	40-70	25-65	20-50	20-30	5-10
	8-16	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-10	15-40	45-75	40-70	25-65	20-50	20-30	5-10
	16-26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Lundy-----	0-11	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-15	10-40	45-75	40-70	25-65	20-50	20-30	5-10
	11-18	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-15	10-40	45-75	40-70	25-65	20-50	20-30	5-10
	18-28	Unweathered bedrock.	---	---	---	---	---	---	---	---	0-14	NP
Rock outcrop.												
39-----	0-4	Silt loam-----	CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
Logan	4-15	Silt loam-----	CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	15-60	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	30-40	10-20
40:												
Lundy-----	0-11	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-15	10-40	45-75	40-70	25-65	20-50	20-30	5-10
	11-18	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-15	10-40	45-75	40-70	25-65	20-50	20-30	5-10
	18-28	Unweathered bedrock.	---	---	---	---	---	---	---	---	0-14	NP
Dateman-----	0-11	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	11-22	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	22-36	Very cobbly loam.	GM-GC, GC	A-2, A-4	0	25-45	45-70	40-65	35-55	25-45	25-30	5-10
	36-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	0-14	NP
Rock outcrop.												
41-----	0-12	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	75-90	20-30	5-10
Manassa	12-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	75-90	25-40	5-15
42-----	0-4	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	85-100	80-100	55-85	30-50	20-30	NP-10
Medburn	4-41	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	85-100	80-100	55-85	30-50	20-30	NP-10
	41-60	Fine sandy loam	SM, SC-SM	A-4, A-2	0	0	85-100	80-100	55-85	30-50	20-30	NP-10

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
43----- Medburn	0-8	Fine sandy loam	SC-SM, SM	A-4, A-2	0	0	85-100	80-100	55-85	30-50	20-30	NP-10
	8-46	Fine sandy loam	SC-SM, SM	A-4, A-2	0	0	85-100	80-100	55-85	30-50	20-30	NP-10
	46-60	Fine sandy loam	SC-SM, SM	A-4, A-2	0	0	85-100	80-100	55-85	30-50	20-30	NP-10
44. Pits												
45. Playas												
46: Playas.												
Saltair-----	0-8	Silt loam-----	CL, CL-ML	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	8-21	Silt loam-----	CL-ML, CL	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	21-60	Silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	30-40	10-20
46A: Podmor-----	0-3	Very cobbly loam.	GM-GC, GC, SC-SM, SC	A-2, A-4, A-6	0-10	20-55	55-75	50-70	40-65	30-50	25-35	5-15
	3-16	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	0-20	35-65	30-55	25-50	20-40	25-35	5-15
	16-23	Very cobbly loam.	GM-GC, GC, SC-SM, SC	A-2, A-4, A-6	0-10	20-55	55-75	50-70	40-65	30-50	25-35	5-15
	23-33	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Dateman-----	0-11	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	11-22	Gravelly loam	GM-GC, SC-SM, CL-ML	A-4	0	0-10	60-80	55-75	50-70	35-55	25-30	5-10
	22-36	Very cobbly loam.	GM-GC, GC	A-2, A-4	0	25-45	45-70	40-65	35-55	25-45	25-30	5-10
	36-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	0-14	NP
Rock outcrop.												
47: Podmor-----	0-3	Very cobbly loam.	GM-GC, GC, SC-SM, SC	A-2, A-4, A-6	0-10	20-55	55-75	50-70	40-65	30-50	25-35	5-15
	3-16	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	0-20	35-65	30-55	25-50	20-40	25-35	5-15
	16-23	Very cobbly loam.	GM-GC, GC, SC-SM, SC	A-2, A-4, A-6	0-10	20-55	55-75	50-70	40-65	30-50	25-35	5-15
	23-33	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
47: Onaqui-----	0-4	Very cobbly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	15-55	45-70	40-65	35-55	25-45	25-35	5-15
	4-15	Extremely cobbly loam.	GM-GC, GC	A-2	0-10	25-60	25-45	20-40	15-40	10-30	25-35	5-15
	15-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
		Rock outcrop.										
48: Reywat-----	0-2	Very cobbly loam.	GM-GC	A-2, A-4	0-10	15-45	45-75	40-70	35-60	25-50	20-30	5-10
	2-11	Very gravelly clay loam, very cobbly clay loam.	GC, CL, SC	A-2, A-6	0-10	0-45	35-75	30-70	25-60	20-55	30-40	10-15
	11-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
		Rock outcrop.										
Broad-----	0-4	Cobbly loam----	GM-GC, CL-ML	A-4	0-5	10-30	80-90	75-85	60-70	50-60	20-30	5-10
	4-14	Cobbly loam----	GM-GC, CL-ML	A-4	0-5	10-30	80-90	75-85	60-70	50-60	20-30	5-10
	14-23	Very gravelly clay loam.	GC	A-6	0-5	0-20	35-65	30-60	25-55	20-50	30-40	10-15
	23-36	Very cobbly loam.	GM-GC, CL-ML	A-6	0-10	25-45	55-85	50-80	40-70	30-60	20-30	5-10
	36-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
		Rock outcrop.										
49: Ridd-----	0-13	Very stony sandy loam.	SM, GM, SC-SM, GM-GC	A-1, A-2	10-25	10-25	40-70	35-65	15-40	10-25	20-30	NP-10
	13-22	Very stony sandy loam.	SM, GM, SC-SM, GM-GC	A-1, A-2	10-25	10-25	40-70	35-65	15-40	10-25	20-30	NP-10
	22-36	Very stony sandy loam.	GM, SM, SC-SM, GM-GC	A-1, A-2	10-25	10-25	40-70	35-65	15-40	10-25	20-30	NP-10
	36-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
		Rock outcrop.										

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
50: Ridd-----	0-13	Very stony sandy loam.	SM, GM, SC-SM, GM-GC	A-1, A-2	10-25	10-25	40-70	35-65	15-40	10-25	20-30	NP-10
	13-22	Very stony sandy loam.	SM, GM, SC-SM, GM-GC	A-1, A-2	10-25	10-25	40-70	35-65	15-40	10-25	20-30	NP-10
	22-36	Very stony sandy loam.	GM, SM, SC-SM, GM-GC	A-1, A-2	10-25	10-25	40-70	35-65	15-40	10-25	20-30	NP-10
	36-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Wasatch-----	0-18	Loamy coarse sand.	SM	A-1, A-2	0	0	85-100	80-100	40-75	15-30	0-10	NP
	18-60	Loamy coarse sand, sand.	SM, SP-SM	A-1	0	0	85-100	80-100	40-75	5-30	0-10	NP
Rock outcrop.												
51: Rock outcrop.												
Lundy-----	0-11	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-15	10-40	45-75	40-70	25-65	20-50	20-30	5-10
	11-18	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-15	10-40	45-75	40-70	25-65	20-50	20-30	5-10
	18-28	Unweathered bedrock.	---	---	---	---	---	---	---	---	0-14	NP
52. Salt flats												
53: Saltair-----	0-8	Silt loam-----	CL, CL-ML	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	8-21	Silt loam-----	CL-ML, CL	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	21-60	Silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	30-40	10-20
Playas.												

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
54----- Scalade	0-3	Very fine sandy loam.	ML	A-4	0	0-5	95-100	95-100	80-95	50-65	---	NP
	3-9	Very fine sandy loam.	ML	A-4	0	0-5	95-100	95-100	80-95	50-65	---	NP
	9-17	Very fine sandy loam.	ML	A-4	0	0-5	95-100	95-100	80-95	50-65	---	NP
	17-24	Cemented-----	---	---	---	---	---	---	---	---	---	NP
	24-42	Gravelly sandy loam, gravelly loam, very gravelly loamy sand.	GM, GP-GM, SM	A-1, A-2, A-4	0	0-5	35-75	30-70	15-60	5-45	---	NP
	42-60	Stratified indurated to sand and gravel.	---	---	---	---	---	---	---	---	---	NP
55: Scalade-----	0-3	Very fine sandy loam.	ML	A-4	0	0-5	95-100	95-100	80-95	50-65	---	NP
	3-9	Very fine sandy loam.	ML	A-4	0	0-5	95-100	95-100	80-95	50-65	---	NP
	9-17	Very fine sandy loam.	ML	A-4	0	0-5	95-100	95-100	80-95	50-65	---	NP
	17-24	Cemented-----	---	---	---	---	---	---	---	---	---	NP
	24-42	Gravelly sandy loam, gravelly loam, very gravelly loamy sand.	GM, GP-GM, SM	A-1, A-2, A-4	0	0-5	35-75	30-70	15-60	5-45	---	NP
	42-60	Stratified indurated to sand and gravel.	---	---	---	---	---	---	---	---	---	NP
Jericho-----	0-4	Gravelly sandy loam.	GM-GC, SC-SM, GM, SM	A-2, A-1	0	0-10	60-80	50-75	30-50	15-30	20-30	NP-10
	4-9	Gravelly sandy loam.	GM-GC, SC-SM, GM, SM	A-2, A-1	0	0-10	60-80	50-75	30-50	15-30	20-30	NP-10
	9-16	Very gravelly sandy loam.	GM-GC, SC-SM, GM, SM	A-2, A-1	0	0-20	35-60	30-55	15-35	10-20	20-30	NP-10
	16-20	Indurated-----	---	---	---	---	---	---	---	---	0-14	NP
	20-40	Extremely gravelly loamy coarse sand.	GP	A-1	0	0-20	20-30	15-25	10-20	0-10	20-25	NP-5
	40-60	Stratified indurated to sand and gravel.	---	---	---	---	---	---	---	---	0-14	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
55: Medburn-----	0-4	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	85-100	80-100	55-85	30-50	20-30	NP-10
	4-41	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	85-100	80-100	55-85	30-50	20-30	NP-10
	41-60	Fine sandy loam	SM, SC-SM	A-4, A-2	0	0	85-100	80-100	55-85	30-50	20-30	NP-10
56-----	0-5	Silt loam-----	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	25-35	5-15
Skumpah	5-14	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-20
	14-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	75-90	20-40	5-20
57-----	0-2	Silt loam-----	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
Skumpah	2-9	Silty clay loam	ML, CL	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	9-26	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	75-95	25-40	5-15
	26-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	75-95	25-40	5-15
58-----	0-2	Silt loam-----	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
Skumpah	2-9	Silty clay loam	ML, CL	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	9-32	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	75-95	25-40	5-15
	32-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	75-95	25-40	5-15
59-----	0-4	Silt loam-----	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	25-35	5-15
Skumpah	4-11	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-20
	11-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	75-90	20-40	5-20
60: Skumpah-----	0-4	Silt loam-----	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	25-35	5-15
	4-11	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-20
	11-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	75-90	20-40	5-20
Yenrab-----	0-5	Loamy fine sand	SM	A-2, A-4	0	0	100	100	70-90	25-40	20-25	NP-5
	5-60	Fine sand-----	SM	A-2	0	0	100	100	65-80	20-35	0-10	NP
61. Slickens and mine dumps												

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
62----- Spager	0-3	Gravelly loam	GM-GC	A-4	0	0-10	65-75	60-70	50-60	40-50	20-30	5-10
	3-14	Very gravelly loam, very gravelly fine sandy loam.	GM-GC	A-2, A-4	0	0-15	35-55	30-50	25-45	15-40	20-30	5-10
	14-20 20-60	Indurated----- Stratified sand and gravel to indurated.	--- GP, GP-GM	--- A-1	--- 0-10	--- 15-45	--- 25-45	--- 20-40	--- 10-30	--- 0-10	--- 20-25	NP NP-5
63----- Springmeyer	0-4	Gravelly sandy loam.	SM, SC-SM, GM, GM-GC	A-1, A-2	0	0-5	60-80	55-75	30-50	15-30	20-30	NP-10
	4-14	Gravelly sandy loam.	SM, SC-SM, GM, GM-GC	A-1, A-2	0	0-5	60-80	55-75	30-50	15-30	20-30	NP-10
	14-29	Gravelly sandy clay loam.	SC, GC	A-2, A-6	0	0-5	60-80	55-75	40-65	20-40	30-40	10-20
	29-42	Very gravelly sandy loam.	GM, GP-GM, GM-GC	A-1, A-2	0	0-5	35-55	30-50	15-35	10-20	20-30	NP-10
	42-60	Very gravelly loamy sand.	GM, GP-GM	A-1	0	0-5	35-55	30-50	15-30	5-15	20-25	NP-5
64----- Taylorsflat	0-4	Loam-----	CL-ML	A-4	0	0	85-100	80-100	65-95	50-75	25-35	5-10
	4-9	Loam-----	CL-ML	A-4	0	0	85-100	80-100	65-95	50-75	25-35	5-10
	9-60	Loam-----	CL-ML	A-4	0	0	85-100	80-100	65-95	50-75	25-35	5-10
65----- Taylorsflat	0-3	Loam-----	CL-ML	A-4	0	0	90-100	80-100	70-90	50-70	25-30	5-10
	3-9	Loam-----	CL-ML	A-4	0	0	90-100	80-100	70-90	50-70	25-30	5-10
	9-60	Loam-----	CL-ML	A-4	0	0	90-100	80-100	70-90	50-70	25-30	5-10
65A: Theriot-----	0-3	Very stony loam	GM, ML, SM	A-4	15-25	5-25	45-80	45-80	40-75	35-65	20-25	NP-5
	3-14	Very stony loam, very cobbly loam, very gravelly sandy loam.	GM, SM	A-1, A-2, A-4	0-25	10-40	40-75	35-75	25-60	15-50	20-25	NP-5
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	NP
Rock outcrop.												
66----- Timpie	0-5	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	65-95	25-30	5-10
	5-14	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	80-95	25-30	5-10
	14-60	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	80-95	25-30	5-10
67----- Timpie	0-3	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	80-95	25-30	5-10
	3-21	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	80-95	25-30	5-10
	21-60	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	80-95	25-30	5-10

TABLE 14.--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	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
68:												
Timpie-----	0-3	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	80-95	25-30	5-10
	3-21	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	80-95	25-30	5-10
	21-60	Silt loam-----	CL-ML	A-4	0	0	100	100	95-100	80-95	25-30	5-10
Tooele-----	0-10	Fine sandy loam	SM, ML	A-4	0	0	95-100	90-100	65-85	35-55	20-25	NP-5
	10-60	Fine sandy loam	SM, ML	A-4	0	0	95-100	90-100	65-85	35-55	20-25	NP-5
69-----	0-3	Fine sandy loam	SM	A-4	0	0	95-100	90-100	65-85	35-50	20-25	NP-5
Tooele	3-42	Fine sandy loam	SM	A-4	0	0	95-100	90-100	65-85	35-50	20-25	NP-5
	42-60	Loamy fine sand, fine sand.	SM, SP-SM	A-2, A-1	0	0	95-100	90-100	45-75	5-30	0-10	NP
70-----	0-10	Fine sandy loam	SM, ML	A-4	0	0	95-100	90-100	65-85	35-55	20-25	NP-5
Tooele	10-60	Fine sandy loam	SM, ML	A-4	0	0	95-100	90-100	65-85	35-55	20-25	NP-5
71-----	0-12	Cobbly loam----	SC-SM, CL-ML	A-4	0-5	10-30	75-90	70-85	60-80	40-60	25-35	5-10
Yeates Hollow	12-44	Very cobbly clay loam.	GC	A-2, A-7	0-15	15-40	45-70	40-65	35-60	30-50	40-45	15-20
	44-60	Extremely cobbly sandy clay loam.	GM-GC, GP-GC, GP-GM	A-2, A-1	0-20	25-60	25-45	20-40	15-35	5-20	25-35	5-10
72-----	0-12	Very cobbly loam.	GM-GC, SC-SM	A-2, A-4	0-10	20-40	45-70	40-65	35-55	25-45	25-35	5-10
Yeates Hollow	12-38	Very cobbly clay loam.	GC	A-2, A-7	0-15	15-40	45-70	40-65	35-60	30-50	40-45	15-20
	38-60	Extremely cobbly sandy clay loam.	GM-GC, GP-GC, GP-GM	A-2, A-1	0-20	25-60	25-45	20-40	15-35	5-20	25-35	5-10
73-----	0-15	Fine sand-----	SM	A-2	0	0	100	100	65-80	20-35	0-10	NP
Yenrab	15-60	Fine sand-----	SM	A-2	0	0	100	100	65-80	20-35	0-10	NP
74:												
Yenrab-----	0-15	Fine sand-----	SM	A-2	0	0	100	100	65-80	20-35	0-10	NP
	15-60	Fine sand-----	SM	A-2	0	0	100	100	65-80	20-35	0-10	NP
Badlands.												

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<u>In</u>				<u>Pct</u>	<u>Pct</u>					<u>Pct</u>	
75: Yenrab-----	0-5	Loamy fine sand	SM	A-2, A-4	0	0	100	100	70-90	25-40	20-25	NP-5
	5-60	Fine sand-----	SM	A-2	0	0	100	100	65-80	20-35	0-10	NP
Tocele-----	0-10	Fine sandy loam	SM, ML	A-4	0	0	95-100	90-100	65-85	35-55	20-25	NP-5
	10-60	Fine sandy loam	SM, ML	A-4	0	0	95-100	90-100	65-85	35-55	20-25	NP-5

TABLE 15.--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	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
1----- Abela	0-10	10-18	1.25-1.35	2.00-6.00	0.11-0.14	Low-----	2.0-4.0	0.15	0.28	3	5	56
	10-20	10-18	1.30-1.40	2.00-6.00	0.11-0.14	Low-----	0.0-1.0	0.20	0.37			
	20-60	10-18	1.35-1.50	2.00-6.00	0.08-0.11	Low-----	0.5-1.0	0.15	0.43			
2----- Abela	0-11	10-18	1.25-1.35	2.00-6.00	0.08-0.11	Low-----	2.0-4.0	0.15	0.28	3	6	48
	11-22	10-18	1.30-1.40	2.00-6.00	0.08-0.11	Low-----	0.5-1.0	0.10	0.32			
	22-60	10-18	1.35-1.50	2.00-6.00	0.05-0.06	Low-----	0.5-1.0	0.05	0.28			
3: Antoft-----	0-11	12-18	1.30-1.45	2.00-6.00	0.08-0.11	Low-----	1.0-2.0	0.10	0.37	1	6	48
	11-17	12-20	1.30-1.45	2.00-6.00	0.05-0.07	Low-----	0.0-1.0	0.05	0.32			
	17-27	---	---	0.00-0.60	---	-----	---	---	---			
Rock outcrop.												
4: Antoft-----	0-9	12-18	1.30-1.45	2.00-6.00	0.08-0.11	Low-----	1.0-2.0	0.10	0.37	1	6	48
	9-16	12-20	1.30-1.45	2.00-6.00	0.05-0.07	Low-----	0.0-1.0	0.05	0.32			
	16-26	---	---	0.00-0.60	---	-----	---	---	---			
Rock outcrop.												
5: Berent-----	0-6	0-10	1.45-1.60	6.00-20.00	0.07-0.09	Low-----	1.0-2.0	0.17	0.17	5	2	134
	6-60	0-5	1.50-1.65	20.00-60.00	0.06-0.07	Low-----	0.5-1.0	0.17	0.17			
Hiko Peak-----	0-4	10-18	1.30-1.40	2.00-6.00	0.11-0.14	Low-----	1.0-2.0	0.20	0.37	5	5	56
	4-12	10-18	1.35-1.45	2.00-6.00	0.08-0.11	Low-----	0.0-1.0	0.10	0.32			
	12-60	10-18	1.35-1.45	2.00-6.00	0.08-0.11	Low-----	0.0-1.0	0.10	0.32			
6----- Birdow	0-10	18-27	1.25-1.35	0.60-2.00	0.15-0.17	Low-----	2.0-4.0	0.24	0.24	5	4L	86
	10-28	18-27	1.25-1.35	0.60-2.00	0.15-0.17	Low-----	2.0-4.0	0.24	0.24			
	28-60	18-27	1.30-1.40	0.60-2.00	0.15-0.17	Low-----	1.0-2.0	0.32	0.32			
7----- Borvant	0-7	10-18	1.25-1.35	0.60-2.00	0.11-0.14	Low-----	2.0-4.0	0.15	0.28	1	5	56
	7-18	10-18	1.35-1.45	0.60-2.00	0.08-0.10	Low-----	0.5-1.0	0.10	0.37			
	18-25	---	---	0.00-0.60	---	-----	---	---	---			
	25-60	0-10	1.30-1.50	0.60-20.00	0.01-0.03	Low-----	---	0.02	0.10			
8----- Bramwell	0-6	18-25	1.10-1.20	0.06-0.60	0.11-0.17	Low-----	2.0-5.0	0.43	0.43	5	4L	86
	6-20	24-27	1.15-1.30	0.06-0.60	0.11-0.17	Low-----	0.0-0.5	0.49	0.49			
	20-28	27-35	1.20-1.30	0.06-0.20	0.11-0.15	Moderate	0.0-0.5	0.43	0.43			
	28-36	27-35	1.20-1.30	0.06-0.20	0.11-0.15	Moderate	0.0-0.5	0.43	0.43			
	36-60	27-35	1.20-1.30	0.06-0.20	0.11-0.15	Moderate	0.0-0.5	0.43	0.43			
10: Broad-----	0-4	15-20	1.20-1.35	0.60-2.00	0.11-0.14	Low-----	3.0-5.0	0.10	0.20	2	6	48
	4-10	15-20	1.25-1.40	0.60-2.00	0.11-0.14	Low-----	2.0-4.0	0.15	0.24			
	10-20	27-35	1.25-1.40	0.20-0.60	0.09-0.12	Moderate	0.5-1.0	0.10	0.32			
	20-38	15-20	1.25-1.40	0.60-2.00	0.07-0.08	Low-----	0.0-0.5	0.05	0.37			
	38-42	---	---	0.20-2.00	---	-----	---	---	---			
Reywat-----	0-4	15-20	1.25-1.40	0.60-2.00	0.08-0.11	Low-----	2.0-4.0	0.05	0.32	1	7	38
	4-13	27-35	1.15-1.30	0.20-0.60	0.09-0.12	Low-----	0.5-1.0	0.10	0.37			
	13-23	---	---	0.01-0.60	---	-----	---	---	---			
Rock outcrop.												

TABLE 15.--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
11: Checkett-----	0-3	18-22	1.20-1.30	0.60-2.00	0.08-0.10	Low-----	1.0-2.0	0.10	0.37	1	6	48
	3-14	22-30	1.25-1.35	0.60-2.00	0.08-0.12	Low-----	0.5-1.0	0.10	0.37			
	14-24	---	---	0.01-2.00	---	-----	---	---	---			
Rock outcrop.												
12----- Cliffdown	0-5	10-18	1.40-1.55	2.00-6.00	0.07-0.09	Low-----	0.5-1.0	0.15	0.28	5	4	86
	5-60	8-18	1.40-1.60	2.00-6.00	0.05-0.07	Low-----	0.0-0.5	0.10	0.37			
13----- Cristo	0-9	18-27	1.25-1.40	0.60-2.00	0.15-0.17	Low-----	2.0-5.0	0.20	0.20	3	6	48
	9-22	35-40	1.25-1.40	0.20-0.60	0.12-0.16	Moderate	1.0-2.0	0.15	0.24			
	22-35	27-40	1.25-1.40	0.60-2.00	0.06-0.08	Moderate	0.5-1.0	0.05	0.24			
	35-45	---	---	0.00-2.00	---	-----	---	---	---			
14: Dateman-----	0-11	18-27	1.30-1.40	0.60-2.00	0.12-0.14	Low-----	3.0-6.0	0.15	0.37	2	7	38
	11-22	18-27	1.30-1.40	0.60-2.00	0.12-0.14	Low-----	2.0-4.0	0.15	0.37			
	22-36	18-27	1.30-1.40	0.60-2.00	0.08-0.11	Low-----	1.0-2.0	0.10	0.32			
	36-46	---	---	0.00-0.60	---	-----	---	---	---			
Podmor-----	0-3	18-27	1.20-1.30	0.60-2.00	0.08-0.11	Low-----	2.0-4.0	0.10	0.37	2	7	38
	3-16	18-27	1.30-1.40	0.60-2.00	0.08-0.11	Low-----	2.0-4.0	0.10	0.32			
	16-23	18-27	1.40-1.50	0.60-2.00	0.07-0.11	Low-----	0.5-1.0	0.10	0.32			
	23-43	---	---	0.01-2.00	---	-----	---	---	---			
Rock outcrop.												
14A: Dateman-----	0-11	18-27	1.30-1.40	0.60-2.00	0.12-0.14	Low-----	3.0-6.0	0.15	0.37	2	7	38
	11-22	18-27	1.30-1.40	0.60-2.00	0.12-0.14	Low-----	2.0-4.0	0.15	0.37			
	22-36	18-27	1.30-1.40	0.60-2.00	0.08-0.11	Low-----	1.0-2.0	0.10	0.32			
	36-46	---	---	0.00-0.60	---	-----	---	---	---			
Podmor-----	0-3	18-27	1.20-1.30	0.60-2.00	0.08-0.11	Low-----	2.0-4.0	0.10	0.37	2	7	38
	3-16	18-27	1.30-1.40	0.60-2.00	0.08-0.11	Low-----	2.0-4.0	0.10	0.32			
	16-23	18-27	1.40-1.50	0.60-2.00	0.07-0.11	Low-----	0.5-1.0	0.10	0.32			
	23-33	---	---	0.01-2.00	---	-----	---	---	---			
Rock outcrop.												
15----- Doyce	0-10	18-24	1.20-1.30	0.60-2.00	0.15-0.17	Low-----	2.0-4.0	0.20	0.24	5	6	48
	10-21	27-35	1.30-1.40	0.20-0.60	0.17-0.18	Moderate	0.5-1.0	0.28	0.32			
	21-60	18-27	1.30-1.40	0.60-2.00	0.15-0.17	Low-----	0.5-1.0	0.32	0.37			
16. Dune land												
17----- Dynal	0-1	0-2	1.45-1.60	6.00-20.00	0.04-0.07	Low-----	0.0-0.5	0.10	0.10	5	1	220
	1-60	0-2	1.45-1.60	6.00-20.00	0.04-0.07	Low-----	0.0-0.5	0.10	0.10			
18: Dynal-----	0-6	0-2	1.45-1.60	6.00-20.00	0.04-0.07	Low-----	0.0-0.5	0.10	0.10	5	1	220
	6-60	0-2	1.45-1.60	6.00-20.00	0.04-0.07	Low-----	0.0-0.5	0.10	0.10			
Tooele-----	0-10	5-15	1.35-1.50	2.00-6.00	0.07-0.11	Low-----	0.5-1.0	0.37	0.37	5	3	86
	10-60	5-15	1.35-1.50	2.00-6.00	0.05-0.09	Low-----	0.0-0.5	0.43	0.43			
19----- Erda	0-8	18-27	1.10-1.20	0.20-0.60	0.16-0.18	Low-----	2.0-4.0	0.32	0.32	5	4L	86
	8-14	18-27	1.10-1.20	0.20-0.60	0.16-0.18	Low-----	1.0-3.0	0.32	0.32			
	14-39	18-27	1.20-1.30	0.20-0.60	0.16-0.18	Low-----	0.5-1.0	0.49	0.49			
	39-60	18-27	1.20-1.30	0.20-0.60	0.15-0.18	Low-----	0.5-1.0	0.49	0.49			

TABLE 15.--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
20: Flygare-----	0-22	18-27	1.20-1.30	0.60-2.00	0.11-0.13	Low-----	5.0-10	0.10	0.17	5	7	38
	22-36	15-27	1.25-1.35	0.60-2.00	0.08-0.10	Low-----	0.5-1.0	0.10	0.37			
	36-50	27-35	1.30-1.40	0.60-2.00	0.08-0.11	Low-----	0.5-1.0	0.10	0.37			
	50-60	18-27	1.30-1.40	0.60-2.00	0.06-0.08	Low-----	0.5-1.0	0.10	0.64			
Dateman-----	0-11	18-27	1.30-1.40	0.60-2.00	0.12-0.14	Low-----	3.0-6.0	0.15	0.37	2	7	38
	11-22	18-27	1.30-1.40	0.60-2.00	0.12-0.14	Low-----	2.0-4.0	0.15	0.37			
	22-36	18-27	1.30-1.40	0.60-2.00	0.08-0.11	Low-----	1.0-2.0	0.10	0.32			
	36-46	---	---	0.00-0.60	---	-----	---	---	---			
Rock outcrop.												
21-----	0-4	10-18	1.30-1.40	2.00-6.00	0.11-0.14	Low-----	1.0-2.0	0.20	0.37	5	5	56
Hiko Peak	4-12	10-18	1.35-1.45	2.00-6.00	0.08-0.11	Low-----	0.0-1.0	0.10	0.32			
	12-60	10-18	1.35-1.45	2.00-6.00	0.08-0.11	Low-----	0.0-1.0	0.10	0.32			
22-----	0-4	10-18	1.30-1.40	2.00-6.00	0.08-0.11	Low-----	1.0-2.0	0.10	0.37	5	6	48
Hiko Peak	4-12	10-18	1.35-1.45	2.00-6.00	0.08-0.11	Low-----	0.5-1.0	0.10	0.32			
	12-60	10-18	1.40-1.50	2.00-6.00	0.05-0.08	Low-----	0.5-1.0	0.05	0.17			
23: Hiko Peak-----	0-4	10-18	1.30-1.40	2.00-6.00	0.11-0.14	Low-----	1.0-2.0	0.20	0.37	5	5	56
	4-12	10-18	1.35-1.45	2.00-6.00	0.08-0.11	Low-----	0.0-1.0	0.10	0.32			
	12-60	10-18	1.35-1.45	2.00-6.00	0.08-0.11	Low-----	0.0-1.0	0.10	0.32			
Checkett-----	0-3	18-22	1.20-1.30	0.60-2.00	0.08-0.10	Low-----	1.0-2.0	0.10	0.37	1	6	48
	3-14	22-30	1.25-1.35	0.60-2.00	0.08-0.12	Low-----	0.5-1.0	0.10	0.37			
	14-18	---	---	0.01-2.00	---	-----	---	---	---			
24: Hiko Peak-----	0-4	10-18	1.30-1.40	2.00-6.00	0.11-0.14	Low-----	1.0-2.0	0.20	0.37	5	5	56
	4-12	10-18	1.35-1.45	2.00-6.00	0.08-0.11	Low-----	0.0-1.0	0.10	0.32			
	12-60	10-18	1.35-1.45	2.00-6.00	0.08-0.11	Low-----	0.0-1.0	0.10	0.32			
Taylorflat-----	0-4	18-27	1.25-1.35	0.60-2.00	0.15-0.17	Low-----	1.0-2.0	0.28	0.32	5	4L	86
	4-9	18-27	1.25-1.35	0.20-0.60	0.15-0.17	Low-----	0.0-1.0	0.37	0.43			
	9-60	18-27	1.25-1.35	0.20-0.60	0.10-0.16	Low-----	0.0-1.0	0.37	0.43			
25-----	0-4	10-18	1.35-1.50	2.00-6.00	0.08-0.09	Low-----	0.5-1.0	0.15	0.28	2	4	86
Hiko Springs	4-18	10-18	1.40-1.55	2.00-6.00	0.08-0.09	Low-----	0.0-0.5	0.17	0.32			
	18-60	10-18	1.40-1.60	2.00-6.00	0.08-0.09	Low-----	0.0-0.5	0.17	0.32			
26-----	0-10	15-20	1.35-1.45	2.00-6.00	0.06-0.07	Low-----	2.0-4.0	0.05	0.24	3	5	56
Holmes	10-29	27-35	1.30-1.40	0.60-2.00	0.08-0.12	Low-----	0.0-1.0	0.10	0.28			
	29-37	15-20	1.40-1.50	2.00-6.00	0.06-0.07	Low-----	0.0-1.0	0.10	0.28			
	37-60	2-5	1.50-1.60	6.00-20.00	0.02-0.03	Low-----	0.0-1.0	0.05	0.24			
27: Izamat-----	0-3	8-18	1.50-1.70	2.00-6.00	0.07-0.09	Low-----	0.0-0.5	0.15	0.28	2	4	86
	3-10	8-18	1.50-1.70	2.00-6.00	0.04-0.09	Low-----	0.0-0.5	0.10	0.24			
	10-30	0-8	1.55-1.70	6.00-20.00	0.03-0.05	Low-----	0.0-0.5	0.10	0.20			
	30-60	0-8	1.60-1.75	6.00-20.00	0.03-0.05	Low-----	0.0-0.5	0.05	0.20			
Cliffdown-----	0-3	10-18	1.40-1.55	2.00-6.00	0.06-0.07	Low-----	0.5-1.0	0.10	0.32	5	5	56
	3-60	8-18	1.40-1.60	2.00-6.00	0.03-0.06	Low-----	0.5-1.0	0.10	0.32			
28: Izamat-----	0-5	8-18	1.50-1.70	2.00-6.00	0.04-0.08	Low-----	0.0-0.5	0.10	0.37	2	5	56
	5-10	8-18	1.50-1.70	2.00-6.00	0.04-0.09	Low-----	0.0-0.5	0.10	0.24			
	10-24	0-8	1.55-1.70	6.00-20.00	0.03-0.05	Low-----	0.0-0.5	0.10	0.20			
	24-60	0-8	1.60-1.75	6.00-20.00	0.03-0.05	Low-----	0.0-0.5	0.05	0.20			

TABLE 15.--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
28: Cliffdown-----	0-5	10-18	1.40-1.55	2.00-6.00	0.07-0.09	Low-----	0.5-1.0	0.15	0.28	5	4	86
	5-60	8-18	1.40-1.60	2.00-6.00	0.05-0.07	Low-----	0.0-0.5	0.10	0.37			
29----- Jericho	0-3	10-18	1.30-1.50	2.00-6.00	0.08-0.09	Low-----	1.0-2.0	0.15	0.24	1	4	86
	3-9	10-18	1.30-1.50	2.00-6.00	0.08-0.09	Low-----	0.0-1.0	0.17	0.17			
	9-14	10-18	1.30-1.50	2.00-6.00	0.06-0.07	Low-----	0.0-1.0	0.10	0.17			
	14-19	---	---	0.00-0.20	---	-----	---	---	---			
	19-33	0-10	1.30-1.50	6.00-20.00	0.01-0.03	Low-----	0.0-0.5	0.02	0.17			
	33-60	---	---	0.00-0.20	---	-----	0.0-0.5	---	---			
30----- Junkett	0-5	10-18	1.25-1.45	0.60-2.00	0.12-0.13	Low-----	1.0-2.0	0.17	0.37	2	6	48
	5-11	27-35	1.25-1.45	0.20-0.60	0.13-0.15	Moderate	0.5-1.0	0.20	0.24			
	11-16	27-35	1.25-1.45	0.20-0.60	0.13-0.15	Moderate	0.5-1.0	0.20	0.24			
	16-24	10-18	1.25-1.45	0.60-2.00	0.11-0.13	Low-----	0.5-1.0	0.24	0.32			
	24-30	---	---	0.00-0.20	---	-----	0.0-0.5	---	---			
	30-60	0-10	1.30-1.50	0.60-20.00	0.01-0.03	Low-----	0.0-0.5	0.02	0.10			
31----- Kanosh	0-4	8-18	1.25-1.40	0.60-2.00	0.15-0.17	Low-----	1.0-2.0	0.32	0.32	5	4L	86
	4-8	8-18	1.25-1.40	0.60-2.00	0.15-0.17	Low-----	0.5-1.0	0.32	0.32			
	8-27	5-18	1.35-1.50	2.00-6.00	0.07-0.11	Low-----	0.0-0.5	0.37	0.37			
	27-60	5-18	1.35-1.50	2.00-6.00	0.07-0.11	Low-----	0.0-0.5	0.37	0.37			
32: Kanosh-----	0-4	8-18	1.25-1.40	0.60-2.00	0.15-0.17	Low-----	1.0-2.0	0.32	0.32	5	4L	86
	4-8	8-18	1.25-1.40	0.60-2.00	0.15-0.17	Low-----	0.5-1.0	0.32	0.32			
	8-27	5-18	1.35-1.50	2.00-6.00	0.07-0.11	Low-----	0.0-0.5	0.37	0.37			
	27-60	5-18	1.35-1.50	2.00-6.00	0.07-0.11	Low-----	0.0-0.5	0.37	0.37			
Saltair-----	0-8	20-27	1.15-1.25	0.02-0.60	0.16-0.18	Low-----	0.0-1.0	0.49	0.49	5	4L	86
	8-21	20-27	1.15-1.25	0.20-0.60	0.16-0.18	Low-----	0.0-0.5	0.49	0.49			
	21-60	27-35	1.20-1.30	0.06-0.20	0.16-0.18	Moderate	0.0-0.5	0.49	0.49			
Logan-----	0-4	18-27	1.15-1.30	0.20-0.60	0.17-0.18	Low-----	4.0-8.0	0.28	0.28	5	4L	86
	4-15	18-27	1.15-1.30	0.20-0.60	0.17-0.18	Low-----	4.0-8.0	0.28	0.28			
	15-60	27-35	1.15-1.30	0.06-0.20	0.17-0.18	Moderate	0.0-1.0	0.43	0.43			
33----- Kapod	0-11	18-27	1.30-1.40	0.60-2.00	0.11-0.14	Low-----	2.0-4.0	0.15	0.28	3	7	38
	11-30	27-35	1.25-1.35	0.60-2.00	0.09-0.12	Low-----	0.5-1.0	0.10	0.32			
	30-60	20-27	1.30-1.40	0.60-2.00	0.08-0.11	Low-----	0.5-1.0	0.10	0.24			
34----- Kapod	0-12	20-25	1.25-1.35	0.60-2.00	0.11-0.14	Low-----	2.0-4.0	0.20	0.37	3	7	38
	12-26	25-35	1.25-1.35	0.60-2.00	0.08-0.12	Moderate	0.5-1.0	0.24	0.24			
	26-60	10-20	1.30-1.45	2.00-6.00	0.06-0.08	Low-----	0.5-1.0	0.28	0.17			
35----- Kapod	0-11	20-25	1.25-1.35	0.60-2.00	0.08-0.11	Low-----	2.0-4.0	0.17	0.37	3	7	38
	11-25	25-35	1.25-1.35	0.60-2.00	0.08-0.12	Moderate	0.5-1.0	0.24	0.24			
	25-60	10-20	1.30-1.45	2.00-6.00	0.06-0.08	Low-----	0.5-1.0	0.28	0.17			
36----- Kilburn	0-10	8-16	1.35-1.50	2.00-6.00	0.07-0.09	Low-----	2.0-4.0	0.10	0.24	3	3	86
	10-19	8-16	1.35-1.50	2.00-6.00	0.07-0.09	Low-----	2.0-4.0	0.10	0.24			
	19-36	10-18	1.35-1.50	2.00-6.00	0.06-0.08	Low-----	0.0-1.0	0.05	0.17			
	36-60	4-8	1.45-1.60	6.00-20.00	0.03-0.05	Low-----	0.0-1.0	0.05	0.15			
37----- Lakewin	0-7	16-22	1.25-1.35	2.00-6.00	0.11-0.14	Low-----	2.0-4.0	0.15	0.28	3	6	48
	7-18	18-25	1.30-1.40	2.00-6.00	0.12-0.15	Low-----	0.5-1.0	0.15	0.28			
	18-30	10-15	1.40-1.50	2.00-6.00	0.06-0.07	Low-----	0.0-1.0	0.10	0.32			
	30-60	0-5	1.50-1.60	20.00-60.00	0.03-0.04	Low-----	0.0-1.0	0.05	0.17			

TABLE 15.--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
54----- Scalade	0-3	5-10	1.35-1.50	0.60-2.00	0.13-0.16	Low-----	1.0-2.0	0.55	0.55	2	3	86
	3-9	5-10	1.35-1.50	0.60-2.00	0.13-0.16	Low-----	0.5-1.0	0.55	0.55			
	9-17	5-10	1.35-1.50	0.60-2.00	0.13-0.16	Low-----	0.5-1.0	0.55	0.55			
	17-24	---	---	0.00-0.60	---	-----	---	---	---			
	24-42	2-10	1.25-1.60	2.00-6.00	0.03-0.10	Low-----	0.0-0.5	0.20	0.32			
	42-60	---	---	0.00-0.20	---	-----	---	---	---			
55: Scalade-----	0-3	5-10	1.35-1.50	0.60-2.00	0.13-0.16	Low-----	1.0-2.0	0.55	0.55	2	3	86
	3-9	5-10	1.35-1.50	0.60-2.00	0.13-0.16	Low-----	0.5-1.0	0.55	0.55			
	9-17	5-10	1.35-1.50	0.60-2.00	0.13-0.16	Low-----	0.5-1.0	0.55	0.55			
	17-24	---	---	0.00-0.60	---	-----	---	---	---			
	24-42	2-10	1.25-1.60	2.00-6.00	0.03-0.10	Low-----	0.0-0.5	0.20	0.32			
	42-60	---	---	0.00-0.20	---	-----	---	---	---			
Jericho-----	0-4	10-18	1.30-1.50	2.00-6.00	0.08-0.09	Low-----	1.0-2.0	0.15	0.24	1	4	86
	4-9	10-18	1.30-1.50	2.00-6.00	0.08-0.09	Low-----	0.0-1.0	0.17	0.17			
	9-16	10-18	1.30-1.50	2.00-6.00	0.06-0.07	Low-----	0.0-1.0	0.10	0.17			
	16-20	---	---	0.00-0.20	---	-----	---	---	---			
	20-40	0-10	1.30-1.50	6.00-20.00	0.01-0.03	Low-----	0.0-0.5	0.02	0.17			
	40-60	---	---	0.00-0.20	---	-----	0.0-0.5	---	---			
Medburn-----	0-4	5-18	1.35-1.50	2.00-6.00	0.10-0.12	Low-----	1.0-2.0	0.24	0.24	5	3	86
	4-41	5-18	1.35-1.50	2.00-6.00	0.09-0.12	Low-----	0.0-1.0	0.17	0.17			
	41-60	5-18	1.35-1.50	2.00-6.00	0.07-0.12	Low-----	0.0-1.0	0.17	0.17			
56----- Skumpah	0-5	18-27	1.15-1.40	0.20-0.60	0.16-0.18	Low-----	0.5-1.0	0.43	0.43	5	4L	86
	5-14	27-35	1.30-1.50	0.20-0.60	0.08-0.16	Moderate	0.0-0.5	0.32	0.32			
	14-60	15-35	1.20-1.40	0.20-0.60	0.02-0.08	Moderate	0.0-0.5	0.37	0.37			
57----- Skumpah	0-2	15-27	1.15-1.30	0.20-0.60	0.17-0.18	Low-----	0.5-1.0	0.49	0.49	5	4L	86
	2-9	27-35	1.15-1.30	0.20-0.60	0.15-0.17	Moderate	0.0-0.5	0.43	0.43			
	9-26	18-35	1.15-1.30	0.20-0.60	0.10-0.15	Moderate	0.0-0.5	0.49	0.49			
	26-60	18-35	1.15-1.30	0.20-0.60	0.04-0.10	Moderate	0.0-0.5	0.49	0.49			
58----- Skumpah	0-2	15-27	1.15-1.30	0.20-0.60	0.15-0.17	Low-----	0.5-1.0	0.49	0.49	5	4L	86
	2-9	27-35	1.15-1.30	0.20-0.60	0.10-0.15	Moderate	0.0-0.5	0.43	0.43			
	9-32	18-35	1.15-1.30	0.20-0.60	0.11-0.15	Moderate	0.0-0.5	0.49	0.49			
	32-60	18-35	1.15-1.30	0.20-0.60	0.04-0.10	Moderate	0.0-0.5	0.49	0.49			
59----- Skumpah	0-4	18-27	1.15-1.40	0.20-0.60	0.15-0.17	Low-----	0.5-1.0	0.49	0.49	5	4L	86
	4-11	27-35	1.30-1.50	0.20-0.60	0.11-0.15	Moderate	0.0-0.5	0.43	0.43			
	11-60	15-35	1.20-1.40	0.20-0.60	0.04-0.10	Moderate	0.0-0.5	0.49	0.49			
60: Skumpah-----	0-4	18-27	1.15-1.40	0.20-0.60	0.15-0.17	Low-----	0.5-1.0	0.49	0.49	5	4L	86
	4-11	27-35	1.30-1.50	0.20-0.60	0.11-0.15	Moderate	0.0-0.5	0.43	0.43			
	11-60	15-35	1.20-1.40	0.20-0.60	0.04-0.10	Moderate	0.0-0.5	0.49	0.49			
Yenrab-----	0-5	5-10	1.40-1.55	6.00-20.00	0.08-0.09	Low-----	0.0-1.0	0.15	0.15	5	2	134
	5-60	2-5	1.40-1.55	6.00-20.00	0.05-0.07	Low-----	0.0-0.5	0.10	0.10			
61. Slickens and mine dumps												
62----- Spager	0-3	15-27	1.15-1.25	2.00-6.00	0.11-0.13	Low-----	1.0-2.0	0.10	0.37	1	5	56
	3-14	15-27	1.15-1.30	2.00-6.00	0.08-0.11	Low-----	0.5-1.0	0.10	0.32			
	14-20	---	---	0.00-0.60	---	-----	---	---	---			
	20-60	0-10	1.30-1.50	0.60-20.00	0.01-0.03	Low-----	0.0-0.5	0.02	0.10			

TABLE 15.--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
63----- Springmeyer	0-4	10-20	1.35-1.50	2.00-6.00	0.08-0.09	Low-----	2.0-5.0	0.10	0.32	4	4	86
	4-14	10-20	1.35-1.50	2.00-6.00	0.08-0.09	Low-----	2.0-5.0	0.10	0.32			
	14-29	25-35	1.25-1.40	0.20-0.60	0.12-0.15	Moderate	0.5-1.0	0.10	0.37			
	29-42	10-18	1.35-1.50	2.00-6.00	0.06-0.07	Low-----	0.5-0.8	0.10	0.32			
	42-60	3-8	1.45-1.60	6.00-20.00	0.03-0.05	Low-----	0.0-0.5	0.05	0.17			
64----- Taylorsflat	0-4	18-27	1.25-1.35	0.60-2.00	0.15-0.17	Low-----	1.0-2.0	0.28	0.32	5	4L	86
	4-9	18-27	1.25-1.35	0.20-0.60	0.15-0.17	Low-----	0.0-1.0	0.37	0.43			
	9-60	18-27	1.25-1.35	0.20-0.60	0.10-0.16	Low-----	0.0-1.0	0.37	0.43			
65----- Taylorsflat	0-3	18-27	1.30-1.40	0.60-2.00	0.14-0.16	Low-----	1.0-2.0	0.32	0.37	5	4L	86
	3-9	18-27	1.30-1.40	0.20-0.60	0.14-0.16	Low-----	0.0-1.0	0.37	0.32			
	9-60	18-27	1.30-1.40	0.20-0.60	0.10-0.15	Low-----	0.0-1.0	0.37	0.32			
65A: Theriot-----	0-3	8-14	1.20-1.40	0.60-2.00	0.08-0.11	Low-----	0.0-1.0	0.10	0.43	1	6	48
	3-14	5-14	1.25-1.45	0.60-2.00	0.04-0.06	Low-----	---	0.10	0.32			
	14-18	---	---	0.00-0.01	---	-----	---	---	---			
Rock outcrop.												
66----- Timpie	0-5	18-27	1.15-1.30	0.20-0.60	0.16-0.18	Low-----	0.5-1.0	0.43	0.43	5	4L	86
	5-14	18-27	1.15-1.30	0.20-0.60	0.15-0.17	Low-----	0.0-0.5	0.49	0.55			
	14-60	18-27	1.15-1.30	0.20-0.60	0.04-0.10	Low-----	0.0-0.5	0.55	0.55			
67----- Timpie	0-3	18-27	1.15-1.30	0.20-0.60	0.13-0.17	Low-----	0.5-1.0	0.43	0.43	5	4L	86
	3-21	18-27	1.15-1.30	0.20-0.60	0.11-0.15	Low-----	0.0-0.5	0.49	0.49			
	21-60	18-27	1.15-1.30	0.20-0.60	0.04-0.10	Low-----	0.0-0.5	0.55	0.55			
68: Timpie-----	0-3	18-27	1.15-1.30	0.20-0.60	0.13-0.17	Low-----	0.5-1.0	0.43	0.43	5	4L	86
	3-21	18-27	1.15-1.30	0.20-0.60	0.11-0.15	Low-----	0.0-0.5	0.49	0.49			
	21-60	18-27	1.15-1.30	0.20-0.60	0.04-0.10	Low-----	0.0-0.5	0.55	0.55			
Tooele-----	0-10	5-15	1.35-1.50	2.00-6.00	0.07-0.11	Low-----	0.5-1.0	0.37	0.37	5	3	86
	10-60	5-15	1.35-1.50	2.00-6.00	0.05-0.09	Low-----	0.0-0.5	0.43	0.43			
69----- Tooele	0-3	5-15	1.35-1.50	2.00-6.00	0.10-0.12	Low-----	0.5-1.0	0.37	0.37	4	3	86
	3-42	5-15	1.35-1.50	2.00-6.00	0.10-0.12	Low-----	0.0-0.5	0.43	0.43			
	42-60	2-10	1.40-1.60	6.00-20.00	0.05-0.07	Low-----	0.0-0.5	0.32	0.32			
70----- Tooele	0-10	5-15	1.35-1.50	2.00-6.00	0.07-0.11	Low-----	0.5-1.0	0.37	0.37	5	3	86
	10-60	5-15	1.35-1.50	2.00-6.00	0.05-0.09	Low-----	0.0-0.5	0.43	0.43			
71----- Yeates Hollow	0-12	18-27	1.20-1.30	0.60-2.00	0.11-0.13	Low-----	2.0-5.0	0.10	0.37	5	6	48
	12-44	35-40	1.30-1.40	0.06-0.20	0.09-0.12	Moderate	0.0-1.0	0.10	0.24			
	44-60	20-27	1.30-1.40	0.60-2.00	0.05-0.07	Low-----	0.0-1.0	0.05	0.24			
72----- Yeates Hollow	0-12	18-27	1.20-1.30	0.60-2.00	0.08-0.10	Low-----	2.0-5.0	0.05	0.37	5	7	38
	12-38	35-40	1.30-1.40	0.06-0.20	0.09-0.12	Moderate	0.0-1.0	0.10	0.24			
	38-60	20-27	1.30-1.40	0.60-2.00	0.05-0.07	Low-----	0.0-1.0	0.05	0.24			
73----- Yenrab	0-15	2-5	1.40-1.55	6.00-20.00	0.06-0.07	Low-----	0.0-1.0	0.10	0.10	5	1	220
	15-60	2-5	1.40-1.55	6.00-20.00	0.05-0.07	Low-----	0.0-0.5	0.10	0.10			
74: Yenrab-----	0-15	2-5	1.40-1.55	6.00-20.00	0.06-0.07	Low-----	0.0-1.0	0.10	0.10	5	1	220
	15-60	2-5	1.40-1.55	6.00-20.00	0.05-0.07	Low-----	0.0-0.5	0.10	0.10			
Badlands.												

TABLE 15.--PHYSICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
75: Yenrab-----	0-5	5-10	1.40-1.55	6.00-20.00	0.08-0.09	Low-----	0.0-1.0	0.15	0.15	5	2	134
	5-60	2-5	1.40-1.55	6.00-20.00	0.05-0.07	Low-----	0.0-0.5	0.10	0.10			
Tooele-----	0-10	5-15	1.35-1.50	2.00-6.00	0.07-0.11	Low-----	0.5-1.0	0.37	0.37	5	3	86
	10-60	5-15	1.35-1.50	2.00-6.00	0.05-0.09	Low-----	0.0-0.5	0.43	0.43			

TABLE 16.--CHEMICAL PROPERTIES OF THE SOILS

Map symbol and soil name	Depth	Clay	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	mmhos/cm	
1----- Abela	0-10 10-20 20-60	10-18 10-18 10-18	10.0-20.0 5.0-10.0 5.0-10.0	7.9-8.4 7.9-9.0 8.5-9.0	1-15 3-15 25-40	--- --- ---	--- --- 0-4	--- --- ---
2----- Abela	0-11 11-22 22-60	10-18 10-18 10-18	10.0-20.0 5.0-10.0 5.0-10.0	7.9-8.4 7.9-9.0 8.5-9.0	1-15 3-15 25-40	--- --- ---	--- --- 0-4	--- --- ---
3: Antoft-----	0-11 11-17 17-27	12-18 12-20 ---	5.0-15.0 5.0-15.0 ---	7.9-9.0 7.9-9.0 ---	20-40 40-80 ---	--- --- ---	0-4 0-4 ---	--- --- ---
Rock outcrop.								
4: Antoft-----	0-9 9-16 16-26	12-18 12-20 ---	5.0-15.0 5.0-15.0 ---	7.9-9.0 7.9-9.0 ---	20-40 40-80 ---	--- --- ---	0-4 0-4 ---	--- --- ---
Rock outcrop.								
5: Berent-----	0-6 6-60	0-10 0-5	0.0-10.0 0.0-5.0	7.4-8.4 7.9-9.0	1-15 1-15	--- ---	0-2 0-2	--- ---
Hiko Peak-----	0-4 4-12 12-60	10-18 10-18 10-18	5.0-15.0 5.0-10.0 5.0-10.0	7.9-8.4 7.9-9.0 8.5-9.0	15-30 15-30 30-40	--- --- ---	0-2 0-2 0-4	0-13 0-13 13-30
6----- Birdow	0-10 10-28 28-60	18-27 18-27 18-27	10.0-20.0 10.0-20.0 10.0-20.0	7.4-8.4 7.4-8.4 7.9-9.0	3-15 3-15 3-15	--- --- ---	0-2 0-2 0-2	--- --- ---
7----- Borvant	0-7 7-18 18-25 25-60	10-18 10-18 --- 0-10	10.0-20.0 5.0-10.0 --- 0.0-5.0	7.4-9.0 7.9-9.0 --- 7.9-9.0	15-30 40-60 --- 40-60	--- --- --- ---	0-2 0-2 --- 0-2	--- --- --- ---
8----- Bramwell	0-6 6-20 20-28 28-36 36-60	18-25 24-27 27-35 27-35 27-35	15.0-25.0 15.0-30.0 15.0-30.0 15.0-30.0 15.0-30.0	7.9-9.0 8.5-9.0 8.5-9.0 8.5-9.0 8.5-9.0	15-25 20-30 30-40 20-30 20-30	--- --- --- --- ---	4-16 8-16 8-16 8-16 8-16	5-8 5-13 5-13 5-13 5-13
10: Broad-----	0-4 4-10 10-20 20-38 38-42	15-20 15-20 27-35 15-20 ---	10.0-20.0 10.0-20.0 10.0-20.0 5.0-15.0 ---	6.6-7.8 6.6-7.8 7.4-8.4 7.9-9.0 ---	--- --- --- 15-30 ---	--- --- --- --- ---	--- --- --- 0-8 ---	--- --- --- --- ---
Reywat-----	0-4 4-13 13-23	15-20 27-35 ---	10.0-20.0 10.0-20.0 ---	6.6-7.8 6.6-8.4 ---	--- --- ---	--- --- ---	--- 0-2 ---	--- --- ---
Rock outcrop.								
11: Checkett-----	0-3 3-14 14-24	18-22 22-30 ---	10.0-15.0 10.0-20.0 ---	7.9-9.0 7.9-9.0 ---	1-15 3-15 ---	--- --- ---	0-4 0-4 ---	--- --- ---

TABLE 16.--CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	Pct	meq/100g	pH	Pct	Pct	mmhos/cm	
11: Rock outcrop.								
12----- Cliffdown	0-5 5-60	10-18 8-18	5.0-10.0 5.0-10.0	7.9-8.4 8.5-9.0	15-40 15-40	--- ---	0-2 2-8	5-13 5-13
13----- Cristo	0-9 9-22 22-35 35-45	18-27 35-40 27-40 ---	10.0-25.0 15.0-25.0 10.0-25.0 ---	6.6-7.3 6.6-7.3 6.1-7.8 ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---
14: Dateman-----	0-11 11-22 22-36 36-46	18-27 18-27 18-27 ---	10.0-20.0 10.0-20.0 10.0-20.0 ---	6.1-7.3 6.1-7.3 6.6-7.8 ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---
Podmor-----	0-3 3-16 16-23 23-43	18-27 18-27 18-27 ---	10.0-20.0 10.0-20.0 10.0-15.0 ---	6.6-7.8 6.6-7.8 6.6-7.8 ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---
Rock outcrop.								
14A: Dateman-----	0-11 11-22 22-36 36-46	18-27 18-27 18-27 ---	10.0-20.0 10.0-20.0 10.0-20.0 ---	6.1-7.3 6.1-7.3 6.6-7.8 ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---
Podmor-----	0-3 3-16 16-23 23-33	18-27 18-27 18-27 ---	10.0-20.0 10.0-20.0 10.0-15.0 ---	6.6-7.8 6.6-7.8 6.6-7.8 ---	--- --- --- ---	--- --- --- ---	--- --- --- ---	--- --- --- ---
Rock outcrop.								
15----- Doyce	0-10 10-21 21-60	18-24 27-35 18-27	10.0-20.0 10.0-20.0 5.0-15.0	6.6-7.8 7.4-8.4 7.9-9.0	--- 3-15 15-40	--- --- ---	0-2 0-2 0-4	--- --- 5-13
16. Dune land								
17----- Dynal	0-1 1-60	0-2 0-2	0.0-5.0 0.0-5.0	7.4-9.0 7.9-9.0	40-90 40-90	--- ---	2-8 2-8	5-13 13-30
18: Dynal-----	0-6 6-60	0-2 0-2	0.0-5.0 0.0-5.0	7.4-9.0 7.9-9.0	40-90 40-90	--- ---	2-8 2-8	5-13 13-30
Tooele-----	0-10 10-60	5-15 5-15	0.0-10.0 0.0-10.0	8.5-9.6 8.5-9.6	15-40 15-40	--- ---	4-8 8-16	0-13 13-50
19----- Erda	0-8 8-14 14-39 39-60	18-27 18-27 18-27 18-27	10.0-20.0 10.0-20.0 10.0-15.0 10.0-15.0	7.4-8.4 7.4-8.4 7.9-9.0 7.9-9.0	3-15 3-15 15-40 10-35	--- --- --- ---	0-2 0-2 0-2 0-8	--- --- 5-13 13-30

TABLE 16.--CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
20:								
Flygare-----	0-22	18-27	20.0-30.0	5.6-6.5	---	---	---	---
	22-36	15-27	5.0-15.0	5.6-6.5	---	---	---	---
	36-50	27-35	10.0-20.0	5.6-6.5	---	---	---	---
	50-60	18-27	10.0-15.0	5.6-6.5	---	---	---	---
Dateman-----	0-11	18-27	10.0-20.0	6.1-7.3	---	---	---	---
	11-22	18-27	10.0-20.0	6.1-7.3	---	---	---	---
	22-36	18-27	10.0-20.0	6.6-7.8	---	---	---	---
	36-46	---	---	---	---	---	---	---
Rock outcrop.								
21-----	0-4	10-18	5.0-15.0	7.9-8.4	15-30	---	0-2	0-13
Hiko Peak	4-12	10-18	5.0-10.0	7.9-9.0	15-30	---	0-2	0-13
	12-60	10-18	5.0-10.0	8.5-9.0	30-40	---	0-4	13-30
22-----	0-4	10-18	5.0-15.0	7.9-8.4	15-30	---	0-2	0-13
Hiko Peak	4-12	10-18	5.0-10.0	7.9-9.0	15-30	---	0-2	0-13
	12-60	10-18	5.0-10.0	8.5-9.0	30-40	---	0-4	13-30
23:								
Hiko Peak-----	0-4	10-18	5.0-15.0	7.9-8.4	15-30	---	0-2	0-13
	4-12	10-18	5.0-10.0	7.9-9.0	15-30	---	0-2	0-13
	12-60	10-18	5.0-10.0	8.5-9.0	30-40	---	0-4	13-30
Checkett-----	0-3	18-22	10.0-15.0	7.9-9.0	1-15	---	0-4	---
	3-14	22-30	10.0-20.0	7.9-9.0	3-15	---	0-4	---
	14-18	---	---	---	---	---	---	---
24:								
Hiko Peak-----	0-4	10-18	5.0-15.0	7.9-8.4	15-30	---	0-2	0-13
	4-12	10-18	5.0-10.0	7.9-9.0	15-30	---	0-2	0-13
	12-60	10-18	5.0-10.0	8.5-9.0	30-40	---	0-4	13-30
Taylorsflat----	0-4	18-27	10.0-20.0	7.9-8.4	3-20	---	0-2	0-10
	4-9	18-27	5.0-15.0	7.9-8.4	3-25	---	0-2	5-13
	9-60	18-27	5.0-15.0	8.5-9.0	15-40	---	2-16	13-30
25-----	0-4	10-18	5.0-10.0	7.9-8.4	3-15	---	0-2	0-13
Hiko Springs	4-18	10-18	5.0-10.0	7.9-9.0	3-15	---	0-2	0-13
	18-60	10-18	5.0-10.0	8.5-9.0	15-40	---	4-8	13-30
26-----	0-10	15-20	10.0-20.0	6.6-7.3	---	---	---	---
Holmes	10-29	27-35	10.0-20.0	6.6-7.3	---	---	---	---
	29-37	15-20	5.0-10.0	6.6-7.3	---	---	---	---
	37-60	2-5	0.0-5.0	6.6-7.8	0-3	---	---	---
27:								
Izamatch-----	0-3	8-18	5.0-15.0	7.9-9.0	20-30	---	0-2	0-5
	3-10	8-18	5.0-15.0	8.5-9.0	20-30	---	0-2	0-5
	10-30	0-8	1.0-10.0	7.9-9.6	20-30	---	0-2	5-12
	30-60	0-8	1.0-10.0	8.5-9.6	30-40	---	0-4	13-30
Cliffdown-----	0-3	10-18	5.0-10.0	8.5-9.0	15-40	---	0-2	1-5
	3-60	8-18	5.0-10.0	8.5-9.0	15-40	---	8-16	5-12
28:								
Izamatch-----	0-5	8-18	5.0-15.0	7.9-9.0	20-30	---	0-2	0-5
	5-10	8-18	5.0-15.0	8.5-9.0	20-30	---	0-2	0-5
	10-24	0-8	1.0-10.0	7.9-9.6	20-30	---	0-2	5-12
	24-60	0-8	1.0-10.0	8.5-9.6	30-40	---	0-4	13-30

TABLE 16.--CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
28: Cliffdown-----	0-5	10-18	5.0-10.0	7.9-8.4	15-40	---	0-2	5-13
	5-60	8-18	5.0-10.0	8.5-9.0	15-40	---	2-8	5-13
29----- Jericho	0-3	10-18	5.0-15.0	7.9-9.0	3-15	---	0-2	---
	3-9	10-18	5.0-10.0	7.9-9.0	10-20	---	0-2	---
	9-14	10-18	5.0-10.0	7.9-9.0	15-40	---	0-2	5-13
	14-19	---	---	---	---	---	---	---
	19-33	0-10	0.0-5.0	7.9-9.0	10-30	---	0-2	5-13
	33-60	---	---	---	---	---	---	---
30----- Junkett	0-5	10-18	5.0-15.0	7.9-8.4	0-3	---	0-2	---
	5-11	27-35	10.0-20.0	7.9-8.4	0-3	---	0-2	---
	11-16	27-35	10.0-20.0	7.9-8.4	3-15	---	0-2	---
	16-24	10-18	5.0-10.0	8.5-9.0	15-40	---	0-2	---
	24-30	---	---	---	---	---	---	---
	30-60	0-10	0.0-5.0	8.5-9.0	15-40	---	0-2	---
31----- Kanosh	0-4	8-18	5.0-15.0	7.9-9.0	10-25	---	2-8	0-13
	4-8	8-18	5.0-15.0	7.9-9.0	15-30	---	2-8	0-13
	8-27	5-18	0.0-10.0	8.5-9.0	20-40	1-5	4-16	13-30
	27-60	5-18	0.0-10.0	8.5-9.0	20-40	1-5	4-16	13-30
32: Kanosh-----	0-4	8-18	5.0-15.0	7.9-9.0	10-25	---	2-8	0-13
	4-8	8-18	5.0-15.0	7.9-9.0	15-30	---	2-8	0-13
	8-27	5-18	0.0-10.0	8.5-9.0	20-40	1-5	4-16	13-30
	27-60	5-18	0.0-10.0	8.5-9.0	20-40	1-5	4-16	13-30
Saltair-----	0-8	20-27	10.0-15.0	7.9-9.0	15-40	0-2	16-32	13-90
	8-21	20-27	10.0-15.0	7.9-9.0	15-40	0-2	16-32	13-90
	21-60	27-35	10.0-20.0	7.9-9.0	15-40	0-2	16-32	13-90
Logan-----	0-4	18-27	10.0-20.0	7.9-9.0	10-20	0-1	2-4	---
	4-15	18-27	10.0-20.0	7.9-9.0	10-20	---	2-4	---
	15-60	27-35	10.0-20.0	7.9-9.0	15-40	0-2	2-4	---
33----- Kapod	0-11	18-27	10.0-20.0	6.6-7.8	---	---	---	---
	11-30	27-35	10.0-20.0	6.6-7.8	---	---	---	---
	30-60	20-27	10.0-15.0	7.4-8.4	15-40	---	0-2	---
34----- Kapod	0-12	20-25	10.0-20.0	6.6-7.8	---	---	---	---
	12-26	25-35	10.0-20.0	6.6-7.8	---	---	---	---
	26-60	10-20	5.0-10.0	7.4-8.4	15-40	---	0-2	---
35----- Kapod	0-11	20-25	10.0-20.0	6.6-7.8	---	---	---	---
	11-25	25-35	10.0-20.0	6.6-7.8	---	---	---	---
	25-60	10-20	5.0-10.0	7.4-8.4	15-40	---	0-2	---
36----- Kilburn	0-10	8-16	5.0-15.0	6.6-7.3	---	---	---	---
	10-19	8-16	5.0-15.0	6.6-7.3	---	---	---	---
	19-36	10-18	5.0-10.0	6.6-7.3	---	---	---	---
	36-60	4-8	0.0-5.0	6.6-7.8	0-3	---	---	---
37----- Lakewin	0-7	16-22	10.0-20.0	6.6-7.3	---	---	---	---
	7-18	18-25	5.0-15.0	6.6-7.8	0-10	---	---	---
	18-30	10-15	5.0-10.0	7.9-8.4	15-30	---	0-2	---
	30-60	0-5	0.0-5.0	7.9-8.4	15-30	---	0-4	---

TABLE 16.--CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
54----- Scalade	0-3	5-10	5.0-10.0	7.4-8.4	3-15	---	0-2	---
	3-9	5-10	0.0-5.0	7.4-8.4	3-15	---	0-2	---
	9-17	5-10	0.0-5.0	7.9-9.0	15-40	---	2-4	---
	17-24	---	---	---	---	---	---	---
	24-42	2-10	0.0-5.0	7.9-9.0	15-40	---	4-8	---
	42-60	---	---	---	---	---	---	---
55: Scalade-----	0-3	5-10	5.0-10.0	7.4-8.4	3-15	---	0-2	---
	3-9	5-10	0.0-5.0	7.4-8.4	3-15	---	0-2	---
	9-17	5-10	0.0-5.0	7.9-9.0	15-40	---	2-4	---
	17-24	---	---	---	---	---	---	---
	24-42	2-10	0.0-5.0	7.9-9.0	15-40	---	4-8	---
	42-60	---	---	---	---	---	---	---
Jericho-----	0-4	10-18	5.0-15.0	7.9-9.0	3-15	---	0-2	---
	4-9	10-18	5.0-10.0	7.9-9.0	10-20	---	0-2	---
	9-16	10-18	5.0-10.0	7.9-9.0	15-40	---	0-2	5-13
	16-20	---	---	---	---	---	---	---
	20-40	0-10	0.0-5.0	7.9-9.0	10-30	---	0-2	5-13
	40-60	---	---	---	---	---	---	---
Medburn-----	0-4	5-18	5.0-15.0	7.9-8.4	10-30	---	0-2	0-13
	4-41	5-18	5.0-10.0	7.9-9.0	10-30	---	0-2	13-30
	41-60	5-18	5.0-10.0	8.5-9.0	10-30	---	2-4	13-50
56----- Skumpah	0-5	18-27	10.0-15.0	8.5-9.0	15-30	0-2	2-8	13-30
	5-14	27-35	10.0-20.0	8.5-9.0	15-30	0-2	0-4	13-90
	14-60	15-35	5.0-20.0	7.9-9.0	15-30	1-5	16-32	13-90
57----- Skumpah	0-2	15-27	5.0-15.0	8.5-9.0	15-40	0-2	2-4	13-30
	2-9	27-35	10.0-20.0	8.5-9.0	15-40	0-2	4-8	13-90
	9-26	18-35	10.0-20.0	7.9-9.0	15-40	1-5	8-16	13-90
	26-60	18-35	10.0-20.0	7.9-9.0	15-40	1-5	16-32	13-90
58----- Skumpah	0-2	15-27	5.0-15.0	8.5-9.0	15-40	0-2	4-8	13-30
	2-9	27-35	10.0-20.0	8.5-9.6	15-40	0-2	8-16	13-90
	9-32	18-35	10.0-20.0	7.9-9.0	15-40	1-5	8-16	13-90
	32-60	18-35	10.0-20.0	7.9-9.0	15-40	1-5	16-32	13-90
59----- Skumpah	0-4	18-27	10.0-20.0	8.5-9.0	15-40	0-2	4-8	13-30
	4-11	27-35	10.0-20.0	8.5-9.6	15-40	0-2	8-16	13-90
	11-60	15-35	5.0-20.0	7.9-9.0	15-40	1-5	16-32	13-90
60: Skumpah-----	0-4	18-27	10.0-20.0	8.5-9.0	15-40	0-2	4-8	13-30
	4-11	27-35	10.0-20.0	8.5-9.6	15-40	0-2	8-16	13-90
	11-60	15-35	5.0-20.0	7.9-9.0	15-40	1-5	16-32	13-90
Yenrab-----	0-5	5-10	0.0-5.0	7.9-9.0	3-15	---	2-4	0-10
	5-60	2-5	0.0-5.0	7.9-9.0	3-15	---	2-8	5-13
61. Slickens and mine dumps								
62----- Spager	0-3	15-27	5.0-15.0	7.4-9.0	15-40	---	0-2	5-13
	3-14	15-27	5.0-15.0	8.5-9.0	40-70	---	0-4	13-30
	14-20	---	---	---	---	---	---	---
	20-60	0-10	0.0-5.0	8.5-9.0	40-70	---	2-4	13-30

TABLE 16.--CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
63----- Springmeyer	0-4	10-20	10.0-25.0	6.6-7.3	---	---	---	---
	4-14	10-20	10.0-25.0	6.6-7.3	---	---	---	---
	14-29	25-35	20.0-30.0	6.6-7.3	---	---	---	---
	29-42	10-18	8.0-15.0	6.6-7.3	---	---	---	---
	42-60	3-8	1.0-5.0	6.6-7.8	---	---	---	---
64----- Taylorsflat	0-4	18-27	10.0-20.0	7.9-8.4	3-20	---	0-2	0-10
	4-9	18-27	5.0-15.0	7.9-8.4	3-25	---	0-2	5-13
	9-60	18-27	5.0-15.0	8.5-9.0	15-40	---	2-16	13-30
65----- Taylorsflat	0-3	18-27	10.0-20.0	8.5-9.0	3-20	---	2-4	0-10
	3-9	18-27	5.0-15.0	8.5-9.6	3-25	---	2-4	5-13
	9-60	18-27	5.0-15.0	8.5-9.6	15-40	---	4-16	13-30
65A: Theriot-----	0-3	8-14	5.0-10.0	7.9-9.6	15-40	---	0-2	0-12
	3-14	5-14	3.0-8.0	7.9-9.6	20-40	---	0-4	0-12
	14-18	---	---	---	---	---	---	---
Rock outcrop.								
66----- Timpie	0-5	18-27	10.0-15.0	8.5-9.0	15-40	---	0-4	5-13
	5-14	18-27	10.0-15.0	8.5-9.6	15-40	---	4-8	13-50
	14-60	18-27	10.0-15.0	8.5-9.6	15-40	---	16-32	13-50
67----- Timpie	0-3	18-27	10.0-15.0	7.9-9.0	15-40	---	4-8	5-13
	3-21	18-27	10.0-15.0	8.5-9.0	15-40	---	8-16	13-50
	21-60	18-27	10.0-15.0	8.5-9.0	15-40	---	16-32	13-50
68: Timpie-----	0-3	18-27	10.0-15.0	7.9-9.0	15-40	---	4-8	5-13
	3-21	18-27	10.0-15.0	8.5-9.0	15-40	---	8-16	13-50
	21-60	18-27	10.0-15.0	8.5-9.0	15-40	---	16-32	13-50
Tooele-----	0-10	5-15	0.0-10.0	8.5-9.6	15-40	---	4-8	0-13
	10-60	5-15	0.0-10.0	8.5-9.6	15-40	---	8-16	13-50
69----- Tooele	0-3	5-15	0.0-10.0	7.9-9.0	15-40	---	2-4	0-13
	3-42	5-15	0.0-10.0	7.9-9.0	15-40	---	4-8	13-50
	42-60	2-10	0.0-5.0	7.9-9.0	15-40	---	8-16	13-50
70----- Tooele	0-10	5-15	0.0-10.0	8.5-9.6	15-40	---	4-8	0-13
	10-60	5-15	0.0-10.0	8.5-9.6	15-40	---	8-16	13-50
71----- Yeates Hollow	0-12	18-27	10.0-25.0	6.1-7.3	---	---	---	---
	12-44	35-40	15.0-20.0	6.1-7.3	---	---	---	---
	44-60	20-27	10.0-15.0	6.6-7.3	---	---	---	---
72----- Yeates Hollow	0-12	18-27	10.0-25.0	6.1-7.3	---	---	---	---
	12-38	35-40	15.0-20.0	6.1-7.3	---	---	---	---
	38-60	20-27	10.0-15.0	6.6-7.3	---	---	---	---
73----- Yenrab	0-15	2-5	0.0-5.0	7.9-9.0	3-15	---	0-2	0-10
	15-60	2-5	0.0-5.0	7.9-9.0	3-15	---	2-8	5-13
74: Yenrab-----	0-15	2-5	0.0-5.0	7.9-9.0	3-15	---	0-2	0-10
	15-60	2-5	0.0-5.0	7.9-9.0	3-15	---	2-8	5-13
Badlands.								

TABLE 16.--CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	<u>In</u>	<u>Pct</u>	<u>meq/100g</u>	<u>pH</u>	<u>Pct</u>	<u>Pct</u>	<u>mmhos/cm</u>	
75: Yenrab-----	0-5 5-60	5-10 2-5	0.0-5.0 0.0-5.0	7.9-9.0 7.9-9.0	3-15 3-15	--- ---	2-4 2-8	0-10 5-13
Tooele-----	0-10 10-60	5-15 5-15	0.0-10.0 0.0-10.0	8.5-9.6 8.5-9.6	15-40 15-40	--- ---	4-8 8-16	0-13 13-50

TABLE 17.--SOIL FEATURES

Map symbol and soil name	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Kind		Uncoated steel	Concrete
	In		In				
1, 2----- Abela	>60	---	---	---	Moderate---	High-----	Moderate.
3, 4: Amtoft----- Rock outcrop.	10-20	Hard---	---	---	Moderate---	High-----	Moderate.
5: Berent----- Hiko Peak-----	>60	---	---	---	Low-----	High-----	Low. Moderate.
6----- Birdow	>60	---	---	---	Moderate---	High-----	Moderate.
7----- Borvant	>60	---	10-20	Thick---	Moderate---	High-----	Moderate.
8----- Bramwell	>60	---	---	---	High-----	High-----	Moderate.
10: Broad----- Reywat----- Rock outcrop.	20-40	Hard---	---	---	Moderate---	High-----	Moderate. Low.
11: Checkett----- Rock outcrop.	14-20	Hard---	---	---	Low-----	High-----	Moderate.
12----- Cliffdown	>60	---	---	---	Low-----	High-----	Moderate.
13----- Cristo	20-40	Soft---	---	---	Moderate---	Moderate---	Low.
14, 14A: Dateman----- Podmor----- Rock outcrop.	20-40	Hard---	---	---	Moderate---	Moderate---	Low. Low.
15----- Doyce	>60	---	---	---	Moderate---	High-----	Moderate.
16. Dune land							
17----- Dynal	>60	---	---	---	Low-----	High-----	High.
18: Dynal----- Tooele-----	>60	---	---	---	Low-----	High-----	High. High.
19----- Erda	>60	---	---	---	Moderate---	High-----	Moderate.

TABLE 17.--SOIL FEATURES--Continued

Map symbol and soil name	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Kind		Uncoated steel	Concrete
	In		In				
20: Flygare-----	>60	---	---	---	Moderate----	Moderate----	Moderate.
Dateman----- Rock outcrop.	20-40	Hard----	---	---	Moderate----	Moderate----	Low.
21, 22----- Hiko Peak	>60	---	---	---	Low-----	High-----	Moderate.
23: Hiko Peak-----	>60	---	---	---	Low-----	High-----	Moderate.
Checkett-----	14-20	Hard----	---	---	Low-----	High-----	Moderate.
24: Hiko Peak-----	>60	---	---	---	Low-----	High-----	Moderate.
Taylorsflat----	>60	---	---	---	Moderate----	High-----	Moderate.
25----- Hiko Springs	>60	---	---	---	Low-----	High-----	Moderate.
26----- Holmes	>60	---	---	---	Moderate----	Moderate----	Low.
27: Izamatch-----	>60	---	---	---	Low-----	High-----	Low.
Cliffdown-----	>60	---	---	---	Low-----	High-----	High.
28: Izamatch-----	>60	---	---	---	Low-----	High-----	Low.
Cliffdown-----	>60	---	---	---	Low-----	High-----	Moderate.
29----- Jericho	>60	---	14-20	Thin----	Moderate----	High-----	Moderate.
30----- Junkett	>60	---	20-40	Thick----	Low-----	High-----	Moderate.
31----- Kanosh	>60	---	---	---	High-----	High-----	High.
32: Kanosh-----	>60	---	---	---	High-----	High-----	High.
Saltair-----	>60	---	---	---	High-----	High-----	High.
Logan-----	>60	---	---	---	High-----	High-----	Moderate.
33----- Kapod	>60	---	---	---	Moderate----	High-----	Moderate.
34, 35----- Kapod	>60	---	---	---	Moderate----	High-----	Low.
36----- Kilburn	>60	---	---	---	Moderate----	Moderate----	Low.
37----- Lakewin	>60	---	---	---	Moderate----	High-----	Moderate.

TABLE 17.--SOIL FEATURES--Continued

Map symbol and soil name	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Kind		Uncoated steel	Concrete
	In		In				
38: Lodar-----	10-20	Hard----	---	---	Moderate----	High-----	Moderate.
Lundy-----	10-20	Hard----	---	---	Moderate----	High-----	Moderate.
Rock outcrop.							
39----- Logan	>60	---	---	---	High-----	High-----	Moderate.
40: Lundy-----	10-20	Hard----	---	---	Moderate----	High-----	Moderate.
Dateman-----	20-40	Hard----	---	---	Moderate----	Moderate----	Low.
Rock outcrop.							
41----- Manassa	>60	---	---	---	Moderate----	High-----	Moderate.
42----- Medburn	>60	---	---	---	Moderate----	High-----	Moderate.
43----- Medburn	>60	---	---	---	Moderate----	High-----	High.
44. Pits							
45. Playas							
46: Playas. Saltair-----	>60	---	---	---	High-----	High-----	High.
46A: Podmor-----	20-40	Hard----	---	---	Moderate----	Moderate----	Low.
Dateman-----	20-40	Hard----	---	---	Moderate----	Moderate----	Low.
Rock outcrop.							
47: Podmor-----	20-40	Hard----	---	---	Moderate----	Moderate----	Low.
Onaqui-----	10-20	Hard----	---	---	Moderate----	Moderate----	Low.
Rock outcrop.							
48: Reywat-----	10-20	Hard----	---	---	Moderate----	High-----	Low.
Broad-----	20-40	Hard----	---	---	Moderate----	High-----	Moderate.
Rock outcrop.							
49: Ridd-----	20-40	Hard----	---	---	Moderate----	Moderate----	Low.
Rock outcrop.							

TABLE 17.--SOIL FEATURES--Continued

Map symbol and soil name	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Kind		Uncoated steel	Concrete
	In		In				
50: Ridd-----	20-40	Hard----	---	---	Moderate----	Moderate----	Low.
Wasatch-----	>60	---	---	---	Low-----	Moderate----	Low.
Rock outcrop.							
51: Rock outcrop.							
Lundy-----	10-20	Hard----	---	---	Moderate----	High-----	Moderate.
52. Salt flats							
53: Saltair-----	>60	---	---	---	High-----	High-----	High.
Playas.							
54-----	>60	---	12-20	Thin----	Moderate----	High-----	Low.
Scalade							
55: Scalade-----	>60	---	12-20	Thin----	Moderate----	High-----	Low.
Jericho-----	>60	---	14-20	Thin----	Moderate----	High-----	Moderate.
Medburn-----	>60	---	---	---	Moderate----	High-----	Moderate.
56, 57, 58, 59--- Skumpah	>60	---	---	---	Low-----	High-----	High.
60: Skumpah-----	>60	---	---	---	Low-----	High-----	High.
Yenrab-----	>60	---	---	---	Low-----	High-----	Moderate.
61. Slickens and mine dumps							
62-----	>60	---	10-20	Thick---	Moderate----	High-----	Moderate.
Spager							
63-----	>60	---	---	---	Moderate----	Moderate----	Low.
Springmeyer							
64-----	>60	---	---	---	Moderate----	High-----	Moderate.
Taylorflat							
65-----	>60	---	---	---	Moderate----	High-----	High.
Taylorflat							
65A: Theriot-----	10-20	Hard----	---	---	Low-----	High-----	Low.
Rock outcrop.							
66, 67----- Timpie	>60	---	---	---	High-----	High-----	High.

TABLE 17.--SOIL FEATURES--Continued

Map symbol and soil name	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Kind		Uncoated steel	Concrete
	<u>In</u>		<u>In</u>				
68: Timpie-----	>60	---	---	---	High-----	High-----	High.
Tooele-----	>60	---	---	---	Low-----	High-----	High.
69, 70----- Tooele	>60	---	---	---	Low-----	High-----	High.
71, 72----- Yeates Hollow	>60	---	---	---	Moderate---	Moderate---	Low.
73----- Yenrab	>60	---	---	---	Low-----	High-----	Moderate.
74: Yenrab-----	>60	---	---	---	Low-----	High-----	Moderate.
Badlands.							
75: Yenrab-----	>60	---	---	---	Low-----	High-----	Moderate.
Tooele-----	>60	---	---	---	Low-----	High-----	High.

TABLE 18.--WATER FEATURES

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Water table depth	Kind of water table	Months
1, 2----- Abela	B	None-----	---	---	Ft >6.0	---	---
3, 4: Amtoft----- Rock outcrop.	D	None-----	---	---	>6.0	---	---
5: Berent-----	A	None-----	---	---	>6.0	---	---
Hiko Peak-----	B	None-----	---	---	>6.0	---	---
6----- Birdow	B	Rare-----	---	---	>6.0	---	---
7----- Borvant	D	None-----	---	---	>6.0	---	---
8----- Bramwell	C	None-----	---	---	2.5-3.5	Apparent---	Mar-Jul
10: Broad-----	C	None-----	---	---	>6.0	---	---
Reywat----- Rock outcrop.	D	None-----	---	---	>6.0	---	---
11: Checkett----- Rock outcrop.	D	None-----	---	---	>6.0	---	---
12----- Cliffdown	B	None-----	---	---	>6.0	---	---
13----- Cristo	C	None-----	---	---	>6.0	---	---
14, 14A: Dateman-----	C	None-----	---	---	>6.0	---	---
Podmor----- Rock outcrop.	C	None-----	---	---	>6.0	---	---
15----- Doyce	B	None-----	---	---	>6.0	---	---
16. Dune land							
17----- Dynal	A	None-----	---	---	>6.0	---	---
18: Dynal-----	A	None-----	---	---	>6.0	---	---
Tooele-----	B	None-----	---	---	>6.0	---	---

TABLE 18.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Water table depth	Kind of water table	Months
19----- Erda	B	None-----	---	---	Ft ----- >6.0	---	---
20: Flygare-----	B	None-----	---	---	>6.0	---	---
Dateman----- Rock outcrop.	C	None-----	---	---	>6.0	---	---
21, 22----- Hiko Peak	B	None-----	---	---	>6.0	---	---
23: Hiko Peak-----	B	None-----	---	---	>6.0	---	---
Checkett-----	D	None-----	---	---	>6.0	---	---
24: Hiko Peak-----	B	None-----	---	---	>6.0	---	---
Taylorflat-----	B	None-----	---	---	>6.0	---	---
25----- Hiko Springs	B	None-----	---	---	>6.0	---	---
26----- Holmes	B	None-----	---	---	>6.0	---	---
27, 28: Izamatch-----	A	None-----	---	---	>6.0	---	---
Cliffdown-----	B	None-----	---	---	>6.0	---	---
29----- Jericho	D	None-----	---	---	>6.0	---	---
30----- Junkett	C	None-----	---	---	>6.0	---	---
31----- Kanosh	C	None-----	---	---	2.0-3.0	Apparent---	Mar-Jul
32: Kanosh-----	C	None-----	---	---	2.0-3.0	Apparent---	Mar-Jul
Saltair-----	D	Frequent---	Long-----	Mar-May	0.0-1.0	Apparent---	Mar-Jun
Logan-----	D	Frequent---	Long-----	Mar-May	0.0-2.0	Apparent---	Mar-Jul
33, 34, 35----- Kapod	B	None-----	---	---	>6.0	---	---
36----- Kilburn	B	None-----	---	---	>6.0	---	---
37----- Lakewin	B	None-----	---	---	>6.0	---	---

TABLE 18.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Water table depth	Kind of water table	Months
					Ft		
38: Lodar-----	D	None-----	---	---	>6.0	---	---
Lundy-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
39----- Logan	D	Frequent---	Long-----	Mar-May	0.0-2.0	Apparent---	Mar-Jul
40: Lundy-----	D	None-----	---	---	>6.0	---	---
Dateman-----	C	None-----	---	---	>6.0	---	---
Rock outcrop.							
41----- Manassa	C	None-----	---	---	>6.0	---	---
42, 43----- Medburn	B	None-----	---	---	>6.0	---	---
44. Pits							
45. Playas							
46: Playas.							
Saltair-----	D	Frequent---	Long-----	Mar-May	0.0-1.0	Apparent---	Mar-Jun
46A: Podmor-----	C	None-----	---	---	>6.0	---	---
Dateman-----	C	None-----	---	---	>6.0	---	---
Rock outcrop.							
47: Podmor-----	C	None-----	---	---	>6.0	---	---
Onaqui-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
48: Reywat-----	D	None-----	---	---	>6.0	---	---
Broad-----	C	None-----	---	---	>6.0	---	---
Rock outcrop.							
49: Ridd-----	C	None-----	---	---	>6.0	---	---
Rock outcrop.							

TABLE 18.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Water table depth	Kind of water table	Months
					Ft —		
50: Ridd-----	C	None-----	---	---	>6.0	---	---
Wasatch-----	A	None-----	---	---	>6.0	---	---
Rock outcrop.							
51: Rock outcrop.							
Lundy-----	D	None-----	---	---	>6.0	---	---
52. Salt flats							
53: Saltair-----	D	Frequent---	Long-----	Mar-May	0.0-1.0	Apparent---	Mar-Jun
Playas.							
54-----	D	None-----	---	---	>6.0	---	---
Scalade							
55: Scalade-----	D	None-----	---	---	>6.0	---	---
Jericho-----	D	None-----	---	---	>6.0	---	---
Medburn-----	B	None-----	---	---	>6.0	---	---
56-----	D	None-----	---	---	>6.0	---	---
Skumpah							
57, 58-----	D	None-----	---	---	3.5-5.0	Apparent---	Mar-Jul
Skumpah							
59-----	D	None-----	---	---	>6.0	---	---
Skumpah							
60: Skumpah-----	D	None-----	---	---	>6.0	---	---
Yenrab-----	A	None-----	---	---	>6.0	---	---
61. Slickens and mine dumps							
62-----	D	None-----	---	---	>6.0	---	---
Spager							
63-----	B	None-----	---	---	>6.0	---	---
Springmeyer							
64, 65-----	B	None-----	---	---	>6.0	---	---
Taylorflat							
65A: Theriot-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							

TABLE 18.--WATER FEATURES--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Water table depth	Kind of water table	Months
					Ft		
66, 67----- Timpie	B	None-----	---	---	>6.0	---	---
68: Timpie-----	B	None-----	---	---	>6.0	---	---
Tocele-----	B	None-----	---	---	>6.0	---	---
69, 70----- Tocele	B	None-----	---	---	>6.0	---	---
71, 72----- Yeates Hollow	C	None-----	---	---	>6.0	---	---
73----- Yenrab	A	None-----	---	---	>6.0	---	---
74: Yenrab-----	A	None-----	---	---	>6.0	---	---
Badlands.							
75: Yenrab-----	A	None-----	---	---	>6.0	---	---
Tocele-----	B	None-----	---	---	>6.0	---	---

TABLE 19.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Abela-----	Aridic Calcixerolls, loamy-skeletal, mixed, mesic
Amtoft-----	Lithic Xerollic Calciorthids, loamy-skeletal, carbonatic, mesic
Berent-----	Xeric Torripsamments, mixed, mesic
Birdow-----	Cumulic Haploxerolls, fine-loamy, mixed, mesic
Borvant-----	Petrocalcic Palexerolls, loamy-skeletal, carbonatic, mesic, shallow
Bramwell-----	Aquic Calciorthids, fine-silty, mixed, mesic
Broad-----	Calcic Argixerolls, loamy-skeletal, mixed, frigid
Checkett-----	Lithic Xeric Haplargids, loamy-skeletal, mixed, mesic
Cliffdown-----	Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Cristo-----	Pachic Argixerolls, fine, montmorillonitic, frigid
Dateman-----	Pachic Cryoborolls, loamy-skeletal, mixed
Doyce-----	Aridic Calcic Argixerolls, fine-loamy, mixed, mesic
Dynal-----	Typic Torripsamments, carbonatic, mesic
Erda-----	Aridic Calcixerolls, fine-silty, mixed, mesic
Flygare-----	Cryic Pachic Paleborolls, loamy-skeletal, mixed
Hiko Peak-----	Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Hiko Springs-----	Typic Calciorthids, coarse-loamy, mixed, mesic
Holmes-----	Typic Argixerolls, loamy-skeletal, mixed, frigid
Izamatch-----	Typic Torriorthents, sandy-skeletal, mixed, mesic
Jericho-----	Xerollic Durorthids, loamy-skeletal, mixed, mesic, shallow
Junkett-----	Petrocalcic Xerollic Paleargids, fine-loamy, mixed, mesic
Kanosh-----	Aquic Calciorthids, coarse-loamy, mixed, mesic
Kapod-----	Calcic Argixerolls, loamy-skeletal, mixed, mesic
Kilburn-----	Typic Haploxerolls, loamy-skeletal, mixed, mesic
Lakewin-----	Calcic Haploxerolls, loamy-skeletal, mixed, mesic
Lodar-----	Lithic Calcixerolls, loamy-skeletal, carbonatic, mesic
Logan-----	Typic Calciaquolls, fine-silty, mesic
Lundy-----	Lithic Calcixerolls, loamy-skeletal, carbonatic, frigid
Manassa-----	Xeric Torriorthents, fine-silty, mixed (calcareous), mesic
Medburn-----	Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Onaqui-----	Lithic Haploborolls, loamy-skeletal, mixed
Podmor-----	Pachic Haploborolls, loamy-skeletal, mixed
Reywat-----	Lithic Argixerolls, loamy-skeletal, mixed, mesic
Ridd-----	Typic Argixerolls, loamy-skeletal, mixed, mesic
Saltair-----	Typic Salorthids, fine-silty, mixed, mesic
Scalade-----	Haploxerollic Durorthids, loamy, mixed, mesic, shallow
Skumpah-----	Typic Natrargids, fine-silty, mixed, mesic
Spager-----	Xerollic Paleorthids, loamy-skeletal, carbonatic, mesic, shallow
Springmeyer-----	Aridic Argixerolls, fine-loamy, mixed, mesic
Taylorsflat-----	Xerollic Calciorthids, fine-loamy, mixed, mesic
Theriot-----	Lithic Torriorthents, loamy-skeletal, carbonatic, mesic
Timpie-----	Typic Torriorthents, fine-silty, mixed (calcareous), mesic
Tooele-----	Typic Torriorthents, coarse-loamy, mixed (calcareous), mesic
Wasatch-----	Entic Haploxerolls, sandy, mixed, mesic
Yeates Hollow-----	Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Yenrab-----	Typic Torripsamments, mixed, mesic

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