

Formation of the Soils

The soils that are described, classified, and mapped in this survey are changing, natural bodies on the landscape. They are described and classified as they appear today, but these same bodies were different in the past and will continue to change in the future.

The process of slow but constant change in soils is called soil formation, soil genesis, or pedogenesis. It is the sum total of all the gains, losses, translocations, and transformations of matter and energy occurring within the soils. According to Hans Jenny, "Any process taking place in soil space is a pedogenic process" (28). The physical breakdown of massive, hard rock, the transformation of mica into clay minerals such as chlorite, the removal of cations by water trickling through a soil, the accumulation of organic matter in topsoil, the removal of soil from the surface by erosion, and countless other processes are occurring in very small increments all the time. Usually, several processes are going on simultaneously. The task of soil scientists is to separate the very complex processes of soil genesis into dominant processes so that they can understand why a given soil occurs in one place and a different soil in another. State factor analysis is the most widely used method of determining how a given soil results from a set of dominant processes.

The properties of an ecosystem, or of the soil component of an ecosystem, can be seen as a function of the initial state, influxes, and duration. For soil properties, the initial state is made up of two factors—parent material and topography. The influxes can be analyzed as climate and the biotic factor. The duration of genesis is called the time factor. These five state factors—parent material, topography, climate, biotic factor, and time—were called the soil-forming factors in Jenny's classic study of soil genesis (27). They are variables that are independent of the soil as it forms. They can be, but may not be, independent of each other.

The following sections outline the state factors as they are expressed in the survey area and suggest what influence each factor has had in producing the soils that we see today.

Parent Material

Beneath the soils in the survey area is the "nightmare of rocks" known as the Franciscan assemblage. One geologist wrote that if all rocks resembled these, the science of geology could never have been developed (3). The highly complex nature of the Franciscan assemblage prevents a simple correlation between soils and parent material in the survey area; however, some patterns can be found that help us understand the soils better.

The sandstone and shale of the western edge of the survey area are part of the coastal belt of Franciscan rocks (7). These rocks have given rise to the soils of the redwood covered slopes, such as those of the Zeni, Ornbaun, and Yellowhound series. Over the rest of the survey area, the Franciscan assemblage is best described as a melange, a complex unit formed by fragmenting and mixing several rock types (38). Of these, the dominant type of rock is graywacke, a jumble of angular rock and mineral grains of sand or silt size in a fine textured matrix of chlorite and mica. Making up about 80 percent of the Franciscan assemblage, this "dirty sandstone" gives most soils in the survey area mixed mineralogy and moderately fine texture. Examples are soils of the Hopland, Sanhedrin, and Casabonne series. Where the rock is hardest, skeletal soils, such as those of the Squawrock, Mayacama, and Bluenose series, form.

Where finer textured shale is present, soils that have a clayey subsoil, such as those of the Hellman and Yorktree series, form. In the zone where the rocks have been most severely fragmented and mixed, the clayey Yorkville soils are present. In this survey area, slumps most commonly occur within this zone. Another minor member of the Franciscan assemblage is red chert, often associated with greenstone. High in iron and very hard, this rock is the parent material of the Cummiskey soils, which are high in content of both iron and rock fragments.

The unique properties of several soils can be tied directly to their origin from serpentinite. Not strictly part

of the Franciscan Formation, serpentinite bodies are very common in the survey area and are part of the entire assemblage of Franciscan rocks. Called an ultramafic rock because it is high in magnesium and iron and low in quartz, serpentinite weathers into soils that are high in magnesium, iron, and montmorillonitic clay and are low in calcium, sodium, potassium, phosphorus, quartz, and acidity. Four soil series in this survey area are recognized as derived from serpentinite—Beaughton, Dingman, Henneke, and Montara. All have serpentinitic mineralogy and a low calcium-to-magnesium ratio. These properties prevent many plant species from growing on these soils. Maxwell soils developed from intensely sheared serpentinite in swales, often near harder serpentinite outcrops. It shows its origin by having mostly montmorillonitic clay and a low calcium-to-magnesium ratio (about 1 to 50). It is dark gray or black and has high shrink-swell potential.

The most important agricultural soils in the survey area formed in alluvial deposits of the valleys. The alluvial deposits and the soils that formed in them inherited their mineralogy from the Franciscan rocks of the surrounding hills. The texture of the soils is largely determined by the nature of the parent material. Gravelly Talmage soils formed in the recent gravelly deposits of larger, faster streams, such as Morrison Creek and the Russian River. The medium textured Russian and Feliz soils formed in material that was laid down in slower water, farther from the main channel of streams, while the fine textured Cole and Clear Lake soils formed in areas occupied by quiet settling basins away from rapidly flowing streams. Where stream deposits have been uplifted and have remained stable long enough for further soil development to take place, soils of the Pinnobie, Pinole, Yokayo, and Redvine series have formed.

Topography

The topography of the landscape at the time when soil genesis begins affects the soil that forms in a given parent material. Included in this factor of soil formation are the length, shape, and steepness of slope, position on the slope, aspect, and the level of the water table.

In areas of redwood forest where the soils developed in material derived from hard sandstone, the soil depth depends in part on slope position. Moderately deep Kibesillah soils, for example, are on ridgetops and on convex side slopes, while deep, skeletal Yellowhound soils are on side slopes. Ornbaun soils, which have more clay and few rock fragments, occupy toe slopes

and concave positions where colluvial material has accumulated. Ornbaun soils are not present on the steeper slopes.

In the southern part of the survey area, rainfall is marginal for tree growth. The effective moisture content on north aspects, however, is sufficient to allow trees to grow, while only annual grasses grow on south aspects. The warmer temperatures and higher evaporation on the south aspects can also lead to the development of shallower soils. On the eastern edge of the survey area, the moderately deep Hopland and Woodin soils are more dominant on north aspects. The shallower Maymen and Etsel soils are on the hotter south slopes. The effects of aspect are less visible in the higher rainfall areas in the western and northern parts of the survey area.

Erosion can be a potent factor in shaping the present appearance of a soil. It is a destructive force that reduces soil depth or removes entire soil horizons. The Dunsmuir and Maymen Variant soils appear to be the eroded, brush-covered remnants of what were once deeper forest soils. The Etsel, Neuns, and Woodin soils commonly are covered with a layer of fine gravel left behind when finer textured soil material was removed by sheet erosion. Erosion has removed organic material as well as mineral material from many of the fine textured soils in the survey area. None of these soils has the organic carbon content, base saturation, and dark surface colors required to be classified as Mollisols. On the other hand, Cumiskey, Dingman, and Gudgrey soils are present in upland areas where large amounts of organic carbonates have accumulated. All of these soils have a dark colored, highly organic surface layer more than 20 inches thick. Organic material removed from hill slopes by erosion and deposited on the bottom land accounts for some of the organic matter in the very thick, dark-colored surface layer of the Clear Lake, Cole, Feliz, Gielow, and Russian soils.

In areas of rolling topography, the soils in the higher lying positions commonly are well drained and are adjacent to soils that are in closed depressional areas, are poorly drained, and are rich in clay (13). Such is the case in the areas of hummocky landscape south and west of Laytonville. Moderately well drained Argixerolls are in the convex areas on the hummocks, and poorly drained Haploxeralfs are in the depressional areas.

Where a water table is regional and not perched because of soil properties, it can be regarded as a topographic factor influencing soil development. The well drained Cole soils have their poorly drained counterparts where the regional water table still stands.

The wetter Cole soils have more clay and organic carbon and a higher base saturation than the well drained Cole soils. The well drained Feliz soils are classified as Cumulic Haploxerolls, but the Gielow soils are classified as Cumulic Haplaquolls because of the effects on soil properties of a water table over long periods of time. At the northern end of Little Lake Valley, near Willits, the ponded water that gives the valley its name covers the soil surface throughout winter and spring. The dominant soils in this area are Haplaquepts. Except for gleying, soil development is poorly expressed in these soils because the presence of standing water precludes clay movement, the distribution of organic matter, and frequent wetting and drying cycles.

Climate

To consider climate as a truly independent soil-forming factor, we need to focus on the regional climate. Unlike local climate or microclimate, regional climate is not influenced by relief, vegetation, or soil properties. Climate provides the influx of heat, light, and moisture that drives the whole system of soil development.

Regional climatic data can be used to place the local soils in a worldwide scheme of soil genesis (14). Even in a survey area of more than 1 million acres, the climatic data from weather stations are too scanty to explain differences among soils of the area based on regional climate. Local climate and microclimate, while not truly independent state factors, are important for understanding present-day soils.

Characteristics of the regional climate are discussed in the section "General Nature of the Survey Area." As Major (8) pointed out, the supply and demand for water in Ukiah are exactly out of phase. Excessive rain falls in the cool winter, leaching through the soil. In the growing season, a drought prevails. As a result, actual evapotranspiration is less than 50 percent of the potential. If the period of rainfall were shifted by 6 months, actual water use would approach 100 percent of that possible.

For soil genesis, the combination of cool season leaching and frequent wetting and drying is very important. Both processes encourage clay movement; however, clay formation and removal of basic cations is not maximized as it would be if the seasons of high moisture and high temperature coincided. As a result, formation of an argillic horizon with moderate base status is dominant in the survey area. Ultic Argixerolls,

Ultic Haploxeralfs, and Ultic Haplustalfs are common on the uplands.

Birkeland (13) has adapted Arkley's correlation of climatic parameters with broad soil groupings. His graphs show calculated actual evapotranspiration on the X-axis and leaching index (precipitation-potential evapotranspiration) on the Y-axis for three temperature regimes. For areas where mean annual temperature is more than 54 degrees F, the point for Ukiah falls in the junction between Mollisols, Alfisols, and Ultisols. On the bottom land, Mollisols predominate. As seen above, Ultic subgroups of Mollisols and Alfisols are present on the uplands. For cooler areas, the model predicts a point where Alfisols and Ultisols overlap. In fact, Mollisols do give way to Alfisols and Xerumbrepts in the cooler northern parts of the survey area, but Ultisols are present only as inclusions. Evidently, either warmer temperatures or higher precipitation is needed to create an optimum climate for Ultisols.

The only major group of upland soils in the survey area not covered by this model are the Xerochrepts. They commonly occur in areas of steep relief, where the climatic influence on parent material is not expressed. In the 1938 system of soil classification, they could have been called Azonal soils. They are discussed as a factor of soil formation in the section "Time."

Biotic Factor

Like climate, the biotic factor operates on a regional basis by providing inputs to the initial ecosystem, or soil part of the system. In this case, the influx is the gene pool that is available to populate the system at the time when new parent material is exposed. Only the organism's genetic makeup is truly independent of the soil; the plant or animal that actually grows on the site is an expression of the soil, not a controlling factor in its formation (28). The western parts of the survey area lie along the fringe of the redwood-Douglas fir-hardwood forest, which extends to the coast. The influx of redwood seeds is concentrated on the western fringe. To the east, Douglas fir-hardwood forest, northern oak woodland, grasslands, and chaparral form a complex mosaic of vegetation. Seeds from all species in these vegetation types would reach newly exposed parent material in this part of the survey area. There are many complex factors controlling how long one vegetation type lasts on a site before succeeding to another type. The dynamic process of succession in the northern part of the Coast Range is little understood (8).

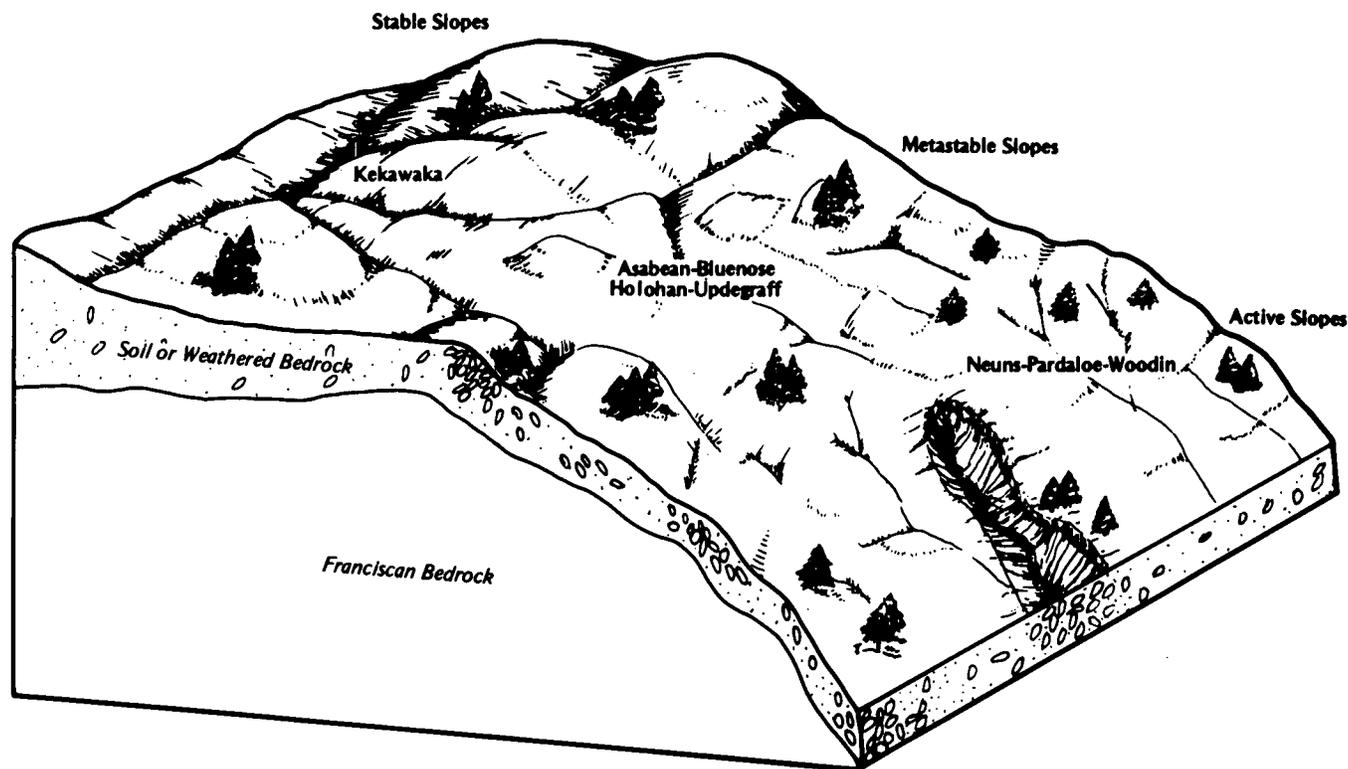


Figure 6.—Pattern of active, metastable, and stable slopes.

On a local level, soil and vegetation evolve together over time under the influence of all the state factors. Some general patterns in soil properties can be seen in soils under different vegetation.

The most extensive grassland soils show high base saturation throughout the profile. Whether classified as Argixerolls, Haploxeralfs, or Xerochrepts, Shortyork, Squawrock, Witherell, and Yorkville soils all have base saturation higher than 50 percent in the surface layer and subsoil. They generally become less acid with depth. They also have high organic matter content in the surface layer.

The most extensive coniferous forest soils all have base saturation below 50 percent in the subsoil. They become more acid with depth. The Asabeen, Casabonne, Sanhedrin, Speaker, and Wohly soils are all Ultic Haploxeralfs, the Kekawaka soils are Ultic Palexeralfs, and the Ornbaun and Zeni soils are Ultic Haplustalfs. Organic carbon content of these soils is comparable to that of the grassland soils and decreases more slowly as depth increases, perhaps because the cooler microclimate slows decomposition. The Bearwallow and Hellman soils are exceptions. Although

presently under grass cover, these soils are Xeralfs that have low base saturation and red color in the subsoil. The upper part of the subsoil is less acid than the surface layer, but the subsoil becomes more acid as depth increases. This suggests that they were converted to grassland from coniferous forest cover relatively recently. Unlike cleared areas of Casabonne and Sanhedrin soils, however, these cleared areas are not being reinvaded by brackenfern, shrubs, and tree seedlings. Apparently, erosion, heat of fire, or some combination of these and other factors has made the Bearwallow and Hellman soils more hospitable to grass than to trees, at least for the near future.

Time

The length of time that the climatic and biotic factors have been acting on parent material with a given relief is an important factor in what a soil looks like. Young soils exhibit little or no horizon differences, and the rock material is relatively unchanged. Mature soils have well-defined genetic horizons; however, the time factor of soil genesis is more than just the age of the parent

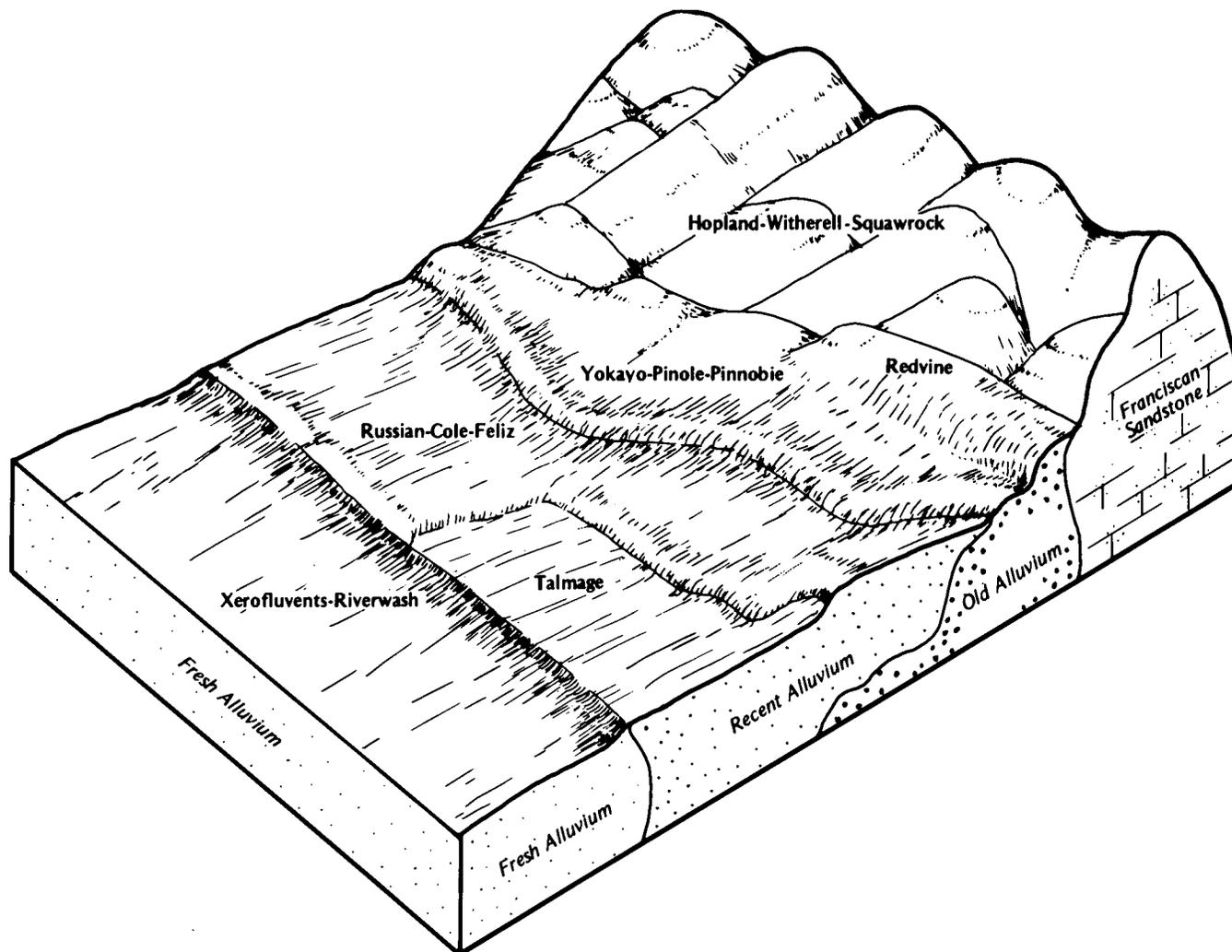


Figure 7.—Pattern of terraces in Ukiah Valley and adjacent mountains.

material. The Franciscan rocks that cover most of the survey area are considered to be about 80 million years old. Yet many of the soils that formed in material derived from these rocks are considered by soil scientists to be very young. By contrast, the most mature soils in the survey area developed in uplifted alluvial terraces that are probably less than 1 million years old.

Depending on slope gradient and stability of the parent material, side slopes of hills and mountains may be active, metastable, or stable (42) (fig. 6). On steep active slopes or eroding ridgetops, geologic erosion removes soil material faster than horizons can form. Each time a landslide exposes new material to the air or erosion removes the existing soil surface, a new

“time zero” is set. Xerochrepts such as Mayacama, Neuns, Pardaloe, Witherell, and Woodin soils and Xerorthents such as Etsel and Snook soils form on such slopes. These soils generally have a light-colored surface layer and a pale, very gravelly subsoil. Clay content is low, and the soils generally are shallow.

Metastable slopes are not so steep. Parent material stays in place long enough for significant movement of clay into the subsoil and accumulation of organic matter in the surface layer. Haploxeralfs such as the Asabeen, Bearwallow, Holohan, and Squawrock soils and Argixerolls such as the Bluenose, Nashmead, and Shortyork soils form here. Fine-textured Ultic Argixerolls such as the Updegraff and Yorktree soils have been identified in relatively stable old landslide areas or

saddles in the Coast Range in Oregon (41). In many places in the survey area, these soils also have the stone line between the A and B horizons that Parsons identified on metastable slopes.

On gentler slopes and broad ridgetops, parent material has been stable for thousands of years. A fine-textured, red subsoil develops as clay accumulates in the subsoil and iron oxides form from primary minerals. Organic matter buildup in the soil stops because humus breaks down at the same rate as it is added. Base saturation is lower than in younger soils. Palexeralfs such as the Hellman and Kekawaka soils may become unstable themselves because of their mature soil properties. In places where the boundary to the clayey subsoil is abrupt and excess water saturates the soil, these soils are subject to localized slumping, especially after disturbance. Soil genesis completes one cycle, the time factor is reset to zero, and the process starts again.

Young soils are also present on bottom land, where the deposition of fresh alluvium resets time to zero after each flood. The extreme case is Riverwash, which occupies the lowest and youngest geomorphic surface where the present streams flow. Slightly higher on the flood plain, Xerofluvents are flooded frequently each year. They show very little horizon development and still show stratified layers from their alluvial parent material.

Geologic activity in the survey area has lifted the land surface over millions of years. As the land rose, flood plains were abandoned and streams cut down into them to form new flood plains. The abandoned flood

plains, called terraces, commonly form a steplike sequence in the landscape, with the older terraces perched high above the present streams. Successively older soils occupy each terrace (fig. 7).

Talmage soils formed on slightly higher terraces than did the Xerofluvents and are rarely flooded. They have accumulated enough organic matter in the surface layer to be classified as Mollisols, even though they show little other horizon development. Because the content of organic matter develops more rapidly than other soil properties, Talmage soils probably were lifted above the active streambed recently, perhaps less than 500 years ago.

Cole, Feliz, and Russian soils formed on a river terrace that is now flooded less than once every 100 years. This surface has probably been stable for several thousand years. The soils have a thick, dark-colored surface layer, high base saturation, and a cambic or poorly expressed argillic horizon in the subsoil.

The high terraces above Ukiah Valley, Lake Mendocino (formerly Coyote Valley), and similar areas are much older, probably more than 10,000 years in age. Pinnobie, Pinole, Yokayo, and Redvine soils formed on these high terraces. These soils have a successively higher clay and iron content and a redder surface layer. Redvine soils and Ultic Palexeralfs have few weatherable minerals remaining in the subsoil and are almost 50 percent clay. The type location of these soils is almost 400 feet higher than the Russian River.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

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.

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.

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

Back slope. The geomorphic component that forms the steepest inclined surface and principal element of

many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, 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.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4 ½ feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to reduce or eliminate competition of woody vegetation to allow understory grasses and forbs to recover, or to make conditions favorable for reseeding. It increases production of forage, which reduces erosion. Brush management may improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

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

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of a

standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

- Canopy.** The leafy crown of trees or shrubs. (See Crown.)
- Canyon.** A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.
- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- Chemical treatment.** Control of unwanted vegetation by 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 plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed.
- 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 (7.5 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.
- Colluvium.** Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.
- Complex slope.** Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.
- Complex, soil.** A map unit of two or more kinds of soil

or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

- Compressible** (in tables). Excessive decrease in volume of soft soil under load.
- Concretions.** Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.
- Conglomerate.** A coarse grained, clastic rock composed of rounded to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer material. Conglomerate is the consolidated equivalent of gravel.
- Conservation cropping system.** Growing crops in combination with needed cultural and management practices. If soil improving crops and practices used in the system more than offset the soil depleting crops and deteriorating practices, then it is a good conservation cropping system. 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.
- Consistence, soil.** The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—
- Loose.*—Noncoherent when dry or moist; does not hold together in a mass.
- Friable.*—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.
- Firm.*—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.
- Plastic.*—Readily deformed by moderate pressure but can be pressed into a lump; will form a “wire” when rolled between thumb and forefinger.
- Sticky.*—Adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping (or contour farming). Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops using a planned system of rotation and management practices.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment. The age at which this occurs varies by species, site index, and units of measure.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or arresting grazing for a prescribed period.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and low water holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and low water holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have intermediate water holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless artificial drainage is provided. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless artificial drainage is provided. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. They are wet enough to prevent the growth of important crops (except rice) unless artificially drained.

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley, generally more open and with broader bottom land than a ravine or gulch.

Duff. A term used to identify 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.

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 the activities of man or other animals or of a catastrophe in nature; for example, fire that exposes the surface.

Erosion hazard. The potential for erosion of a soil that lacks plant cover. The erosion hazard is rated as none, slight, moderate, severe, and very severe.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and produced by 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.

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.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

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

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of men and equipment in fire fighting. Designated roads also serve as firebreaks.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

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

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

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

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 and mottles.

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

Ground water (geology). Water filling all the unblocked pores of underlying 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.

Hard rock. Rock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Head out. To form a flower head.

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 upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*.

The major horizons of mineral soil are as follows:
O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some 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, the number 2 precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics.

The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

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.

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.

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—*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.

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.

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.

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 (7.5 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.

Light textured soil. Sand and loamy sand.

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

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

Low strength. The soil is not strong enough to support loads.

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.

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, and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons,

and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

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 and considerable bare-rock surface. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color in hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

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.

Open space. A relatively undeveloped green or wooded area provided mainly within an urban area to minimize feelings of congested living.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

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.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to

permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percs slowly (in tables). The slow movement of water through the soil, adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	Less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	More than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

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.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

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. The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed. (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. The application of fire to land under such conditions of weather, soil moisture, and time of day as presumably will result in the intensity of heat and spread required to accomplish specific forest management, wildlife, grazing, or fire hazard reduction purposes.

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 increases the vigor and reproduction of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

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 degree of acidity or alkalinity is expressed as—

Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

- Relief.** The elevations or inequalities of a land surface, considered collectively.
- Residuum (residual soil material).** Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.
- Rill.** A steep sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.
- Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.
- Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.
- Root zone.** The part of the soil that can be penetrated by plant roots.
- Rooting depth** (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.
- Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.
- 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-size particles.
- Saprolite** (soil science). Unconsolidated residual material underlying the soil and grading to hard bedrock below.
- Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.
- Seepage** (in tables). The movement of water through the soil. Seepage
- Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.
- Shale.** Sedimentary rock formed by the hardening of a clay deposit.
- Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.
- 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 class.** A grouping of site indexes into 5 to 7 production capability levels. Each level can be represented by a site curve.
- Site curve (50-year).** A set of related curves on a graph that shows the average height of dominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant trees that are 50 years old or are 50 years old at breast height.
- Site curve (100-year).** A set of related curves on a graph that show the average height of dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant and codominant trees that are 100 years old or are 100 years old at breast height.
- 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.
- Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.
- Slippage** (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey the following slope classes are recognized (classes for simple slopes are listed first and then those for complex slopes):

Nearly level.....	0 to 2
Gently sloping	2 to 5
Moderately sloping	5 to 9
Strongly sloping.....	9 to 15
Moderately steep	15 to 30
Steep.....	30 to 50
Very steep.....	50 to 75
Extremely steep	75 and higher
Nearly level.....	0 to 2
Undulating.....	2 to 5
Gently rolling	5 to 9
Rolling.....	9 to 15
Hilly.....	15 to 30
Steep.....	30 to 50
Very steep.....	50 to 75
Extremely steep	75 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 intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft rock. Rock 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 climate. The moisture and temperature conditions existing within the soil.

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 underlying material. The living roots and plant and animal activities are largely confined to the solum.

Spur ridge. A secondary divide between minor drainageway systems in an area that generally has an inverted V shape and is considerably below the elevation of the associated ridge.

Stone line. A concentration of coarse fragments in a soil. Generally it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 6 to 15 inches (15 to 38 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Structural bench. A platform-type, nearly level to gently sloping erosional surface that developed on resistant strata in areas where valleys have been cut into alternating strong and weak layers that have an essentially horizontal attitude. Structural benches, in contrast to stream terraces, have no geomorphic implication of former partial erosion cycles and base-level controls, nor do they represent a stage of flood plain development following an episode of valley trenching.

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

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

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.

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."

Talus. Rock fragments of any size or shape, commonly coarse and angular, derived from and lying at the base of a cliff or very steep, rock slope. The accumulated mass of such loose, broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

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 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.

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.

Toxicity (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, are in soils in extremely small amounts. They are essential to plant growth.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

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

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

Variante, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Variation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Water table (seasonal). The highest part of the soil or underlying rock material that is entirely saturated with water. In some places a perched water table may be separated from a lower one by a dry zone.

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.

Windthrow. The action of uprooting and tipping over trees by the wind.

Appendixes

Appendix A is an excerpt from California supplement CA-4 to the National Conservation Planning Manual, dated February 1981, United States Department of Agriculture, Soil Conservation Service.

Appendix B is an edited version of the ratings guide described in the National Soils Handbook, Part II, Notice 24, dated March 31, 1978, United States Department of Agriculture, Soil Conservation Service. These guides provided the basis for the interpretive ratings given in the tables Recreational development, Building site development, Sanitary facilities, Construction materials, and Water management. Soils are rated for the uses expected to be important or potentially important to users of soil survey information. Ratings for proposed uses are given in terms of limitations and restrictive features. Only the most restrictive features are listed in the tables. Therefore, if a soil is rated severe, only those soil features that cause the soil to be rated severe are given. There may be other limitations that should be overcome if the soil is to be used for a specific purpose. The guides in appendix C show in the first column the properties or features used as criteria for rating the soil for the use. The properties are listed in descending order of estimated importance. In the "Limits" column, limits of the properties are given for rating the soils and for recognizing a restrictive property or properties. In the "Restrictive feature" column, a key phrase indicates the feature causing the problem.

Appendix A

Prime Farmlands

Prime Farmland is land best suited for producing food, feed, forage, fiber, and oilseed crops and also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land but not urban builtup land or water). It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern farming methods.

Prime Farmland meets all the following criteria:

1. The soils have:

A. Aquic, udic, ustic, or xeric moisture regimes and an available water capacity of at least 4 inches (10 cm) per 40 to 60 inches (1 to 1.52 meters) of soil to produce the commonly grown cultivated crops (cultivated crops include, but are not limited to, grain, forage, fiber, oilseed, sugarbeets, vegetables, orchard, vineyard, and bush fruit crops) adapted to the region in 7 or more years out of 10; or

B. Xeric, ustic, aridic, or torric moisture regimes in which the available water capacity is at least 4 inches (10 cm) per 40 to 60 inches (1 to 1.52 meters) of soil and the area has a developed irrigation water supply that is dependable (a dependable water supply is one in which enough water is available for irrigation in 8 out of 10 years for the crops commonly grown) and of adequate quality; and,

2. The soils have a temperature regime that is frigid, mesic, thermic or hyperthermic (pergelic and cryic regimes are excluded). These are soils that, at a depth of 20 inches (50 cm), have a mean annual temperature higher than 32° F (0° C). In addition, the mean summer temperature at this depth in soils with an O horizon is higher than 47° F (8° C); in soils that have no O horizon, the mean summer temperature is higher than 59° F (15° C); and,

3. The soils have a pH between 4.5 and 8.4 in all horizons within a depth of 40 inches (1 meter); and,

4. The soils either have no water table or have a water table that is maintained at a sufficient depth during the cropping season to allow cultivated crops common to the area to be grown; and,

5. The soils can be managed so that, in all horizons within a depth of 40 inches (1 meter), during part of each year the conductivity of the saturation extract is less than 4 mmhos/cm and the exchangeable sodium percentage (ESP) is less than 15; and,

6. The soils are not flooded frequently during the growing season (less often than once in 2 years); and,

7. The product of K (erodibility factor) x percent slope is less than 2.0; and,

8. The soils have a permeability rate of at least 0.06 inch (0.15 cm) per hour in the upper 20 inches (50 cm) and the mean annual soil temperature at a depth of 20 inches (50 cm) is less than 59° F (15° C); the permeability rate is not a limiting factor if the mean annual soil temperature is 59° F (15° C) or higher; and,

9. Less than 10 percent of the surface layer [upper 6 inches (15 cm)] in these soils consists of rock fragments coarser than 3 inches (7.6 cm); and,

10. The soils have a minimum rooting depth of 40 inches (1 meter).

Appendix B.—Criteria Used in Rating Soils for Selected Uses

Camp Areas

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. Flooding	None, protected.	---	Rare, common.	Flooding.
2. Slope (percent)	0-8	8-15	>15	Slope.
3. USDA texture	---	STV, BYV, CB, FL	STX, BYX, CBX, FLX, CBV, FLV	Large stones.
4. Coarse fragments in the surface layer (percent) ¹	<25	25-50	>50	Small stones.
5. Depth to high water table (feet)	---	---	+	Ponding.
	>2.5	1.5-2.5	<1.5	Wetness.
6. Permeability in the upper 40 inches (in.hr) ²	>0.6	0.06-0.6	<0.06	Percs slowly.
7. USDA texture (surface layer) ²	---	---	SC, SIC, C	Too clayey.
8. Unified (surface layer)	---	---	OL, OH, PT	Excess humus.
9. USDA texture (surface layer)	---	LCOS, VFS	COS, S, FS	Too sandy.
10. Depth to bedrock (inches)	---	---	<20	Depth to rock.
11. Depth to cemented pan (inches) ..	---	---	<20	Cemented pan.
12. USDA texture (surface layer) ³	---	SIL, SI, VFSL, L	---	Dusty.
13. Sodium adsorption ratio (great group)	---	---	<12 (natric, halic)	Excess sodium.
14. Salinity (mmhos/cm)	<4	4-8	>8	Excess salt.
15. Soil reaction	---	---	<3.6	Too acid.

¹ 100 minus percent passing No. 10 sieve.

² Rate soils in UST, TOR, ARID, BOR, or XER suborders, great groups, or subgroups one class better.

³ Disregard unless soil is in TOR, ARID, or XER suborders, great groups, or subgroups.

Picnic Areas

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. Slope (percent)	0-8	8-15	>15	Slope.
2. Flooding	None, rare, occasional, protected.	Frequent	---	Flooding.
3. Depth to high water table (feet)	>2.5 ---	1.0-2.5 ---	<1.0 +	Wetness. Ponding.
4. USDA texture	---	STV, BYV, CB, FL	STX, BYX, CBX, FLX, CBV, FLV	Large stones.
5. USDA texture (surface layer) ¹	---	---	SC, SIC, C	Too clayey.
6. USDA texture (surface layer)	---	LCOS, VFS	COS, S, FS	Too sandy.
7. Unified (surface layer)	---	---	OL, OH, PT	Excess humus.
8. Coarse fragments in surface layer (percent) ²	<25	25-50	>50	Small stones.
9. Sodium adsorption ratio (great group)	---	---	>12 (natric, halic)	Excess sodium.
10. Salinity (mmhos/cm)	<4	4-8	>8	Excess salt.
11. Soil reaction (pH of surface layer)	---	---	<3.6	Too acid.
12. Permeability in the upper 40 inches (in/hr) ¹	>0.6	0.06-0.6	<0.06	Percs slowly.
13. USDA texture (surface layer) ³	---	SIL, SI, VFSL, L	---	Dusty.
14. Depth to bedrock (inches)	---	---	<20	Depth to rock.
15. Depth to cemented pan (inches) ..	---	---	<20	Cemented pan.

¹ Rate soils in UST, TOR, BOR, or XER suborders, great groups, or subgroups one class better.

² 100 minus percent passing No. 10 sieve.

³ Disregard unless soil is in TOR, ARID, or XER suborders, great groups, or subgroups.

Playgrounds

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	ST	STV, STX, BYV, BYX, CB, CBV, FL, FLV, BY	Large stones.
2. Slope (percent)	0-2	2-6	>6	Slope.
3. Coarse fragments in surface layer (percent) ¹	<10	10-25	>25	Small stones.
4. USDA texture (surface layer)	---	---	SC, SIC, C	Too clayey.
5. USDA texture (surface layer)	---	LCOS, VFS	COS, S, FS	Too sandy.
6. Unified (surface layer)	---	---	OL, OH, PT	Excess humus.
7. Depth to high water table (feet) ...	>2.5	1.5-2.5	<1.5	Wetness.
	---	---	+	Ponding.
8. Flooding	None, rare, protected.	Occasional	Frequent	Flooding.
9. Depth to bedrock (inches)	>40	² 20-40	<20	Depth to rock.
10. Depth to cemented pan (inches) ..	>40	² 20-40	<20	Cemented pan.
11. Permeability in the upper 40 inches (in/hr) ³	>0.6	0.06-0.6	<0.06	Percs slowly.
12. USDA texture (surface layer) ⁴	---	SIL, SI, VFSL, L	---	Dusty.
13. Sodium adsorption ratio (great group)	---	---	>12 (natric, halic)	Excess sodium.
14. Salinity (mmhos/cm)	<4	4-8	>8	Excess salt.
15. Soil reaction (pH of surface layer)	---	---	<3.6	Too acid.

¹ 100 minus percent passing No. 10 sieve.

² Rate *slight* if slopes are 0 to 2 percent.

³ Rate soils in UST, TOR, ARID, BOR, or XER suborders, great groups, or subgroups one class better.

⁴ Disregard unless soil is in TOR, ARID, or XER suborders, great groups, or subgroups.

Paths and Trails

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. Fraction greater than 3 inches in surface layer (percent by weight)	<25	25-50	>50	Large stones.
2. Depth to high water table (feet) . . .	>2 ---	1-2 ---	0-1 +	Wetness. Ponding.
3. USDA texture (surface layer) ¹	---	---	SC, SIC, C	Too clayey.
4. USDA texture (surface layer)	---	LCOS, VFS	COS, S, FS	Too sandy.
5. Unified (surface layer)	---	---	OL, OH, PT	Excess humus.
6. Slope (percent)	0-15	15-25	>25	Slope.
7. Erosion factor K (surface layer) . . .	---	---	>.35	Erodes easily.
8. Coarse fragments in surface layer (percent by weight) ²	---	---	>65	Small stones.
9. Flooding	Protected, none, rare, occasional.	Frequent	---	Flooding.
10. USDA texture (surface layer) ³	---	SIL, SI, VFSL, L	---	Dusty.

¹ Rate soils in UST, TOR, ARID, BOR, or XER suborders, great groups, or subgroups one class better.

² 100 minus percent passing No. 10 sieve.

³ Disregard unless soil is in TOR, ARID, or XER suborders, great groups, or subgroups.

Septic Tank Absorption Fields

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture.....	---	---	Ice	Permafrost.
2. Flooding.....	None, protected.	Rare	Common	Flooding.
3. Depth to bedrock (inches).....	>72	40-72	<40	Depth to rock.
4. Depth to cemented pan (inches)....	>72	40-72	<40	Cemented pan.
5. Depth to high water table (feet)....	---	---	+	Ponding.
	>6	4-6	0-4	Wetness.
6. Permeability (in/hr):				
24 to 60 inches.....	2.0-6.0	¹ 0.6-2.0	<0.6	Percs slowly.
Below 24 inches.....	---	---	>6.0	Poor filter.
7. Slope (percent).....	0-8	8-15	>15	Slope.
8. Fraction greater than 3 inches (percent by weight) ²	<25	25-50	>50	Large stones.

¹ Recheck to see if rating should be *slight*.

² Weighted average to 40 inches.

Sewage Lagoons

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture.	---	---	Ice	Permafrost.
2. Permeability between 12 and 60 inches (in/hr)	<0.6	0.6-2.0	>2.0	Seepage.
3. Depth to bedrock (inches)	>60	40-60	<40	Depth to rock.
4. Depth to cemented pan (inches)....	>60	40-60	<40	Cemented pan.
5. Flooding ¹	None, protected.	---	Rare, common	Flooding.
6. Slope (percent)	0-2	2-7	>7	Slope.
7. Unified	---	OL, OH	PT	Excess humus.
8. Depth to high water table (feet) ² ...	---	---	+	Ponding.
	>5	3.5-5	0-3.5	Wetness.
9. Fraction greater than 3 inches (percent by weight) ³	<20	20-35	>35	Large stones.

¹ If floodwater will not enter or damage the sewage lagoon because of low velocity and a water depth of less than 5 feet, disregard flooding.

² If the floor of the sewage lagoon has slowly permeable material at least 4 feet thick, disregard wetness.

³ Weighted average to 20 inches.

Sanitary Landfill (Trench)

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Flooding	None, protected.	Rare	Common	Flooding.
3. Depth to bedrock (inches)	---	---	<72	Depth to rock.
4. Depth to cemented pan (inches):				
Thick	---	---	<72	Cemented pan.
Thin	---	<72	---	Cemented pan.
5. Permeability of bottom layer (in/hr) ¹	---	---	>2.0	Seepage.
6. Depth to high water table (feet) ...	---	---	+	Ponding.
Apparent	---	---	0-6	Wetness.
Perched	>4	2-4	0-2	Wetness.
7. Slope (percent)	0-8	8-15	>15	Slope.
8. USDA texture ^{1 2 3}	---	CL, SC, SICL	SIC, C	Too clayey.
9. USDA texture ³	---	LCOS, LS, LFS, LVFS	COS, S, FS, VFS, SG	Too sandy.
10. Unified ³	---	---	OL, OH, PT	Excess humus.
11. Fraction greater than 3 inches (percent by weight) ⁴	<20	20-35	>35	Large stones.
12. Sodium adsorption ratio (great group) ¹	---	---	>12 (natric, halic)	Excess sodium.
13. Soil reaction (pH)	---	---	<3.6	Too acid.
14. Salinity (mmhos/cm)	---	---	>16	Excess salt.

¹ Disregard in all Aridisols except Salorthids and Aquic intergrads and all Torri great groups of Entisols except Aquic.

² If soil is in kaolinitic family, rate one class better if experience confirms.

³ Thickest layer between 10 and 60 inches.

⁴ Weighted average to 60 inches.

Sanitary Landfill (Area)

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture.....	---	---	Ice	Permafrost.
2. Flooding.....	None, protected.	Rare	Common	Flooding.
3. Depth to bedrock (inches).....	>60	40-60	<40	Depth to rock.
4. Depth to cemented pan (inches)....	>60	40-60	<40	Cemented pan.
5. Permeability between 10 and 40 inches (in/hr) ¹	---	---	>2.0	Seepage.
6. Depth to high water table (feet).....	---	---	+	Ponding.
Apparent.....	>5	3.5-5	0-3.5	Wetness.
Perched.....	>3	1.5-3	0-1.5	Wetness.
7. Slope (percent).....	0-8	8-15	>15	Slope.

¹ Disregard in all Aridisols except Salorthids and Aquic intergrades and all Torri great groups of Entisols except Aquic.

Daily Cover for Landfill

Property	Limits			Restrictive feature
	Good	Fair	Poor	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches)	>60	40-60	<40	Area reclaim.
3. Depth to cemented pan (inches) ...	>60	40-60	<40	Area reclaim.
4. Unified ¹	---	---	SP, SW, SP-SM, SW-SM, GP, GW GP-GM, GW-GM	Seepage.
5. USDA texture ^{1 2 3}	---	CL, SICL, SC	SIC, C	Too clayey.
6. USDA texture ¹	---	LCOS, LS, LFS, VFS	S, FS, COS, SG	Too sandy.
7. Unified ^{1 3}	---	---	OL, OH, CH, MH	Hard to pack.
8. Coarse fragments (percent) ^{1 4} ...	<25	25-50	>50	Small stones.
9. Fraction greater than 3 inches (percent by weight) ^{1 4}	<25	25-50	>50	Large stones.
10. Slope (percent)	0-8	8-15	>15	Slope.
11. Depth to high water table (feet) ...	---	---	+	Ponding.
	>3.5	1.5-3.5	<1.5	Wetness.
12. Unified	---	---	PT	Excess humus.
13. Layer thickness (inches)	>60	40-60	<40	Thin layer.
14. Soil reaction (pH)	---	---	<3.6	Too acid.
15. Salinity (mmhos/cm) ^{1 2}	---	---	>16	Excess salt.
16. Sodium adsorption ratio (great group) ¹	---	---	>12 (halic, natric)	Excess sodium.

¹ Thickest layer between 10 and 60 inches.

² Disregard in all Aridisols except Salorthids and Aquic intergrades and all Torri great groups of Entisols except Aquic.

³ If soil is in kaolintic family, rate one class better if experience confirms.

⁴ 100 minus percent passing No. 10 sieve, plus fraction greater than 3 inches. Use dominant condition for restrictive feature.

Shallow Excavations

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches):				
Hard	>60	40-60	<40	Depth to rock.
Soft	>40	20-40	<20	Depth to rock.
3. Depth to cemented pan (inches):				
Thick	>60	40-60	<40	Cemented pan.
Thin	>40	20-40	<20	Cemented pan.
4. USDA texture (20 to 60 inches) ...	---	SI ¹	COS, S, FS, VFS, LCOS, LS, LFS, LVFS, G, SG	Cutbanks cave.
5. USDA texture (20 to 60 inches) ...	---	C, SIC	---	Too clayey.
6. Soil order	---	---	Vertisols	Cutbanks cave.
7. Bulk density (g/cc)	---	>1.8	---	Dense layer.
8. Unified (20 to 60 inches)	---	---	OL, OH, PT	Excess humus.
9. Fraction greater than 3 inches (percent by weight) ²	<25	25-50	>50	Large stones.
10. Depth to high water table (feet) ...	---	---	+	Ponding.
	>6	2.5-6	0-2.5	Wetness.
11. Flooding	None, rare, protected.	Common	---	Flooding.
12. Slope (percent)	0-8	8-15	>15	Slope.

¹ In areas of loess, rating should be *slight*.

² Weighted average to 40 inches.

Dwellings Without Basements

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Flooding	None, protected.	---	Rare, common.	Flooding.
3. Depth to high water table (feet)	--- >2.5	--- 1.5-2.5	+ 0-1.5	Ponding. Wetness.
4. Shrink-swell potential	Low	Moderate	High	Shrink-swell.
5. Unified ¹	---	---	OL, OH, PT	Low strength.
6. Slope (percent)	0-8	8-15	>15	Slope.
7. Depth to bedrock (inches):				
Hard	>40	20-40	<20	Depth to rock.
Soft	>20	<20	---	Depth to rock.
8. Depth to cemented pan (inches):				
Thick	>40	20-40	<20	Cemented pan.
Thin	>20	<20	---	Cemented pan.
9. Fraction greater than 3 inches (percent by weight) ²	<25	25-50	>50	Large stones.

¹ Thickest layer between 10 and 40 inches.

² Weighted average to 40 inches.

Dwellings With Basements

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture.....	---	---	Ice	Permafrost.
2. Flooding.....	None, protected.	---	Rare, common.	Flooding.
3. Depth to high water table (feet)	---	---	+	Ponding.
	>6	2.5-6	0-2.5	Wetness.
4. Depth to bedrock (inches):				
Hard.....	>60	40-60	<40	Depth to rock.
Soft.....	>40	20-40	<20	Depth to rock.
5. Depth to cemented pan (inches):				
Thick.....	>60	40-60	<40	Cemented pan.
Thin.....	>40	20-40	<20	Cemented pan.
6. Slope (percent).....	0-8	8-15	>15	Slope.
7. Shrink-swell potential ¹	Low	Moderate	High	Shrink-swell.
8. Unified (bottom layer).....	---	---	OL, OH, PT	Low strength.
9. Fraction greater than 3 inches (percent by weight) ²	<25	25-50	>50	Large stones.

¹ Thickest layer between 10 and 60 inches.

² Weighted average to 40 inches.

Small Commercial Buildings

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Flooding	None, protected.	---	Rare, common.	Flooding.
3. Depth to high water table (feet)	---	---	+	Ponding.
	>2.5	1.5-2.5	0-1.5	Wetness.
4. Shrink-swell potential ¹	Low	Moderate	High	Shrink-swell.
5. Slope (percent)	0-4	4-8	>8	Slope.
6. Unified ¹	---	---	OL, OH, PT	Low strength.
7. Depth to bedrock (inches):				
Hard	>40	20-40	<20	Depth to rock.
Soft	>20	<20	---	Depth to rock.
8. Depth to cemented pan (inches):				
Thick	>40	20-40	<20	Cemented pan.
Thin	>20	<20	---	Cemented pan.
9. Fraction greater than 3 inches (percent by weight) ²	<25	25-50	>50	Large stones.

¹ Thickest layer between 10 and 40 inches.

² Weighted average to 40 inches.

Local Roads and Streets

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches):				
Hard	>40	20-40	<20	Depth to rock.
Soft	>20	<20	---	Depth to rock.
3. Depth to cemented pan (inches):				
Thick	>40	20-40	<20	Cemented pan.
Thin	>20	<20	---	Cemented pan.
4. AASHTO group index number ^{1 2}	0-4	5-8	>8	Low strength.
5. AASHTO ^{1 3}	---	A-4, A-5	A-6, A-7, A-8	Low strength.
6. Depth to high water table (feet) ...				
	---	---	+	Ponding.
	>2.5	1.0-2.5	0-1.0	Wetness.
7. Slope (percent)	0-8	8-15	>15	Slope.
8. Flooding	None, protected.	Rare	Common	Flooding.
9. Potential frost action	Low	Moderate	High	Frost action.
10. Shrink-swell potential ¹	Low	Moderate	High	Shrink-swell.
11. Fraction greater than 3 inches (percent by weight) ⁴	<25	25-50	>50	Large stones.

¹ Thickest layer between 10 and 40 inches.

² $GIN = (F-35)[.2 + .005(LL-40)] + .01 (F-15)(PI-10)$ where F = percent passing No. 200 sieve. If F is <35 and PI is >11, use only part 2 of equation. Use median values.

³ Use AASHTO classification only when group index is not known.

⁴ Weighted average to 40 inches.

Lawns, Landscaping, and Golf Fairways

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Salinity of surface layer (mmhos/cm).....	<4	4-8	>8	Excess salt.
3. Sodium adsorption ratio (great group)	---	---	>12 (halic, natric)	Excess sodium.
4. Soil reaction (pH of surface layer)	---	---	<3.6	Too acid.
5. Sulfidic materials (great group)....	---	---	Sulfaquents, Sulfihemists.	Excess sulfur.
6. Coarse fragments in surface layer (percent by weight) ¹	<25	25-50	>50	Small stones.
7. Fraction greater than 3 inches in surface layer (percent by weight)	<5	5-30	>30	Large stones.
8. Depth to high water table (feet) ...	---	---	+	Ponding.
	>2	1-2	0-1	Wetness.
9. Available water capacity (in/in) ² ...	>.10	.05-.10	<.05	Droughty.
10. Flooding	None, rare protected.	Occasional	Frequent	Flooding.
11. Slope (percent).....	0-8	8-15	>15	Slope.
12. Depth to bedrock (inches)	>40	20-40	<20	Thin layer.
13. Depth to cemented pan (inches) ...	>40	20-40	<20	Thin layer.
14. USDA texture (surface layer) ³	---	---	SIC, C, SC	Too clayey.
15. USDA texture (surface layer)	---	---	FB, HM, MUCK, SP, MPT, PEAT	Excess humus.
16. USDA texture (surface layer)	---	LCOS, S	COS	Too sandy.

¹ 100 minus percent passing No. 10 sieve.

² Weighted average to 40 inches.

³ If soil is in kaolinitic family, rate one class better if experience confirms.

Roadfill

Property	Limits			Restrictive feature
	Good	Fair	Poor	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches)	>60	40-60	<40	Area reclaim.
3. AASHTO group index number ¹ ² ...	0-4	5-8	>8	Low strength.
4. AASHTO ² ³	---	A-4	A-5, A-6, A-7, A-8	Low strength.
5. Layer thickness (inches)	>60	30-60	<30	Thin layer.
6. Fraction greater than 3 inches (percent by weight) ⁴	<25	25-50	>50	Large stones.
7. Depth to high water table (feet)	>3	1-3	<1	Wetness.
8. Slope (percent)	0-15	15-25	>25	Slope.
9. Shrink-swell potential ²	Low	Moderate	High	Shrink-swell.

¹ $GIN = (F-35)[.2 + .005(LL-40)] + .01(F-15)(PI-10)$ where F = percent passing No. 200 sieve. If F is <35 and PI is >11, use only part 2 of equation. Use median values.

² Evaluate the thickest layer between 10 and 60 inches and also the bottom layer. Choose the best rating. When rating is based on bottom layer, verify thickness.

³ Use AASHTO classification only when group index is not known.

⁴ Weighted average to 40 inches.

Sand

Property	Limits		Restrictive feature
	Probable source	Improbable source	
1. Unified ¹	SW, SP, SW-SM, SP-SM	---	---
	GW, GP, GW-GM GP-GM ²	---	---
	---	GW, GP, GW-GM, GP-GM ³	Small stones.
	---	All other	Excess fines.
2. Layer thickness (inches)	---	<36	Thin layer.
	>36	---	---
3. Fraction greater than 3 inches (percent by weight) ⁴	---	>50	Large stones.
	<50	---	---

¹ Evaluate the thickest layer between 10 and 60 inches and also the bottom layer. Choose the best rating. When rating is based on bottom layer, verify thickness.

² Percent passing No. 4 sieve minus percent passing No. 200 sieve is greater than 25.

³ Percent passing No. 4 sieve minus percent passing No. 200 sieve is less than 25.

⁴ Thickest layer between 10 and 60 inches.

Gravel

Property	Limits		Restrictive feature
	Probable source	Improbable source	
1. Unified ¹	GW, GP, GW-GM, GP-GM	---	---
	SW, SP, SW-SM, SP-SM ²	SW, SP, SW-SM, SP-SM ³	Too sandy.
	---	All other	Excess fines.
2. Layer thickness	---	<36	Thin layer.
	>36	---	---
3. Fraction greater than 3 inches (percent by weight) ⁴	---	>50	Large stones.
	<50	---	---

¹ Evaluate the thickest layer between 10 and 60 inches and also the bottom layer. Choose the best rating. When rating is based on bottom layer, verify thickness.

² 100 minus percent passing No. 4 sieve is greater than 25.

³ 100 minus percent passing No. 4 sieve is less than 25.

⁴ Thickest layer between 10 and 60 inches.

Topsoil

Property	Limits			Restrictive feature
	Good	Fair	Poor	
1. Depth to bedrock (inches)	>40	20-40	<20	Area reclaim.
2. Depth to cemented pan (inches)	>40	20-40	<20	Area reclaim.
3. Depth to bulk density greater than 1.8 g/cc (inches)	>40	20-40	<20	Area reclaim.
4. USDA texture in the upper 40 inches	---	LCOS, LS, LFS, LVFS	COS, S, FS, VFS	Too sandy.
5. USDA texture in the upper 40 inches	---	SCL, CL, SICL ¹	SIC, C, SC	Too clayey.
6. USDA texture in the upper 40 inches	---	---	FB, HM, SP, MPT, MUCK, PEAT, CE	Excess humus.
7. Fraction greater than 3 inches (percent by weight): ²				
0 to 40 inches	<5	5-25	>25	Large stones.
40 to 60 inches	<15	15-30	>30	Area reclaim.
8. Coarse fragments (percent): ²				
0 to 40 inches	<5	5-25	>25	Small stones.
40 to 60 inches	<25	25-50	>50	Area reclaim.
9. Salinity in the upper 40 inches (mmhos/cm)	<4	4-8	>8	Excess salt.
10. Layer thickness (inches)	>40	20-40	<20	Thin layer.
11. Depth to high water table (feet)	---	---	<1	Wetness.
12. Sodium adsorption ratio (great group)	---	---	>12 (halic, natric, alkali phases)	Excess sodium.
13. Soil reaction in the upper 40 inches (pH)	---	---	<3.6	Too acid.
14. Slope (percent)	0-8	8-15	>15	Slope.

¹ If soil has more than 3 percent organic matter and less than 35 percent clay, rate *good*.

² 100 minus percent passing No. 10 sieve, plus fraction greater than 3 inches. Use the dominant condition for restrictive feature.

Pond Reservoir Area

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture.....	---	---	Ice	Permafrost.
2. Permeability between 20 and 60 inches (in. hr)	<0.6	0.6-2.0	>2.0	Seepage.
3. Depth to layer with permeability greater than 2.0 (inches).....	>60	40-60	<40	Seepage.
4. Depth to bedrock (inches)	>60	20-60	<20	Depth to rock.
5. Depth to cemented pan (inches)....	>60	20-60	<20	Cemented pan.
6. Slope (percent)	<3	3-8	>8	Slope.
7. USDA texture.....	---	---	MARL, GYP	Seepage.

Embankments, Dikes, and Levees

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Layer thickness (inches).....	>60	30-60	<30	Thin layer.
3. Unified ¹	---	---	GW, GP, SW, SP, GW-GM, GP-GM, SW-SM, SP-SM, SM, ² GM	Seepage.
4. Unified ¹	---	GM, ³ CL ⁴	ML, ⁵ SM, ⁶ SP, CL-ML	Piping.
5. Unified ¹	---	---	PT, OL, OH	Excess humus.
6. Unified ¹	---	---	MH, CH ⁷	Hard to pack.
7. Fraction greater than 3 inches (percent by weight) ⁸	<15	15-35	>35	Large stones.
8. Depth to high water table (feet) ...	---	---	+	Ponding.
Apparent.....	>4	2-4	<2	Wetness.
Perched	>3	1-3	<1	Wetness.
9. Sodium adsorption ratio (great group)	---	---	>12 (natric, halic)	Excess sodium.
10. Salinity (mmhos/cm)	<8	8-16	>16	Excess salt.

¹ Thickest layer between 10 and 60 inches.

² Rate *moderate* if more than 20 percent passing No. 200 sieve and *slight* if more than 30 percent passing No. 200 sieve.

³ Rate *slight* if less than 35 percent passing No. 200 sieve, less than 50 percent passing No. 40 sieve, and less than 65 percent passing No. 10 sieve. The soil must meet all three criteria before it is rated *slight*.

⁴ Rate *slight* if PI is greater than 15.

⁵ Rate *moderate* if PI is greater than 10.

⁶ Rate *moderate* if less than 70 percent passing No. 40 sieve and less than 90 percent passing No. 10 sieve, and rate *slight* if less than 60 percent passing No. 40 sieve and less than 75 percent passing No. 10 sieve.

⁷ Rate *moderate* if PI is less than 40.

⁸ Weighted average to 40 inches.

Drainage

Property	Limits	Restrictive feature ¹
1. USDA texture	Ice	Permafrost.
2. Depth to high water table (feet) ²	³ >3 +	Deep to water. Ponding.
3. Permeability in the upper 40 inches (in/hr) ..	<0.2	Percs slowly.
4. Depth to bedrock (inches)	<40	Depth to rock.
5. Depth to cemented pan (inches)	<40	Cemented pan.
6. Flooding	Common	Flooding.
7. Total subsidence	Any entry	Subsides.
8. Fraction greater than 3 inches (percent by weight)	>25	Large stones.
9. Potential frost action	High	Frost action.
10. Slope (percent)	>3	Slope.
11. USDA texture	COS, S, FS, VFS, LCOS, LS, LFS, LVFS, SG, G	Cutbanks cave.
12. Salinity (mmhos/cm)	>8	Excess salt.
13. Sodium adsorption ratio (great group)	>12 (natric, halic)	Excess sodium.
14. Sulfidic materials (great group)	Sulfaquents, Sulphemists	Excess sulfur.
15. Soil reaction (pH)	<3.6	Too acid.

¹ If the soil has no restrictive features, the rating is *favorable*.

² If soil is deep to water, disregard other properties.

³ For irrigated areas, consider other restrictive features if the water table is between 3 and 5 feet.

Irrigation

Property	Limits	Restrictive feature ¹
1. Fraction greater than 3 inches (percent by weight) ²	>25	Large stones.
2. Depth to high water table (feet)	<3 +	Wetness. Ponding.
3. Available water capacity (in/in) ²	<0.10	Droughty.
4. USDA texture (surface layer)	S, FS, VFS, LS, LFS, LVFS	Fast intake.
5. USDA texture (surface layer)	SIC, C, SC	Slow intake.
6. Wind erodibility group	1, 2, 3	Soil blowing.
7. Permeability in the upper 60 inches (in/hr) ..	<0.2	Percs slowly.
8. Depth to bedrock (in)	<40	Depth to rock.
9. Depth to cemented pan (in)	<40	Cemented pan.
10. Fragipan (great group)	Fragi	Rooting depth.
11. Bulk density in the upper 40 inches (g/cc) ..	>1.7	Rooting depth.
12. Slope (percent)	>3	Slope.
13. Erosion factor K (surface layer)	>.35	Erodes easily.
14. Flooding	Common	Flooding.
15. Sodium adsorption ratio (great group)	>12 (natric, halic)	Excess sodium.
16. Salinity (mmhos/cm)	>8	Excess salt.
17. Soil reaction (pH)	<3.6	Too acid.

¹ If the soil has no restrictive features, the rating is *favorable*.

² Weighted average to 40 inches.

Terraces and Diversions

Property	Limits	Restrictive feature ¹
1. USDA texture	Ice	Permafrost.
2. Slope (percent)	>8	Slope.
3. Fraction greater than 3 inches (percent by weight) ²	>15	Large stones.
4. Depth to bedrock (inches)	<40	Depth to rock.
5. Depth to cemented pan (inches)	<40	Cemented pan.
6. Erosion factor K (upper 40 inches)	>.35	Erodes easliy.
7. Depth to high water table (feet)	<3.0 +	Wetness. Ponding.
8. Fragipan (great group)	Fragi	Rooting depth.
9. USDA texture ³	COS, S, FS, LS, LCOS, SG	Too sandy.
10. Wind erodibility group	1, 2, 3	Soil blowing.
11. Permeability (in/hr)	<0.2	Percs slowly.

¹ If the soil has no restrictive features, the rating is *favorable*.

² Weighted average to 40 inches.

³ Thickest layer between 10 and 60 inches.

Grassed Waterways

Property	Limits	Restrictive feature ¹
1. Fraction greater than 3 inches (percent by weight) ²	>15	Large stones.
2. Depth to high water table.....	<1.5	Wetness.
3. Slope (percent)	>8	Slope.
4. Salinity (mmhos/cm)	>4	Excess salt.
5. Sodium adsorption ratio (great group)	>12 (natric, halic)	Excess sodium.
6. Erosion factor K (upper 40 inches)	>.35	Erodes easily.
7. Available water capacity (in/in) ²	<0.10	Droughty.
8. Depth to bedrock (inches)	<40	Depth to rock.
9. Depth to cemented pan (inches)	<40	Cemented pan.
10. Fragipan (great group)	Fragi	Rooting depth.
11. Bulk density in the upper 40 inches (g/cc) ..	>1.7	Rooting depth.
12. Permeability in the upper 40 inches (in/hr) ..	<0.2	Percs slowly.

¹ If the soil has no restrictive features, the rating is *favorable*.

² Weighted average to 40 inches.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

Month	Temperature			Total precipitation
	Mean maximum	Mean minimum	Mean	
COVELO, CALIFORNIA				
	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>In</u>
January----	51.3	29.5	40.4	7.51
February---	56.2	33.0	44.6	6.35
March-----	61.3	34.2	47.7	5.31
April-----	67.8	37.7	52.8	2.34
May-----	76.5	41.8	59.2	1.07
June-----	84.4	47.0	66.7	.46
July-----	94.0	51.2	73.7	.07
August-----	93.0	49.2	71.1	.18
September--	88.6	45.6	67.6	.53
October----	75.2	38.4	57.8	2.40
November---	61.8	33.8	47.4	5.35
December---	51.4	31.0	41.2	7.77
Annual----	72.7	39.2	55.4	40.24
FOREST GLFN, CALIFORNIA				
	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>In</u>
January----	44.5	26.3	35.4	11.89
February---	50.4	28.6	39.5	9.24
March-----	57.9	30.7	44.3	8.50
April-----	66.4	33.5	50.0	3.67
May-----	73.5	37.8	55.6	2.07
June-----	80.0	41.3	60.6	.71
July-----	90.3	45.1	70.6	.26
August-----	89.9	42.4	69.6	.26
September--	84.6	38.8	60.3	1.01
October----	70.5	34.4	49.6	3.60
November---	54.4	30.1	38.9	7.62
December---	45.5	28.6	31.2	12.31
Annual----	67.3	34.7	48.8	61.14

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

Month	Temperature			Total precipitation
	Mean maximum	Mean minimum	Mean	
UKIAH, CALIFORNIA				
	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>In</u>
January----	57.2	35.1	46.1	8.02
February---	61.5	37.3	49.4	5.93
March-----	64.7	39.7	52.2	4.46
April-----	70.7	41.2	56.0	2.41
May-----	78.2	46.0	62.1	.98
June-----	84.7	50.7	67.7	.40
July-----	93.5	53.7	73.7	.06
August-----	93.0	52.5	72.7	.11
September--	85.6	53.0	69.4	.30
October----	78.3	44.3	61.4	1.98
November---	65.8	39.1	52.5	4.42
December---	57.6	36.2	47.9	7.53
Annual----	74.2	44.1	59.1	36.60
WILLITS, CALIFORNIA				
	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>In</u>
January----	54.8	32.8	43.8	11.23
February---	59.8	35.3	47.5	7.84
March-----	60.4	35.9	48.1	7.35
April-----	63.4	36.6	50.0	4.00
May-----	73.3	41.2	57.3	1.75
June-----	79.1	44.9	62.1	.60
July-----	86.0	47.2	66.6	.07
August-----	86.0	46.8	65.5	.11
September--	84.1	43.1	63.6	.79
October----	74.5	39.6	57.1	2.71
November---	60.6	37.9	49.3	6.93
December---	53.3	34.1	43.7	10.53
Annual----	69.6	39.6	54.6	54.05

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Probability of receiving freezing temperatures after given dates in spring or before given dates in fall)

Season	10 percent	30 percent	50 percent	70 percent	90 percent
COVELO, CALIFORNIA					
Spring-----	May 26	May 14	May 5	Apr. 27	Apr. 15
Fall-----	Sept. 26	Oct. 7	Oct. 14	Oct. 21	Nov. 1
UKIAH, CALIFORNIA					
Spring-----	Apr. 23	Apr. 7	Mar. 26	Mar. 16	Feb. 27
Fall-----	Oct. 24	Nov. 2	Nov. 6	Nov. 12	Nov. 24

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Mendocino County Acres	Trinity County Acres	Total--	
				Area Acres	Extent Pct
101	Asabean-Sanhedrin gravelly loams, 15 to 30 percent slopes--	1,065	1,746	2,811	0.3
102	Asabean-Sanhedrin-Speaker gravelly loams, 30 to 50 percent slopes-----	3,266	6,533	9,799	0.9
103	Asabean-Speaker-Neuns complex, 50 to 75 percent slopes-----	515	3,781	4,296	0.4
104	Bearwallow-Hellman loams, 15 to 30 percent slopes-----	4,797	0	4,797	0.4
105	Bearwallow-Hellman-Witherell complex, 30 to 50 percent slopes-----	14,790	100	14,890	1.3
106	Bluenose-Neuns-Gudgrey complex, 8 to 30 percent slopes-----	1,000	1,023	2,023	0.2
107	Bluenose-Neuns-Gudgrey complex, 30 to 50 percent slopes-----	6,868	4,786	11,654	1.1
108	Bluenose-Neuns-Gudgrey complex, 50 to 75 percent slopes-----	5,529	2,355	7,884	0.7
109	Casabonne-Wohly loams, 9 to 30 percent slopes-----	3,244	1,764	5,008	0.5
110	Casabonne-Wohly loams, 30 to 50 percent slopes-----	35,694	3,714	39,408	3.6
111	Casabonne-Wohly-Pardaloe complex, 50 to 75 percent slopes--	19,675	2,088	21,763	2.0
112	Clear Lake clay, 0 to 2 percent slopes-----	1,688	0	1,688	0.2
113	Cole loam, drained, 0 to 2 percent slopes-----	10,864	60	10,924	1.0
114	Cole loam, drained, 2 to 5 percent slopes-----	576	0	576	*
115	Cole clay loam, 0 to 2 percent slopes-----	8,297	35	8,332	0.8
116	Cummiskey gravelly loam, 30 to 75 percent slopes-----	2,177	0	2,177	0.2
117	Dingman-Beaughton complex, 5 to 50 percent slopes-----	15,101	579	15,680	1.4
118	Dunsmuir-Maymen Variant complex, 5 to 15 percent slopes----	249	0	249	*
119	Dunsmuir-Maymen Variant complex, 15 to 50 percent slopes----	1,571	0	1,571	0.1
120	Dunsmuir-Maymen Variant complex, 50 to 75 percent slopes----	1,485	0	1,485	0.1
121	Etsel-Rock outcrop-Neuns association, 30 to 75 percent slopes-----	2,614	2,199	4,813	0.4
122	Etsel-Woodin-Rock outcrop association, 50 to 75 percent slopes-----	3,844	813	4,657	0.4
123	Feliz loam, 0 to 2 percent slopes-----	4,927	0	4,927	0.4
124	Feliz loam, 2 to 5 percent slopes-----	1,506	0	1,506	0.1
125	Feliz clay loam, gravelly substratum, 0 to 2 percent slopes	2,239	28	2,267	0.2
126	Feliz clay loam, gravelly substratum, 2 to 8 percent slopes	633	0	633	*
127	Fluvaquents, 0 to 1 percent slopes-----	610	0	610	*
128	Gielow sandy loam, 0 to 5 percent slopes-----	6,364	15	6,379	0.6
129	Gschwend-Frenchman complex, 0 to 9 percent slopes-----	1,511	0	1,511	0.1
130	Gudgrey-Bluenose-Neuns complex, 8 to 30 percent slopes-----	185	75	260	*
131	Gudgrey-Bluenose-Neuns complex, 30 to 50 percent slopes----	4,387	120	4,507	0.4
132	Gudgrey-Bluenose-Neuns complex, 50 to 75 percent slopes----	2,200	0	2,200	0.2
133	Haplaquepts, 0 to 1 percent slopes-----	760	0	760	0.1
134	Haploxeralfs-Argixerolls complex, 0 to 9 percent slopes----	2,957	579	3,536	0.3
135	Haploxeralfs, wet-Argixerolls complex, 0 to 5 percent slopes-----	308	45	353	*
136	Henneke-Montara complex, 15 to 50 percent slopes-----	7,995	0	7,995	0.7
137	Henneke-Montara complex, 50 to 75 percent slopes-----	1,865	0	1,865	0.2
138	Holohan-Hollowtree-Casabonne complex, 9 to 30 percent slopes-----	99	45	144	*
139	Holohan-Hollowtree-Casabonne complex, 30 to 50 percent slopes-----	6,036	72	6,108	0.6
140	Holohan-Hollowtree complex, 50 to 75 percent slopes-----	6,239	1,477	7,716	0.7
141	Hopland loam, 30 to 50 percent slopes-----	9,164	0	9,164	0.8
142	Hopland loam, 50 to 75 percent slopes-----	11,302	0	11,302	1.0
143	Hopland-Maymen-Etsel complex, 30 to 50 percent slopes-----	5,844	0	5,844	0.5
144	Hopland-Maymen-Etsel complex, 50 to 75 percent slopes-----	4,205	18	4,223	0.4
145	Hopland-Sanhedrin-Kekawaka complex, 15 to 30 percent slopes	4,858	0	4,858	0.4
146	Hopland-Sanhedrin-Kekawaka complex, 30 to 50 percent slopes	31,215	1,700	32,915	3.0
147	Hopland-Sanhedrin-Kekawaka complex, 50 to 75 percent slopes	11,358	1,029	12,387	1.1
148	Hopland-Witherell-Squawrock complex, 15 to 30 percent slopes-----	2,161	0	2,161	0.2
149	Hopland-Witherell-Squawrock complex, 30 to 50 percent slopes-----	28,292	376	28,668	2.6
150	Hopland-Wohly loams, 30 to 50 percent slopes-----	7,847	0	7,847	0.7
151	Hopland-Wohly loams, 50 to 75 percent slopes-----	5,437	0	5,437	0.5
152	Hopland-Woodin complex, 30 to 50 percent slopes-----	4,398	0	4,398	0.4
153	Hopland-Woodin complex, 50 to 75 percent slopes-----	4,551	0	4,551	0.4

See footnote at end of table.

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Mendocino County Acres	Trinity County Acres	Total--	
				Area Acres	Extent Pct
154	Kekawaka-Casabonne-Wohly loams, 15 to 30 percent slopes----	2,201	0	2,201	0.2
155	Kekawaka-Casabonne-Wohly complex, 30 to 50 percent slopes--	5,079	170	5,249	0.5
156	Maxwell clay, 0 to 9 percent slopes-----	385	0	385	*
157	Mayacama-Hopland-Etsel complex, 30 to 75 percent slopes----	9,622	0	9,622	0.9
158	Maymen-Etsel-Hopland complex, 15 to 50 percent slopes-----	2,191	0	2,191	0.2
159	Maymen-Etsel-Mayacama complex, 30 to 75 percent slopes----	14,143	0	14,143	1.3
160	Maymen-Etsel-Snook complex, 30 to 75 percent slopes-----	51,816	250	52,066	4.7
161	Maymen-Woodin-Etsel complex, 30 to 50 percent slopes-----	10,454	10	10,464	0.9
162	Maymen-Woodin-Etsel complex, 50 to 75 percent slopes-----	30,242	788	31,030	2.8
163	Nashmead-Updegraff-Woodin complex, 30 to 50 percent slopes--	2,312	1,895	4,207	0.4
164	Nashmead-Updegraff-Woodin complex, 50 to 75 percent slopes--	1,210	0	1,210	0.1
165	Nashmead-Woodin gravelly sandy loams, 30 to 50 percent slopes-----	2,905	143	3,048	0.3
166	Nashmead-Woodin gravelly sandy loams, 50 to 75 percent slopes-----	5,639	798	6,437	0.6
167	Neuns-Bluenose-Tyson complex, 30 to 50 percent slopes-----	7,419	4,058	11,477	1.0
168	Neuns-Bluenose-Tyson complex, 50 to 75 percent slopes-----	11,723	696	12,419	1.1
169	Ornbaun-Zeni loams, 9 to 30 percent slopes-----	699	0	699	*
170	Ornbaun-Zeni loams, 30 to 50 percent slopes-----	8,643	0	8,643	0.8
171	Ornbaun-Zeni loams, 50 to 75 percent slopes-----	12,270	0	12,270	1.1
172	Pardaloe-Kekawaka-Casabonne complex, 50 to 75 percent slopes-----	3,444	0	3,444	0.3
173	Pardaloe-Woodin-Casabonne complex, 30 to 50 percent slopes--	4,480	140	4,620	0.4
174	Pardaloe-Woodin complex, 50 to 75 percent slopes-----	13,298	2,753	16,051	1.5
175	Pinnobie loam, 0 to 2 percent slopes-----	981	0	981	0.1
176	Pinnobie loam, 2 to 8 percent slopes-----	1,916	0	1,916	0.2
177	Pinole gravelly loam, 0 to 2 percent slopes-----	2,124	0	2,124	0.2
178	Pinole gravelly loam, 2 to 8 percent slopes-----	6,358	0	6,358	0.6
179	Pinole gravelly loam, 8 to 15 percent slopes-----	799	94	893	0.1
180	Pinole gravelly loam, 15 to 30 percent slopes-----	765	0	765	0.1
181	Pinole very gravelly loam, 0 to 2 percent slopes-----	711	0	711	*
182	Pinole very gravelly loam, 2 to 15 percent slopes-----	732	0	732	0.1
183	Pits and Dumps-----	195	5	200	*
184	Redvine sandy clay loam, 2 to 8 percent slopes-----	2,020	0	2,020	0.2
185	Redvine sandy clay loam, 8 to 15 percent slopes-----	518	0	518	*
186	Redvine sandy clay loam, 15 to 30 percent slopes-----	936	0	936	0.1
187	Rock outcrop-----	2,638	90	2,728	0.2
188	Russian loam, 0 to 2 percent slopes-----	4,849	0	4,849	0.4
189	Russian loam, flooded, 0 to 2 percent slopes-----	190	0	190	*
190	Russian loam, gravelly substratum, 0 to 2 percent slopes---	1,410	0	1,410	0.1
191	Sanhedrin-Asabeen-Speaker gravelly loams, 30 to 50 percent slopes-----	3,123	1,982	5,105	0.5
192	Sanhedrin-Asabeen-Speaker gravelly loams, 50 to 75 percent slopes-----	0	877	877	0.1
193	Sanhedrin-Kekawaka-Speaker complex, 2 to 30 percent slopes--	8,260	200	8,460	0.8
194	Sanhedrin-Kekawaka-Speaker complex, 30 to 50 percent slopes	44,462	3,719	48,181	4.4
195	Sanhedrin-Kekawaka-Speaker complex, 50 to 75 percent slopes	12,099	200	12,299	1.1
196	Shortyork-Tyson-Witherell complex, 30 to 50 percent slopes--	1,535	469	2,004	0.2
197	Shortyork-Witherell-Updegraff complex, 50 to 75 percent slopes-----	4,176	47	4,223	0.4
198	Shortyork-Yorkville-Witherell complex, 9 to 15 percent slopes-----	2,574	1,118	3,692	0.3
199	Shortyork-Yorkville-Witherell complex, 15 to 30 percent slopes-----	9,177	3,451	12,628	1.1
200	Shortyork-Yorkville-Witherell complex, 30 to 50 percent slopes-----	23,345	11,016	34,361	3.1
201	Squawrock-Witherell complex, 15 to 50 percent slopes-----	2,856	40	2,896	0.3
202	Squawrock-Witherell complex, 50 to 75 percent slopes-----	6,337	918	7,255	0.7
203	Talmage gravelly sandy loam, 0 to 2 percent slopes-----	3,081	0	3,081	0.3
204	Talmage very gravelly sandy loam, 0 to 2 percent slopes----	3,842	112	3,954	0.4
205	Tyson-Updegraff complex, 30 to 50 percent slopes-----	5,239	319	5,558	0.5
206	Tyson-Updegraff complex, 50 to 75 percent slopes-----	3,642	18	3,660	0.3

See footnote at end of table.

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Mendocino County Acres	Trinity County Acres	Total--	
				Area Acres	Extent Pct
207	Updegraff-Sanhedrin complex, 15 to 50 percent slopes-----	2,919	863	3,782	0.3
208	Updegraff-Speaker-Neuns complex, 30 to 50 percent slopes---	6,482	5,616	12,098	1.1
209	Updegraff-Speaker-Neuns complex, 50 to 75 percent slopes---	3,695	526	4,221	0.4
210	Urban land-----	3,951	0	3,951	0.4
211	Witherell-Hopland-Squawrock complex, 50 to 75 percent slopes-----	9,403	342	9,745	0.9
212	Wohly-Casabonne loams, 30 to 50 percent slopes-----	6,188	0	6,188	0.6
213	Wohly-Casabonne-Pardaloe complex, 50 to 75 percent slopes	7,127	110	7,237	0.7
214	Xerochrepts, 5 to 50 percent slopes-----	0	1,275	1,275	0.1
215	Xerochrepts-Haploxeralfs-Argixerolls complex, 9 to 30 percent slopes-----	5,213	1,010	6,223	0.6
216	Xerochrepts-Haploxeralfs-Argixerolls complex, 30 to 50 percent slopes-----	9,289	150	9,439	0.9
217	Xerofluvents, 0 to 2 percent slopes-----	1,232	0	1,232	0.1
218	Xerofluvents-Riverwash complex, 0 to 2 percent slopes-----	4,633	515	5,148	0.5
219	Yellowhound-Kibesillah-Ornbaun complex, 30 to 50 percent slopes-----	700	0	700	*
220	Yellowhound-Kibesillah complex, 50 to 75 percent slopes----	1,900	0	1,900	0.2
221	Yokayo sandy loam, 0 to 8 percent slopes-----	2,957	0	2,957	0.3
222	Yokayo sandy loam, 8 to 15 percent slopes-----	1,900	0	1,900	0.2
223	Yokayo sandy loam, 15 to 30 percent slopes-----	1,467	0	1,467	0.1
224	Yokayo-Pinole-Pinnobie complex, 0 to 15 percent slopes----	2,778	0	2,778	0.3
225	Yorktree-Hopland-Woodin complex, 30 to 50 percent slopes---	37,624	2,793	40,417	3.7
226	Yorktree-Hopland-Woodin complex, 50 to 75 percent slopes---	11,068	3,273	14,341	1.3
227	Yorktree-Yorkville loams, 15 to 30 percent slopes-----	2,770	0	2,770	0.3
228	Yorktree-Yorkville loams, 30 to 50 percent slopes-----	23,048	4,667	27,715	2.5
229	Yorkville loam, 15 to 30 percent slopes-----	1,715	0	1,715	0.2
230	Yorkville loam, 30 to 50 percent slopes-----	4,401	0	4,401	0.4
231	Yorkville-Hopland loams, 30 to 50 percent slopes-----	4,710	0	4,710	0.4
232	Yorkville-Squawrock-Witherell complex, 15 to 30 percent slopes-----	10,182	1,617	11,799	1.1
233	Yorkville-Squawrock-Witherell complex, 30 to 50 percent slopes-----	52,618	10,431	63,049	5.7
234	Yorkville-Yorktree-Squawrock complex, 15 to 30 percent slopes-----	4,891	135	5,026	0.5
235	Yorkville-Yorktree-Squawrock complex, 30 to 50 percent slopes-----	57,796	5,624	63,420	5.7
	Water-----	3,560	274	3,834	0.3
	Access denied-----	17,516	0	17,516	1.6
	Total-----	991,160	112,752	1,103,912	100.0

* Less than 0.1 percent.

TABLE 4.--YIELDS PER ACRE OF IRRIGATED CROPS AND PASTURE

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil. Only the soils suited to irrigated crops and pasture are listed)

Soil name and map symbol	Wine grapes	Pears	Pasture
	<u>Tons</u>	<u>Tons</u>	<u>AUM*</u>
112----- Clear Lake	3.5	8.0	---
113----- Cole	4.6	10.8	13
114----- Cole	4.6	10.0	10
115----- Cole	4.0	10.0	10
123, 124----- Feliz	5.6	10.0	---
125----- Feliz	4.6	8.5	---
126----- Feliz	4.6	8.0	---
128----- Gielow	4.0	8.5	---
175----- Pinnobie	5.1	13.0	---
176----- Pinnobie	5.1	12.0	---
177----- Pinole	5.0	10.0	---
178----- Pinole	5.0	10.0	---
179----- Pinole	4.7	8.0	---
180----- Pinole	4.2	---	---
181----- Pinole	4.9	---	---
182----- Pinole	4.5	---	---
184----- Redvine	5.6	---	---
185----- Redvine	5.4	---	---

See footnote at end of table.

TABLE 4.--YIELDS PER ACRE OF IRRIGATED CROPS AND PASTURE--Continued

Soil name and map symbol	Wine grapes	Pears	Pasture
	<u>Tons</u>	<u>Tons</u>	<u>AUM*</u>
188----- Russian	5.6	15.8	---
189----- Russian	5.4	15.0	---
190----- Russian	5.5	14.0	---
203----- Talmage	3.7	10.0	7
204----- Talmage	3.5	9.0	---
221----- Yokayo	3.5	---	---
222----- Yokayo	3.3	---	---

* 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 5.--STORIE INDEX RATING

(Absence of an entry indicates that the map unit as a whole or the individual components were not rated)

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
101	Asabeau-Sanhedrin gravelly loams, 15 to 30 percent slopes-----	---	---	---	---	29*	4	---
	Asabeau part-----	66	70	65	95	---	---	Fertility.
	Sanhedrin part-----	68	70	65	95	---	---	Fertility.
102	Asabeau-Sanhedrin-Speaker gravelly loams, 30 to 50 percent slopes-----	---	---	---	---	15*	5	---
	Asabeau part-----	66	70	35	95	---	---	Fertility.
	Sanhedrin part-----	68	70	35	95	---	---	Fertility.
	Speaker part-----	43	70	35	90	---	---	Fertility.
103	Asabeau-Speaker-Neuns complex, 50 to 75 percent slopes-----	---	---	---	---	7*	6	---
	Asabeau part-----	66	70	20	95	---	---	Fertility.
	Speaker part-----	43	70	20	90	---	---	Fertility.
	Neuns part-----	50	60	20	90	---	---	Fertility.
104	Bearwallow-Hellman loams, 15 to 30 percent slopes-----	---	---	---	---	49*	3	---
	Bearwallow part-----	75	100	65	95	---	---	Fertility.
	Hellman part-----	80	100	65	100	---	---	None.
105	Bearwallow-Hellman-Witherell complex, 30 to 50 percent slopes-----	---	---	---	---	23*	4	---
	Bearwallow part-----	75	100	35	95	---	---	Fertility.
	Hellman part-----	80	100	35	100	---	---	None.
	Witherell part-----	30	95	35	95	---	---	Fertility.
106	Bluenose-Neuns-Gudgrey complex, 8 to 30 percent slopes-----	---	---	---	---	26*	4	---
	Bluenose part-----	70	50	70	95	---	---	Fertility.
	Neuns part-----	50	60	70	90	---	---	Fertility.
	Gudgrey part-----	95	65	70	95	---	---	Fertility.
107	Bluenose-Neuns-Gudgrey complex, 30 to 50 percent slopes-----	---	---	---	---	13*	5	---
	Bluenose part-----	70	50	35	95	---	---	Fertility.
	Neuns part-----	50	60	35	90	---	---	Fertility.
	Gudgrey part-----	95	65	35	95	---	---	Fertility.
108	Bluenose-Neuns-Gudgrey complex, 50 to 75 percent slopes-----	---	---	---	---	7*	6	---
	Bluenose part-----	70	50	20	95	---	---	Fertility.
	Neuns part-----	50	60	20	90	---	---	Fertility.
	Gudgrey part-----	95	65	20	95	---	---	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
109	Casabonne-Wohly loams, 9 to 30 percent slopes-----	---	---	---	---	50*	3	---
	Casabonne part-----	85	100	70	95	---	---	Fertility.
	Wohly part-----	54	100	70	95	---	---	Fertility.
110	Casabonne-Wohly loams, 30 to 50 percent slopes-----	---	---	---	---	25*	4	---
	Casabonne part-----	85	100	35	95	---	---	Fertility.
	Wohly part-----	54	100	35	95	---	---	Fertility.
111	Casabonne-Wohly-Pardaloe complex, 50 to 75 percent slopes-----	---	---	---	---	11*	5	---
	Casabonne part-----	85	80	20	95	---	---	Fertility.
	Wohly part-----	54	100	20	95	---	---	Fertility.
	Pardaloe part-----	77	70	20	90	---	---	Fertility.
112	Clear Lake clay, 0 to 2 percent slopes-----	85	50	100	60	26	4	Drainage.
113	Cole loam, drained, 0 to 2 percent slopes-----	80	100	100	85	68	2	Drainage.
114	Cole loam, drained, 2 to 5 percent slopes-----	80	100	95	90	69	2	Drainage.
115	Cole clay loam, 0 to 2 percent slopes-----	80	85	100	60	41	3	Drainage.
116	Cummiskey gravelly loam, 30 to 75 percent slopes-----	75	70	25	95	12	5	Fertility.
117	Dingman-Beaughton complex, 5 to 50 percent slopes-----	---	---	---	---	9*	6	---
	Dingman part-----	40	55	50	90	---	---	Fertility.
	Beaughton part-----	26	65	50	90	---	---	Fertility.
118	Dunsmuir-Maymen Variant complex, 5 to 15 percent slopes-----	---	---	---	---	42*	3	---
	Dunsmuir part-----	78	100	85	95	---	---	Fertility.
	Maymen Variant part-----	32	70	85	75	---	---	Fertility.
119	Dunsmuir-Maymen Variant complex, 15 to 50 percent slopes-----	---	---	---	---	24*	4	---
	Dunsmuir part-----	78	100	50	95	---	---	Fertility.
	Maymen Variant part-----	32	70	50	75	---	---	Fertility.
120	Dunsmuir-Maymen Variant complex, 50 to 75 percent slopes-----	---	---	---	---	10*	5	---
	Dunsmuir part-----	78	100	20	95	---	---	Fertility.
	Maymen Variant part-----	32	70	20	75	---	---	Fertility.
121	Etsel-Rock outcrop-Neuns association, 30 to 75 percent slopes-----	---	---	---	---	3*	6	---
	Etsel part-----	18	60	30	95	---	---	Fertility.
	Rock outcrop part-----	---	---	---	---	---	---	---
	Neuns part-----	50	60	30	90	---	---	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
122	Etsel-Woodin Rock outcrop association, 50 to 75 percent slopes-----	---	---	---	---	3*	6	---
	Etsel part-----	18	60	20	95	---	---	Fertility.
	Woodin part-----	45	70	20	90	---	---	Fertility.
	Rock outcrop part-----	---	---	---	---	---	---	---
123	Feliz loam, 0 to 2 percent slopes-----	100	100	100	100	100	1	None.
124	Feliz loam, 2 to 5 percent slopes-----	100	100	95	100	95	1	None.
125	Feliz clay loam, gravelly substratum, 0 to 2 percent slopes-----	90	85	100	100	77	2	None.
126	Feliz clay loam, gravelly substratum, 2 to 8 percent slopes-----	90	85	90	100	69	2	None.
127	Fluvaquents, 0 to 1 percent slopes-----	80	95- 100	100	40	27-32	4	Drainage.
128	Gielow sandy loam, 0 to 5 percent slopes-----	100	95	95	70x95	60	2	Drainage, fertility.
129	Gschwend-Frenchman complex, 0 to 9 percent slopes-----	---	---	---	---	64*	2	---
	Gschwend part-----	85	100	93	90	---	---	Fertility.
	Frenchman part-----	80	80	93	90	---	---	Fertility.
130	Gudgrey-Bluenose-Neuns complex, 8 to 30 percent slopes-----	---	---	---	---	32*	4	---
	Gudgrey part-----	95	65	70	95	---	---	Fertility.
	Bluenose part-----	70	50	70	95	---	---	Fertility.
	Neuns part-----	50	60	70	90	---	---	Fertility.
131	Gudgrey-Bluenose-Neuns complex, 30 to 50 percent slopes-----	---	---	---	---	17*	5	---
	Gudgrey part-----	95	65	35	95	---	---	Fertility.
	Bluenose part-----	70	50	35	95	---	---	Fertility.
	Neuns part-----	50	60	35	90	---	---	Fertility.
132	Gudgrey-Bluenose-Neuns complex, 50 to 75 percent slopes-----	---	---	---	---	9*	6	---
	Gudgrey part-----	95	65	20	95	---	---	Fertility.
	Bluenose part-----	70	50	20	95	---	---	Fertility.
	Neuns part-----	50	60	20	90	---	---	Fertility.
133	Haplaquepts, 0 to 1 percent slopes-----	100	85	100	40	34	4	Drainage.
134	Haploxeralfs-Argixerolls complex, 0 to 9 percent slopes-----	---	---	---	---	56*	3	---
	Haploxeralfs part-----	80	100	93	90x95	---	---	Microrelief, fertility.
	Argixerolls part-----	70	70	93	90x95	---	---	Microrelief, fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
135	Haploxeraifls, wet-Argixerolls complex, 0 to 5 percent slopes-----	---	---	---	---	33*	4	---
	Haploxeraifls part-----	80	100	95	40x90	---	---	Drainage, microrelief.
	Argixerolls part-----	70	70	95	90x95	---	---	Microrelief, fertility.
136	Henneke-Montara complex, 15 to 50 percent slopes-----	---	---	---	---	14*	5	---
	Henneke part-----	40	80	50	90	---	---	Fertility.
	Montara part-----	30	100	50	90	---	---	Fertility.
137	Henneke-Montara complex, 50 to 75 percent slopes-----	---	---	---	---	5*	6	---
	Henneke part-----	40	80	20	90	---	---	Fertility.
	Montara part-----	30	100	20	90	---	---	Fertility.
138	Holohan-Hollowtree-Casabonne complex, 9 to 30 percent slopes-----	---	---	---	---	32*	4	---
	Holohan part-----	72	60	70	90	---	---	Fertility.
	Hollowtree part-----	56	70	70	90	---	---	Fertility.
	Casabonne part-----	85	80	70	95	---	---	Fertility.
139	Holohan-Hollowtree-Casabonne complex, 30 to 50 percent slopes-----	---	---	---	---	15*	5	---
	Holohan part-----	72	60	35	90	---	---	Fertility.
	Hollowtree part-----	56	70	35	90	---	---	Fertility.
	Casabonne part-----	85	80	35	95	---	---	Fertility.
140	Holohan-Hollowtree complex, 50 to 75 percent slopes---	---	---	---	---	7*	6	---
	Holohan part-----	72	60	20	90	---	---	Fertility.
	Hollowtree part-----	56	70	70	90	---	---	Fertility.
141	Hopland loam, 30 to 50 percent slopes-----	65	100	35	100	23	4	None.
142	Hopland loam, 50 to 75 percent slopes-----	65	100	20	100	13	5	None.
143	Hopland-Maymen-Etsel complex, 30 to 50 percent slopes-----	---	---	---	---	13*	5	---
	Hopland part-----	65	100	35	100	---	---	None.
	Maymen part-----	30	95	35	90	---	---	Fertility.
	Etsel part-----	18	60	35	95	---	---	Fertility.
144	Hopland-Maymen-Etsel complex, 50 to 75 percent slopes-----	---	---	---	---	8*	6	---
	Hopland part-----	65	100	20	100	---	---	None.
	Maymen part-----	30	95	20	90	---	---	Fertility.
	Etsel part-----	18	60	25	95	---	---	Fertility.
145	Hopland-Sanhedrin-Kekawaka complex, 15 to 30 percent slopes-----	---	---	---	---	39*	4	---
	Hopland part-----	65	100	65	100	---	---	None.
	Sanhedrin part-----	68	70	65	95	---	---	Fertility.
	Kekawaka part-----	75	100	65	90	---	---	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
146	Hopland-Sanhedrin-Kekawaka complex, 30 to 50 percent slopes-----					27*	4	---
	Hopland part-----	65	100	35	100	---	---	None.
	Sanhedrin part-----	68	70	35	95	---	---	Fertility.
	Kekawaka part-----	75	100	35	90	---	---	Fertility.
147	Hopland-Sanhedrin-Kekawaka complex, 50 to 75 percent slopes-----					13*	5	---
	Hopland part-----	65	100	20	100	---	---	None.
	Sanhedrin part-----	68	70	20	95	---	---	Fertility.
	Kekawaka part-----	75	100	20	90	---	---	Fertility.
148	Hopland-Witherell-Squawrock complex, 15 to 30 percent slopes-----					27*	4	---
	Hopland part-----	65	100	65	100	---	---	None.
	Witherell part-----	30	95	65	95	---	---	Fertility.
	Squawrock part-----	35	70	65	95	---	---	Fertility.
149	Hopland-Witherell-Squawrock complex, 30 to 50 percent slopes-----					15*	5	---
	Hopland part-----	65	100	35	100	---	---	None.
	Witherell part-----	30	95	35	95	---	---	Fertility.
	Squawrock part-----	35	70	35	95	---	---	Fertility.
150	Hopland-Wohly loams, 30 to 50 percent slopes-----					22*	4	---
	Hopland part-----	65	100	35	100	---	---	None.
	Wohly part-----	54	100	35	95	---	---	Fertility.
151	Hopland-Wohly loams, 50 to 75 percent slopes-----					12*	5	---
	Hopland part-----	65	100	20	100	---	---	None.
	Wohly part-----	54	100	20	95	---	---	Fertility.
152	Hopland-Woodin complex, 30 to 50 percent slopes-----					19*	5	---
	Hopland part-----	65	100	35	100	---	---	None.
	Woodin part-----	45	70	35	90	---	---	Fertility.
153	Hopland-Woodin complex, 50 to 75 percent slopes-----					9*	5	---
	Hopland part-----	65	100	20	100	---	---	None.
	Woodin part-----	45	70	20	90	---	---	Fertility.
154	Kekawaka-Casabonne-Wohly loams, 15 to 30 percent slopes-----					45*	3	---
	Kekawaka part-----	75	100	65	90	---	---	Fertility.
	Casabonne part-----	85	100	65	95	---	---	Fertility.
	Wohly part-----	54	100	65	95	---	---	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
155	Kekawaka-Casabonne-Wohly complex, 30 to 50 percent slopes-----	---	---	---	---	24*	4	---
	Kekawaka part-----	75	100	35	90	---	---	Fertility.
	Casabonne part-----	85	100	35	95	---	---	Fertility.
	Wohly part-----	54	100	35	95	---	---	Fertility.
156	Maxwell clay, 0 to 9 percent slopes-----	80	55	93	70x90	26	4	Drainage, fertility.
157	Mayacama-Hopland-Etsel complex, 30 to 75 percent slopes-----	---	---	---	---	13*	5	---
	Mayacama part-----	45	70	30	95	---	---	Fertility.
	Hopland part-----	65	100	30	100	---	---	Fertility.
	Etsel part-----	18	60	30	95	---	---	Fertility.
158	Maymen-Etsel-Hopland complex, 15 to 50 percent slopes-----	---	---	---	---	17*	5	---
	Maymen part-----	30	95	50	90	---	---	Fertility.
	Etsel part-----	18	60	50	95	---	---	Fertility.
	Hopland part-----	65	100	50	100	---	---	None.
159	Maymen-Etsel-Mayacama complex, 30 to 75 percent slopes-----	---	---	---	---	7*	6	---
	Maymen part-----	30	95	30	90	---	---	Fertility.
	Etsel part-----	18	60	30	95	---	---	Fertility.
	Mayacama part-----	45	70	30	95	---	---	Fertility.
160	Maymen-Etsel-Snook complex, 30 to 75 percent slopes-----	---	---	---	---	4*	6	---
	Maymen part-----	30	95	30	90	---	---	Fertility.
	Etsel part-----	18	60	30	95	---	---	Fertility.
	Snook part-----	10	80	30	95	---	---	Fertility.
161	Maymen-Woodin-Etsel complex, 30 to 50 percent slopes-----	---	---	---	---	9*	6	---
	Maymen part-----	30	95	35	90	---	---	Fertility.
	Woodin part-----	45	70	35	90	---	---	Fertility.
	Etsel part-----	18	60	35	95	---	---	Fertility.
162	Maymen-Woodin-Etsel complex, 50 to 75 percent slopes-----	---	---	---	---	4*	6	---
	Maymen part-----	30	95	20	90	---	---	Fertility.
	Woodin part-----	45	70	20	90	---	---	Fertility.
	Etsel part-----	18	60	20	95	---	---	Fertility.
163	Nashmead-Updegraff-Woodin complex, 30 to 50 percent slopes-----	---	---	---	---	18*	5	---
	Nashmead part-----	72	70	35	95	---	---	Fertility.
	Updegraff part-----	75	100	35	95	---	---	Fertility.
	Woodin part-----	45	70	35	90	---	---	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
164	Nashmead-Updegraff-Woodin complex, 50 to 75 percent slopes-----					9*	6	---
	Nashmead part-----	72	70	20	95	---	---	Fertility.
	Updegraff part-----	75	100	20	95	---	---	Fertility.
	Woodin part-----	45	70	20	90	---	---	Fertility.
165	Nashmead-Woodin gravelly sandy loams, 30 to 50 percent slopes-----					16*	5	---
	Nashmead part-----	72	70	35	95	---	---	Fertility.
	Woodin part-----	45	70	35	90	---	---	Fertility.
166	Nashmead-Woodin gravelly sandy loams, 50 to 75 percent slopes-----					5*	6	---
	Nashmead part-----	72	70	20	95	---	---	Fertility.
	Woodin part-----	45	70	20	90	---	---	Fertility.
167	Neuns-Bluenose-Tyson complex, 30 to 50 percent slopes-----					10*	5	---
	Neuns part-----	50	60	35	90	---	---	Fertility.
	Bluenose part-----	70	50	35	95	---	---	Fertility.
	Tyson part-----	45	70	35	90	---	---	Fertility.
168	Neuns-Bluenose-Tyson complex, 50 to 75 percent slopes-----					6*	6	---
	Neuns part-----	50	60	20	90	---	---	Fertility.
	Bluenose part-----	70	50	20	95	---	---	Fertility.
	Tyson part-----	45	70	20	90	---	---	Fertility.
169	Ornbaun-Zeni loams, 9 to 30 percent slopes-----					41*	3	---
	Ornbaun part-----	72	100	70	95	---	---	Fertility.
	Zeni part-----	50	100	70	95	---	---	Fertility.
170	Ornbaun-Zeni loams, 30 to 50 percent slopes-----					21*	4	---
	Ornbaun part-----	72	100	35	95	---	---	Fertility.
	Zeni part-----	50	100	35	95	---	---	Fertility.
171	Ornbaun-Zeni loams, 50 to 75 percent slopes-----					10*	5	---
	Ornbaun part-----	72	100	20	95	---	---	Fertility.
	Zeni part-----	50	100	20	95	---	---	Fertility.
172	Pardaloe-Kekawaka-Casabonne complex, 50 to 75 percent slopes-----					13*	5	---
	Pardaloe part-----	77	70	20	90	---	---	Fertility.
	Kekawaka part-----	75	100	20	90	---	---	Fertility.
	Casabonne part-----	85	80	20	95	---	---	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
173	Pardaloe-Woodin-Casabonne complex, 30 to 50 percent slopes-----	---	---	---	---	17*	5	---
	Pardaloe part-----	77	70	35	90	---	---	Fertility.
	Woodin part-----	45	70	35	90	---	---	Fertility.
	Casabonne part-----	85	80	35	95	---	---	Fertility.
174	Pardaloe-Woodin complex, 50 to 75 percent slopes-----	---	---	---	---	8*	6	---
	Pardaloe part-----	77	70	20	90	---	---	Fertility.
	Woodin part-----	45	70	20	90	---	---	Fertility.
175	Pinnobie loam, 0 to 2 percent slopes-----	100	100	100	95	95	1	Fertility.
176	Pinnobie loam, 2 to 8 percent slopes-----	100	100	93	95	88	1	Fertility.
177	Pinole gravelly loam, 0 to 2 percent slopes-----	85	80	100	95	65	2	Fertility.
178	Pinole gravelly loam, 2 to 8 percent slopes-----	85	80	93	95	60	2	Fertility.
179	Pinole gravelly loam, 8 to 15 percent slopes-----	85	80	80	95	51	3	Fertility.
180	Pinole gravelly loam, 15 to 30 percent slopes-----	85	80	65	95	42	3	Fertility.
181	Pinole very gravelly loam, 0 to 2 percent slopes-----	70	60	100	95	40	3	Fertility.
182	Pinole very gravelly loam, 2 to 15 percent slopes-----	70	60	80	95	32	4	Fertility.
183	Pits and Dumps.							
184	Redvine sandy clay loam, 2 to 8 percent slopes-----	45	80	93	90	30	4	Fertility.
185	Redvine sandy clay loam, 8 to 15 percent slopes-----	45	80	80	90	26	4	Fertility.
186	Redvine sandy clay loam, 15 to 30 percent slopes-----	45	80	65	90	21	4	Fertility.
187	Rock outcrop.							
188	Russian loam, 0 to 2 percent slopes-----	100	100	100	100	100	1	None.
189	Russian loam, flooded, 0 to 2 percent slopes-----	100	100	100	60	60	2	Flooding.
190	Russian loam, gravelly substratum, 0 to 2 percent slopes-----	80	100	100	100	80	1	None.
191	Sanhedrin-Asabeen-Speaker gravelly loams, 30 to 50 percent slopes-----	---	---	---	---	14*	5	---
	Sanhedrin part-----	68	70	35	95	---	---	Fertility.
	Asabeen part-----	66	70	35	95	---	---	Fertility.
	Speaker part-----	43	70	35	90	---	---	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
192	Sanhedrin-Asabeen-Speaker gravelly loams, 50 to 75 percent slopes-----	---	---	---	---	9*	6	---
	Sanhedrin part-----	68	70	20	95	---	---	Fertility.
	Asabeen part-----	66	70	20	95	---	---	Fertility.
	Speaker part-----	43	70	20	90	---	---	Fertility.
193	Sanhedrin-Kekawaka-Speaker complex, 2 to 30 percent slopes-----	---	---	---	---	36*	4	---
	Sanhedrin part-----	68	70	75	95	---	---	Fertility.
	Kekawaka part-----	75	100	75	90	---	---	Fertility.
	Speaker part-----	43	70	75	90	---	---	Fertility.
194	Sanhedrin-Kekawaka-Speaker complex, 30 to 50 percent slopes-----	---	---	---	---	17*	5	---
	Sanhedrin part-----	68	70	35	95	---	---	Fertility.
	Kekawaka part-----	75	100	35	90	---	---	Fertility.
	Speaker part-----	43	70	35	90	---	---	Fertility.
195	Sanhedrin-Kekawaka-Speaker complex, 50 to 75 percent slopes-----	---	---	---	---	10*	5	---
	Sanhedrin part-----	68	70	20	95	---	---	Fertility.
	Kekawaka part-----	75	100	20	90	---	---	Fertility.
	Speaker part-----	43	70	20	90	---	---	Fertility.
196	Shortyork-Tyson-Witherell complex, 30 to 50 percent slopes-----	---	---	---	---	10*	5	---
	Shortyork part-----	45	70	35	95	---	---	Fertility.
	Tyson part-----	45	65	35	95	---	---	Fertility.
	Witherell part-----	30	95	35	95	---	---	Fertility.
197	Shortyork-Witherell-Updegraff complex, 50 to 75 percent slopes-----	---	---	---	---	8*	6	---
	Shortyork part-----	45	70	20	95	---	---	Fertility.
	Witherell part-----	30	95	20	95	---	---	Fertility.
	Updegraff part-----	75	100	20	95	---	---	Fertility.
198	Shortyork-Yorkville-Witherell complex, 9 to 15 percent slopes-----	---	---	---	---	26*	4	---
	Shortyork part-----	45	70	80	95	---	---	Fertility.
	Yorkville part-----	40	100	80	95	---	---	Fertility.
	Witherell part-----	30	95	80	95	---	---	Fertility.
199	Shortyork-Yorkville-Witherell complex, 15 to 30 percent slopes-----	---	---	---	---	21*	4	---
	Shortyork part-----	45	70	65	95	---	---	Fertility.
	Yorkville part-----	40	100	65	95	---	---	Fertility.
	Witherell part-----	30	95	65	95	---	---	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
200	Shortyork-Yorkville-Witherell complex, 30 to 50 percent slopes-----					11*	5	---
	Shortyork part-----	45	70	35	95	---	---	Fertility.
	Yorkville part-----	40	100	35	95	---	---	Fertility.
	Witherell part-----	30	95	35	95	---	---	Fertility.
201	Squawrock-Witherell complex, 15 to 50 percent slopes--					13*	5	---
	Squawrock part-----	35	70	50	95	---	---	Fertility.
	Witherell part-----	35	95	50	95	---	---	Fertility.
202	Squawrock-Witherell complex, 50 to 75 percent slopes--					4*	6	---
	Squawrock part-----	35	70	20	95	---	---	Fertility.
	Witherell part-----	35	95	20	95	---	---	Fertility.
203	Talmage gravelly sandy loam, 0 to 2 percent slopes----	80	60	100	95x90	41	3	Fertility, flooding.
204	Talmage very gravelly sandy loam, 0 to 2 percent slopes-----	80	50	100	95x90	34	4	Fertility, flooding.
205	Tyson-Updegraff complex, 30 to 50 percent slopes-----					13*	5	---
	Tyson part-----	45	65	35	95	---	---	Fertility.
	Updegraff part-----	75	100	35	95	---	---	Fertility.
206	Tyson-Updegraff complex, 50 to 75 percent slopes-----					8*	6	---
	Tyson part-----	45	65	20	95	---	---	Fertility.
	Updegraff part-----	75	100	20	95	---	---	Fertility.
207	Updegraff-Sanhedrin complex, 15 to 50 percent slopes--					30*	4	---
	Updegraff part-----	75	100	50	95	---	---	Fertility.
	Sanhedrin part-----	68	70	50	95	---	---	Fertility.
208	Updegraff-Speaker-Neuns complex, 30 to 50 percent slopes-----					16*	5	---
	Updegraff part-----	75	100	35	95	---	---	Fertility.
	Speaker part-----	43	70	35	90	---	---	Fertility.
	Neuns part-----	50	60	35	90	---	---	Fertility.
209	Updegraff-Speaker-Neuns complex, 50 to 75 percent slopes-----					9*	6	---
	Updegraff part-----	75	100	20	95	---	---	Fertility.
	Speaker part-----	43	70	20	90	---	---	Fertility.
	Neuns part-----	50	60	20	90	---	---	Fertility.
210	Urban land.							

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
211	Witherell-Hopland-Squawrock complex, 50 to 75 percent slopes-----	---	---	---	---	7*	6	---
	Witherell part-----	30	95	20	95	---	---	Fertility.
	Hopland part-----	65	100	20	100	---	---	Fertility.
	Squawrock part-----	35	70	20	95	---	---	Fertility.
212	Wohly-Casabonne loams, 30 to 50 percent slopes-----	---	---	---	---	21*	4	---
	Wohly part-----	54	100	35	95	---	---	Fertility.
	Casabonne part-----	85	100	35	95	---	---	Fertility.
213	Wohly-Casabonne-Pardaloe complex, 50 to 75 percent slopes-----	---	---	---	---	11*	5	---
	Wohly part-----	54	100	20	95	---	---	Fertility.
	Casabonne part-----	85	100	20	95	---	---	Fertility.
	Pardaloe part-----	77	70	20	90	---	---	Fertility.
214	Xerochrepts, 5 to 50 percent slopes-----	50	70	60	90	19	5	Fertility.
215	Xerochrepts-Haploxeralfs-Argixerolls complex, 9 to 30 percent slopes-----	---	---	---	---	42*	3	---
	Xerochrepts part-----	85	70	70	95	---	---	Fertility.
	Haploxeralfs part-----	80	100	70	95	---	---	Fertility.
	Argixerolls part-----	70	70	70	95	---	---	Fertility.
216	Xerochrepts-Haploxeralfs-Argixerolls complex, 30 to 50 percent slopes-----	---	---	---	---	22*	4	---
	Xerochrepts part-----	85	70	35	95	---	---	Fertility.
	Haploxeralfs part-----	80	100	35	95	---	---	Fertility.
	Argixerolls part-----	70	70	35	95	---	---	Fertility.
217	Xerofluvents, 0 to 2 percent slopes-----	85	95	100	80	65	2	Flooding.
218	Xerofluvents-Riverwash complex, 0 to 2 percent slopes-----	---	---	---	---	17*	5	---
	Xerofluvents part-----	80	50	100	70	---	---	Flooding.
	Riverwash part.							
219	Yellowhound-Kibesillah-Ornbaun complex, 30 to 50 percent slopes-----	---	---	---	---	13*	5	---
	Yellowhound part-----	65	60	20	95	---	---	Fertility.
	Kibesillah part-----	35	70	20	96	---	---	Fertility.
	Ornbaun part-----	72	100	35	95	---	---	Fertility.
220	Yellowhound-Kibesillah complex, 50 to 75 percent slopes-----	---	---	---	---	6*	6	---
	Yellowhound part-----	65	60	35	95	---	---	Fertility.
	Kibesillah part-----	35	70	35	95	---	---	Fertility.
221	Yokayo sandy loam, 0 to 8 percent slopes-----	40	95	93	90	32	4	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
222	Yokayo sandy loam, 8 to 15 percent slopes-----	40	95	80	90	27	4	Fertility.
223	Yokayo sandy loam, 15 to 30 percent slopes-----	40	95	65	90	22	4	Fertility.
224	Yokayo-Pinole-Pinnobie complex, 0 to 15 percent slopes-----	---	---	---	---	50*	3	---
	Yokayo part-----	40	95	85	90	---	---	Fertility.
	Pinole part-----	85	80	85	95	---	---	Fertility.
	Pinnobie part-----	100	100	85	95	---	---	Fertility.
225	Yorktree-Hopland-Woodin complex, 30 to 50 percent slopes-----	---	---	---	---	20*	4	---
	Yorktree part-----	68	100	35	95	---	---	Fertility.
	Hopland part-----	65	100	35	100	---	---	None.
	Woodin part-----	45	70	35	90	---	---	Fertility.
226	Yorktree-Hopland-Woodin complex, 50 to 75 percent slopes-----	---	---	---	---	11*	5	---
	Yorktree part-----	68	100	20	95	---	---	Fertility.
	Hopland part-----	65	100	20	100	---	---	None.
	Woodin part-----	45	70	20	90	---	---	Fertility.
227	Yorktree-Yorkville loams, 15 to 30 percent slopes-----	---	---	---	---	36*	4	---
	Yorktree part-----	68	100	65	95	---	---	Fertility.
	Yorkville part-----	40	100	65	95	---	---	Fertility.
228	Yorktree-Yorkville loams, 30 to 50 percent slopes-----	---	---	---	---	19*	5	---
	Yorktree part-----	68	100	35	95	---	---	Fertility.
	Yorkville part-----	40	100	35	95	---	---	Fertility.
229	Yorkville loam, 15 to 30 percent slopes-----	40	100	65	95	25	4	Fertility.
230	Yorkville loam, 30 to 50 percent slopes-----	40	100	35	95	13	5	Fertility.
231	Yorkville-Hopland loams, 30 to 50 percent slopes-----	---	---	---	---	19*	5	---
	Yorkville part-----	40	100	35	95	---	---	Fertility.
	Hopland part-----	65	100	35	100	---	---	None.
232	Yorkville-Squawrock-Witherell complex, 15 to 30 percent slopes-----	---	---	---	---	21*	4	---
	Yorkville part-----	40	100	65	95	---	---	Fertility.
	Squawrock part-----	35	70	65	95	---	---	Fertility.
	Witherell part-----	30	95	65	95	---	---	Fertility.
233	Yorkville-Squawrock-Witherell complex, 30 to 50 percent slopes-----	---	---	---	---	12*	5	---
	Yorkville part-----	40	100	35	95	---	---	Fertility.
	Squawrock part-----	35	70	35	95	---	---	Fertility.
	Witherell part-----	30	95	35	95	---	---	Fertility.

See footnote at end of table.

TABLE 5.--STORIE INDEX RATING--Continued

Map symbol	Map unit	Rating factors				Index	Grade	Limitation in X factor
		A	B	C	X			
234	Yorkville-Yorktree-Squawrock complex, 15 to 30 percent slopes-----					28*	4	---
	Yorkville part-----	40	100	65	95	---	---	Fertility.
	Yorktree part-----	68	100	65	95	---	---	Fertility.
	Squawrock part-----	35	70	65	95	---	---	Fertility.
235	Yorkville-Yorktree-Squawrock complex, 30 to 50 percent slopes-----					15*	5	---
	Yorkville part-----	40	100	35	95	---	---	Fertility.
	Yorktree part-----	68	100	35	95	---	---	Fertility.
	Squawrock part-----	35	70	35	95	---	---	Fertility.

* Map unit index is a weighted average of the component part ratings.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES

(Only the soils that support rangeland vegetation suitable for grazing are listed)

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
104: Bearwallow-----	Annual Grass/Loamy (15d)-----	Favorable	3,800	Wild oat-----	30
		Normal	3,000	Soft chess-----	15
		Unfavorable	2,000	Filaree-----	10
				Ripgut brome-----	10
				Clover-----	10
				Purple needlegrass-----	5
				Burclover-----	5
				Foxtail barley-----	5
Hellman-----	Annual Grass/Loamy (15d)-----	Favorable	3,200	Slender oat-----	20
		Normal	2,600	Wild oat-----	15
		Unfavorable	1,800	Soft chess-----	15
				Filaree-----	10
				Foxtail fescue-----	10
				Ripgut brome-----	5
105: Bearwallow-----	Annual Grass/Loamy (15d)-----	Favorable	3,800	Wild oat-----	30
		Normal	3,000	Soft chess-----	15
		Unfavorable	2,000	Filaree-----	10
				Ripgut brome-----	10
				Clover-----	10
				Purple needlegrass-----	5
				Burclover-----	5
				Foxtail barley-----	5
Hellman-----	Annual Grass/Loamy (15d)-----	Favorable	3,200	Slender oat-----	20
		Normal	2,600	Wild oat-----	15
		Unfavorable	1,800	Soft chess-----	15
				Filaree-----	10
				Foxtail fescue-----	10
				Ripgut brome-----	5
Witherell-----	Annual Grass/Shallow Loamy (15d).	Favorable	2,400	Soft chess-----	30
		Normal	1,800	Wild oat-----	15
		Unfavorable	1,200	Filaree-----	10
				Burclover-----	10
				Silver hairgrass-----	10
				Clover-----	10
				Foxtail fescue-----	5
115----- Cole	Annual Grass/Loamy Wet Bottomland (14d).	Favorable	3,000	Soft chess-----	15
		Normal	2,500	Beardless wildrye-----	15
		Unfavorable	1,500	Burclover-----	15
				Italian ryegrass-----	10
				Wild oat-----	10
				Filaree-----	10
				Mediterranean barley-----	5
				Foxtail fescue-----	5
				Dock-----	5
				Baltic rush-----	5
				Narrowleaf plantain-----	5
148, 149: Hopland.					

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
148, 149: Witherell-----	Annual Grass/Shallow Loamy (15d).	Favorable	2,400	Soft chess-----	30
		Normal	1,800	Wild oat-----	15
		Unfavorable	1,200	Filaree-----	10
				Burclover-----	10
				Silver hairgrass-----	10
				Clover-----	10
				Foxtail fescue-----	5
Squawrock-----	Annual Grass/Very Gravelly Loamy (15d).	Favorable	2,600	Wild oat-----	20
		Normal	2,200	Soft chess-----	20
		Unfavorable	1,400	Broadleaf filaree-----	10
				Foxtail fescue-----	5
				Purple needlegrass-----	5
				Burclover-----	5
156----- Maxwell	Annual Grass/Clayey-Serpentine (14d).	Favorable	2,100	Slender oat-----	30
		Normal	1,500	Soft chess-----	30
		Unfavorable	800	Wild oat-----	10
				Mouse barley-----	10
				Foxtail fescue-----	5
				Filaree-----	5
				Clover-----	5
196: Shortyork-----	Annual Grass/Very Gravelly Loamy (15d).	Favorable	2,800	Red fescue-----	20
		Normal	1,900	Soft chess-----	10
		Unfavorable	1,100	Ripgut brome-----	10
				California oatgrass-----	10
				Wild oat-----	5
				Clover-----	5
				Filaree-----	5
				Sheep fescue-----	5
				Tufted hairgrass-----	5
				Blue wildrye-----	5
Tyson. Witherell-----	Annual Grass/Shallow Loamy (15d).	Favorable	2,400	Soft chess-----	30
		Normal	1,800	Wild oat-----	15
		Unfavorable	1,200	Filaree-----	10
				Burclover-----	10
				Silver hairgrass-----	10
				Clover-----	10
				Foxtail fescue-----	5
197: Shortyork-----	Annual Grass/Very Gravelly Loamy (15d).	Favorable	2,800	Red fescue-----	20
		Normal	1,900	Soft chess-----	10
		Unfavorable	1,100	Ripgut brome-----	10
				California oatgrass-----	10
				Wild oat-----	5
				Clover-----	5
				Filaree-----	5
				Sheep fescue-----	5
				Tufted hairgrass-----	5
				Blue wildrye-----	5

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
197: Witherell-----	Annual Grass/Shallow Loamy (15d).	Favorable	2,400	Soft chess-----	30
		Normal	1,800	Wild oat-----	15
		Unfavorable	1,200	Filaree-----	10
				Burclover-----	10
				Silver hairgrass-----	10
				Clover-----	10
				Foxtail fescue-----	5
Updegraff.					
198, 199, 200: Shortyork-----	Annual Grass/Very Gravelly Loamy (15d).	Favorable	2,800	Red fescue-----	20
		Normal	1,900	Soft chess-----	10
		Unfavorable	1,100	Ripgut brome-----	10
				California oatgrass-----	10
				Wild oat-----	5
				Clover-----	5
				Filaree-----	5
				Sheep fescue-----	5
				Tufted hairgrass-----	5
				Blue wildrye-----	5
Yorkville-----	Annual Grass/Clayey-Unstable (15d).	Favorable	2,800	California oatgrass-----	15
		Normal	2,300	Soft chess-----	10
		Unfavorable	1,600	Purple needlegrass-----	10
				Wild oat-----	10
				Red fescue-----	10
				Idaho fescue-----	10
				Burclover-----	5
				Filaree-----	5
				Ripgut brome-----	5
Witherell-----	Annual Grass/Shallow Loamy (15d).	Favorable	2,400	Soft chess-----	30
		Normal	1,800	Wild oat-----	15
		Unfavorable	1,200	Filaree-----	10
				Burclover-----	10
				Silver hairgrass-----	10
				Clover-----	10
				Foxtail fescue-----	5
201, 202: Squawrock-----	Annual Grass/Very Gravelly Loamy (15d).	Favorable	2,600	Wild oat-----	20
		Normal	2,200	Soft chess-----	20
		Unfavorable	1,400	Broadleaf filaree-----	10
				Foxtail fescue-----	5
				Purple needlegrass-----	5
				Burclover-----	5
Witherell-----	Annual Grass/Shallow Loamy (15d).	Favorable	2,400	Soft chess-----	30
		Normal	1,800	Wild oat-----	15
		Unfavorable	1,200	Filaree-----	10
				Burclover-----	10
				Silver hairgrass-----	10
				Clover-----	10
				Foxtail fescue-----	5

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
203, 204----- Talmage	Annual Grass/Very Gravelly Loamy Bottomland (14d).	Favorable	2,200	Soft chess-----	20
		Normal	1,500	Filaree-----	20
		Unfavorable	800	Wild oat-----	5
				Silver hairgrass-----	5
				Ripgut brome-----	5
				Dogtail-----	5
				Prairie threeawn-----	5
				Medusahead-----	5
				Turkeymullein-----	5
				Red brome-----	5
		Foxtail fescue-----	5		
		Annual lupine-----	5		
211: Witherell-----	Annual Grass/Shallow Loamy (15d).	Favorable	2,400	Soft chess-----	30
		Normal	1,800	Wild oat-----	15
		Unfavorable	1,200	Filaree-----	10
				Burclover-----	10
				Silver hairgrass-----	10
				Clover-----	10
				Foxtail fescue-----	5
Hopland. Squawrock-----	Annual Grass/Very Gravelly Loamy (15d).	Favorable	2,600	Wild oat-----	20
		Normal	2,200	Soft chess-----	20
		Unfavorable	1,400	Broadleaf filaree-----	10
				Foxtail fescue-----	5
				Purple needlegrass-----	5
		Burclover-----	5		
221, 222, 223----- Yokayo	Blue Oak-Annual Grass/Claypan (14d).	Favorable	2,400	Soft chess-----	25
		Normal	1,800	Purple needlegrass-----	15
		Unfavorable	900	Wild oat-----	10
				Filaree-----	10
				Burclover-----	10
				Foxtail fescue-----	5
		Ripgut brome-----	5		
224: Yokayo-----	Blue Oak-Annual Grass/Claypan (14d).	Favorable	2,400	Soft chess-----	25
		Normal	1,800	Purple needlegrass-----	15
		Unfavorable	900	Wild oat-----	10
				Filaree-----	10
				Burclover-----	10
				Foxtail fescue-----	5
		Ripgut brome-----	5		
Pinole-----	Blue Oak-Annual Grass/Loamy (14d).	Favorable	2,000	Slender oat-----	15
		Normal	1,600	Soft chess-----	15
		Unfavorable	800	Ripgut brome-----	10
				Purple needlegrass-----	10
				Foxtail fescue-----	5
				Clover-----	5
				Manzanita-----	5
				Poison oak-----	5

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
224: Pinnobie-----	Blue Oak-Annual Grass/Loamy (14d).	Favorable	2,000	Slender oat-----	15
		Normal	1,600	Soft chess-----	15
		Unfavorable	800	Ripgut brome-----	10
				Purple needlegrass-----	10
				Foxtail fescue-----	5
				Clover-----	5
				Manzanita-----	5
			Poison oak-----	5	
227, 228: Yorktree.					
Yorkville-----	Annual Grass/Clayey-Unstable (15d).	Favorable	3,300	Wild oat-----	30
		Normal	2,500	Soft chess-----	15
		Unfavorable	1,200	Burclover-----	10
				Filaree-----	10
				Ripgut brome-----	10
				Purple needlegrass-----	5
				Foxtail fescue-----	5
229, 230----- Yorkville	Annual Grass/Clayey-Unstable (15d).	Favorable	3,300	Wild oat-----	30
		Normal	2,500	Soft chess-----	15
		Unfavorable	1,200	Burclover-----	10
				Filaree-----	10
				Ripgut brome-----	10
				Purple needlegrass-----	5
				Foxtail fescue-----	5
231: Yorkville-----	Annual Grass/Clayey-Unstable (15d).	Favorable	3,300	Wild oat-----	30
		Normal	2,500	Soft chess-----	15
		Unfavorable	1,200	Burclover-----	10
				Filaree-----	10
				Ripgut brome-----	10
				Purple needlegrass-----	5
				Foxtail fescue-----	5
Hopland.					
232, 233: Yorkville-----	Annual Grass/Clayey-Unstable (15d).	Favorable	3,300	Wild oat-----	30
		Normal	2,500	Soft chess-----	15
		Unfavorable	1,200	Burclover-----	10
				Filaree-----	10
				Ripgut brome-----	10
				Purple needlegrass-----	5
				Foxtail fescue-----	5
Squawrock-----	Annual Grass/Very Gravelly Loamy (15d).	Favorable	2,600	Wild oat-----	20
		Normal	2,200	Soft chess-----	20
		Unfavorable	1,400	Broadleaf filaree-----	10
				Foxtail fescue-----	5
				Purple needlegrass-----	5
				Burclover-----	5
Witherell-----	Annual Grass/Shallow Loamy (15d).	Favorable	2,400	Soft chess-----	30
		Normal	1,800	Wild oat-----	15
		Unfavorable	1,200	Filaree-----	10
				Burclover-----	10
				Silver hairgrass-----	10
				Clover-----	10
				Foxtail fescue-----	5

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight Lb/acre		
234, 235: Yorkville-----	Annual Grass/Clayey-Unstable (15d).	Favorable	3,300	Wild oat-----	30
		Normal	2,500	Soft chess-----	15
		Unfavorable	1,200	Burclover-----	10
				Filaree-----	10
				Ripgut brome-----	10
				Purple needlegrass-----	5
			Foxtail fescue-----	5	
Yorktree.					
Squawrock-----	Annual Grass/Very Gravelly Loamy (15d).	Favorable	2,600	Wild oat-----	20
		Normal	2,200	Soft chess-----	20
		Unfavorable	1,400	Broadleaf filaree-----	10
				Foxtail fescue-----	5
				Purple needlegrass-----	5
				Burclover-----	5

TABLE 7.--WOODLAND PRODUCTIVITY

(See text for definitions of "slight," "moderate," and "severe." Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that data were not available)

Soil name and map symbol	Ordination symbol	Potential productivity			Seedling mortality	Plant competition	Limitation for revegetating exposed subsoil with--	
		Commonly grown trees	Site index*	Site index range			Grasses	Trees
101: Asabean-----	11F 8F	Ponderosa pine--- Douglas fir-----	129 122	--- 11	Moderate	Moderate---	Slight-----	Moderate.
Sanhedrin-----	10A	Ponderosa pine--- Douglas fir-----	121 125	13 10	Slight---	Moderate---	Slight-----	Moderate.
102: Asabean-----	11R 8R	Ponderosa pine--- Douglas fir-----	129 122	--- 11	Moderate	Moderate---	Slight-----	Moderate.
Sanhedrin-----	10R	Ponderosa pine--- Douglas fir-----	121 125	13 10	Slight---	Moderate---	Slight-----	Moderate.
Speaker-----	8R	Ponderosa pine--- Douglas fir-----	106 107	25 15	Moderate	Moderate---	Slight-----	Moderate.
103: Asabean-----	11R 8R	Ponderosa pine--- Douglas fir-----	129 122	--- 11	Moderate	Moderate---	Slight-----	Moderate.
Speaker-----	8R	Ponderosa pine--- Douglas fir-----	106 107	25 15	Moderate	Moderate---	Slight-----	Moderate.
Neuns-----	8R	Ponderosa pine--- Douglas fir-----	106 113	15 ---	Moderate	Moderate---	Severe-----	Severe.
106: Bluenose-----	9F	Douglas fir----- Ponderosa pine---	129 120	8 ---	Moderate	Moderate---	Slight-----	Moderate.
Neuns-----	8F	Ponderosa pine--- Douglas fir-----	106 113	15 ---	Moderate	Moderate---	Moderate---	Severe.
Gudgrey-----	14A 9A	Ponderosa pine--- Douglas fir-----	144 131	--- ---	Slight---	Severe-----	Slight-----	Moderate.
107: Bluenose-----	9R	Douglas fir----- Ponderosa pine---	129 120	8 ---	Moderate	Moderate---	Slight-----	Moderate.
Neuns-----	8R	Ponderosa pine--- Douglas fir-----	106 113	15 ---	Moderate	Moderate---	Severe-----	Severe.
Gudgrey-----	14R 9R	Ponderosa pine--- Douglas fir-----	144 131	--- ---	Slight---	Severe-----	Slight-----	Moderate.
108: Bluenose-----	9R	Douglas fir----- Ponderosa pine---	129 120	8 ---	Moderate	Moderate---	Slight-----	Moderate.
Neuns-----	8R	Ponderosa pine--- Douglas fir-----	106 113	15 ---	Moderate	Moderate---	Severe-----	Severe.
Gudgrey-----	14R 9R	Ponderosa pine--- Douglas fir-----	144 131	--- ---	Slight---	Severe-----	Slight-----	Moderate.

See footnote at end of table.

TABLE 7.--WOODLAND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Potential productivity			Seedling mortality	Plant competition	Limitation for revegetating exposed subsoil with--	
		Commonly grown trees	Site index*	Site index range			Grasses	Trees
109: Casabonne-----	11A	Douglas fir-----	153	5	Slight---	Severe-----	Slight-----	Slight.
Wohly-----	8A	Douglas fir-----	118	10	Moderate	Moderate---	Slight-----	Moderate.
110: Casabonne-----	11R	Douglas fir-----	153	5	Slight---	Severe-----	Slight-----	Slight.
Wohly-----	8R	Douglas fir-----	118	10	Moderate	Moderate---	Slight-----	Moderate.
111: Casabonne-----	10R	Douglas fir-----	144	---	Slight---	Severe-----	Slight-----	Slight.
Wohly-----	8R	Douglas fir-----	118	10	Moderate	Moderate---	Slight-----	Moderate.
Pardaloe-----	8R	Douglas fir-----	122	4	Severe---	Slight-----	Moderate---	Severe.
116----- Cummiskey	1R	Black oak-----	---	---	Severe---	Moderate---	Moderate---	Severe.
129: Gschwend-----	16A	Redwood----- Douglas fir-----	157 168	26 18	Slight---	Severe-----	Slight-----	Slight.
Frenchman-----	11A	Douglas fir----- Redwood-----	154 132	27 ---	Moderate	Severe-----	Slight-----	Moderate.
130: Gudgrey-----	14A	Ponderosa pine--- Douglas fir-----	144 131	--- ---	Slight---	Severe-----	Slight-----	Moderate.
Bluenose-----	9F	Douglas fir----- Ponderosa pine---	129 120	8 ---	Moderate	Moderate---	Slight-----	Moderate.
Neuns-----	8F	Ponderosa pine--- Douglas fir-----	106 113	15 ---	Moderate	Moderate---	Moderate---	Severe.
131: Gudgrey-----	14R	Ponderosa pine--- Douglas fir-----	144 131	--- ---	Slight---	Severe-----	Slight-----	Moderate.
Bluenose-----	9R	Douglas fir----- Ponderosa pine---	129 120	8 ---	Moderate	Moderate---	Slight-----	Moderate.
Neuns-----	8R	Ponderosa pine--- Douglas fir-----	106 113	15 ---	Moderate	Moderate---	Severe-----	Severe.
132: Gudgrey-----	14R	Ponderosa pine--- Douglas fir-----	144 131	--- ---	Slight---	Severe-----	Slight-----	Moderate.
Bluenose-----	9R	Douglas fir----- Ponderosa pine---	129 120	8 ---	Moderate	Moderate---	Slight-----	Moderate.
Neuns-----	8R	Ponderosa pine--- Douglas fir-----	106 113	15 ---	Moderate	Moderate---	Severe-----	Severe.
134: Haploxeralfs---	7-12 A,C,F	Ponderosa pine--- Douglas fir-----	101-134 85-141	--- ---	Moderate	Severe-----	Slight-----	Moderate.

See footnote at end of table.

TABLE 7.--WOODLAND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Potential productivity			Seedling mortality	Plant competition	Limitation for revegetating exposed subsoil with--	
		Commonly grown trees	Site index*	Site index range			Grasses	Trees
134: Argixerolls-----	7-12 A,W	Ponderosa pine--- Douglas fir-----	98-133 97-131	--- ---	Moderate	Severe-----	Slight-----	Moderate.
135: Haploxeralfs, wet-----	7-12 W	Ponderosa pine--- Douglas fir-----	101-134 85-141	--- ---	Severe---	Severe-----	Moderate---	Severe.
Argixerolls-----	7-12 A,W	Ponderosa pine--- Douglas fir-----	98-133 97-131	--- ---	Moderate	Severe-----	Slight-----	Moderate.
138: Holohan-----	9F	Douglas fir-----	132	6	Severe---	Moderate---	Moderate---	Severe.
Hollowtree-----	6F	Douglas fir-----	106	4	Severe---	Moderate---	Moderate---	Severe.
Casabonne-----	10A	Douglas fir-----	144	---	Slight---	Severe-----	Slight-----	Slight.
139: Holohan-----	9R	Douglas fir-----	132	6	Severe---	Moderate---	Moderate---	Severe.
Hollowtree-----	6R	Douglas fir-----	106	4	Severe---	Moderate---	Moderate---	Severe.
Casabonne-----	10R	Douglas fir-----	144	---	Slight---	Severe-----	Slight-----	Slight.
140: Holohan-----	9R	Douglas fir-----	132	6	Severe---	Moderate---	Moderate---	Severe.
Hollowtree	6R	Douglas fir-----	106	4	Severe---	Moderate---	Moderate---	Severe.
141, 142----- Hopland	1R	Black oak-----	44	5	Moderate	Moderate---	Slight-----	Moderate.
145: Hopland-----	1A	Black oak-----	44	5	Moderate	Moderate---	Slight-----	Moderate.
Sanhedrin-----	9A	Ponderosa pine--- Douglas fir-----	111 113	15 7	Slight---	Moderate---	Slight-----	Moderate.
Kekawaka-----	9D	Ponderosa pine--- Douglas fir-----	113 106	12 10	Slight---	Severe-----	Slight-----	Slight.
146: Hopland-----	1R	Black oak-----	44	5	Moderate	Moderate---	Slight-----	Moderate.
Sanhedrin-----	9R	Ponderosa pine--- Douglas fir-----	111 113	15 7	Slight---	Moderate---	Slight-----	Moderate.
Nekawaka-----	9R	Ponderosa pine--- Douglas fir-----	113 106	12 10	Slight---	Severe-----	Slight-----	Slight.
147: Hopland	1R	Black oak-----	44	5	Moderate	Moderate---	Slight-----	Moderate.
Sanhedrin-----	9R	Ponderosa pine--- Douglas fir-----	111 113	15 7	Slight---	Moderate---	Slight-----	Moderate.
Kekawaka-----	9R	Ponderosa pine--- Douglas fir-----	113 106	12 10	Slight---	Severe-----	Slight-----	Slight.

See footnote at end of table.

TABLE 7.--WOODLAND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Potential productivity			Seedling mortality	Plant competition	Limitation for revegetating exposed subsoil with--	
		Commonly grown trees	Site index*	Site index range			Grasses	Trees
148: Hopland----- Witherell. Squawrock.	1A	Black oak-----	44	5	Moderate	Moderate---	Slight-----	Moderate.
149: Hopland----- Witherell----- Squawrock.	1A	Black oak----- Oregon white oak	44 ---	5 ---	Moderate	Moderate---	Slight-----	Moderate.
150: Hopland----- Wohly-----	1R 8R	Black oak----- Douglas fir-----	44 118	5 10	Moderate Moderate	Moderate--- Moderate---	Slight----- Slight-----	Moderate. Moderate.
151: Hopland----- Wohly-----	1R 8R	Black oak----- Douglas fir-----	44 118	5 10	Moderate Moderate	Moderate--- Moderate---	Slight----- Slight-----	Moderate. Moderate.
152, 153: Hopland----- Woodin-----	1R 1R	Black oak----- Blue oak----- Oregon white oak	44 --- ---	5 --- ---	Moderate Severe---	Moderate--- Slight-----	Slight----- Severe-----	Moderate. Severe.
154: Kekawaka----- Casabonne----- Wohly-----	14A 11A 8A	Ponderosa pine--- Douglas fir----- Douglas fir-----	147 154 153	--- 8 5	Slight--- Slight--- Moderate	Severe----- Severe----- Moderate---	Slight----- Slight----- Slight-----	Slight. Slight. Moderate.
155: Kekawaka----- Casabonne----- Wohly-----	14R 10R 8R	Ponderosa pine--- Douglas fir----- Douglas fir-----	147 154 144	--- 8 ---	Slight--- Slight--- Moderate	Severe----- Severe----- Moderate---	Slight----- Slight----- Slight-----	Slight. Slight. Moderate.
157: Mayacama----- Hopland----- Etsel.	1R 1R	Black oak----- Black oak-----	35 44	--- 5	Severe--- Moderate	Slight----- Moderate---	Severe----- Slight-----	Severe. Moderate.
158: Maymen.								

See footnote at end of table.

TABLE 7.--WOODLAND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Potential productivity			Seedling mortality	Plant competition	Limitation for revegetating exposed subsoil with--	
		Commonly grown trees	Site index*	Site index range			Grasses	Trees
158: Etsel.								
Hopland-----	1A	Black oak-----	44	5	Moderate	Moderate---	Slight-----	Moderate.
163, 164: Nashmead-----	6R	Douglas fir-----	105	10	Severe---	Moderate---	Slight-----	Severe.
Updegraff-----	6R	Douglas fir-----	101	---	Moderate	Severe-----	Slight-----	Moderate.
Woodin-----	6R	Douglas fir-----	97	17	Severe---	Slight-----	Severe-----	Severe.
165, 166: Nashmead-----	6R	Douglas fir-----	105	10	Severe---	Moderate---	Slight-----	Severe.
Woodin-----	6R	Douglas fir-----	97	17	Severe---	Slight-----	Severe-----	Severe.
167, 168: Neuns-----	8R	Ponderosa pine--- Douglas fir-----	106 113	15 ---	Moderate	Moderate---	Severe-----	Severe.
Bluenose-----	10R	Ponderosa pine--- Douglas fir-----	120 129	--- 8	Moderate	Moderate---	Slight-----	Moderate.
Tyson-----	1R	Brewer oak-----	---	---	Severe---	Moderate---	Moderate---	Severe.
169: Ornbaun-----	15A	Redwood----- Douglas fir-----	152 155	13 6	Slight---	Severe-----	Slight-----	Slight.
Zeni-----	11A	Redwood----- Douglas fir-----	127 129	17 10	Slight---	Severe-----	Slight-----	Slight.
170: Ornbaun-----	15R	Redwood----- Douglas fir-----	152 155	13 6	Slight---	Severe-----	Slight-----	Slight.
Zeni-----	11R	Redwood----- Douglas fir-----	127 129	17 10	Slight---	Severe-----	Slight-----	Slight.
171: Ornbaun-----	15R	Redwood----- Douglas fir-----	152 155	13 6	Slight---	Severe-----	Slight-----	Slight.
Zeni-----	11R	Redwood----- Douglas fir-----	127 129	17 10	Slight---	Severe-----	Slight-----	Moderate.
172: Pardaloe-----	8R	Douglas fir-----	122	4	Severe---	Slight-----	Moderate---	Severe.
Kekawaka-----	14R	Ponderosa pine--- Douglas fir-----	147 154	--- 8	Slight---	Severe-----	Slight-----	Slight.
Casabonne-----	10R	Douglas fir-----	144	---	Slight---	Severe-----	Slight-----	Slight.
173: Pardaloe-----	8R	Douglas fir-----	122	4	Severe---	Slight-----	Moderate---	Severe.
Woodin-----	6R	Douglas fir-----	97	17	Severe---	Slight-----	Severe-----	Severe.

See footnote at end of table.

TABLE 7.--WOODLAND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Potential productivity			Seedling mortality	Plant competition	Limitation for revegetating exposed subsoil with--	
		Commonly grown trees	Site index*	Site index range			Grasses	Trees
173: Casabonne-----	10R	Douglas fir-----	144	---	Slight---	Severe-----	Slight-----	Slight.
174: Pardaloe-----	8R	Douglas fir-----	122	4	Severe---	Slight-----	Moderate-----	Severe.
Woodin-----	6R	Douglas fir-----	97	17	Severe---	Slight-----	Severe-----	Severe.
191: Sanhedrin-----	10R	Ponderosa pine--- Douglas fir-----	121 125	13 10	Slight---	Moderate---	Slight-----	Moderate.
Asabean-----	11R	Ponderosa pine--- Douglas fir	129 122	--- 11	Moderate	Moderate---	Slight-----	Moderate.
Speaker-----	8R	Ponderosa pine--- Douglas fir-----	106 107	25 15	Moderate	Moderate---	Slight-----	Moderate.
192: Sanhedrin-----	10R	Ponderosa pine--- Douglas fir-----	121 125	13 10	Slight---	Moderate---	Slight-----	Moderate.
Asabean-----	11R	Ponderosa pine--- Douglas fir-----	129 122	--- 11	Moderate	Moderate---	Slight-----	Moderate.
Speaker-----	8R	Ponderosa pine--- Douglas fir-----	106 107	25 15	Moderate	Moderate---	Slight-----	Moderate.
193: Sanhedrin-----	10A	Ponderosa pine--- Douglas fir-----	121 125	13 10	Slight---	Moderate---	Slight-----	Moderate.
Kekawaka-----	14A	Ponderosa pine--- Douglas fir-----	147 154	--- 8	Slight---	Severe-----	Slight-----	Slight.
Speaker-----	8A	Ponderosa pine--- Douglas fir-----	106 107	25 15	Moderate	Moderate---	Slight-----	Moderate.
194: Sanhedrin-----	10R	Ponderosa pine--- Douglas fir-----	121 125	13 10	Slight---	Moderate---	Slight-----	Moderate.
Kekawaka-----	14R	Ponderosa pine--- Douglas fir-----	147 154	--- 8	Slight---	Severe-----	Slight-----	Slight.
Speaker-----	8R	Ponderosa pine--- Douglas fir-----	106 107	25 15	Moderate	Moderate---	Slight-----	Moderate.
195: Sanhedrin-----	10R	Ponderosa pine--- Douglas fir-----	121 125	13 10	Slight---	Moderate---	Slight-----	Moderate.
Kekawaka-----	14R	Ponderosa pine--- Douglas fir-----	147 154	--- 8	Slight---	Severe-----	Slight-----	Slight.
Speaker-----	8R	Ponderosa pine--- Douglas fir-----	106 107	25 15	Moderate	Moderate---	Slight-----	Moderate.

See footnote at end of table.

TABLE 7.--WOODLAND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Potential productivity			Seedling mortality	Plant competition	Limitation for revegetating exposed subsoil with--	
		Commonly grown trees	Site index*	Site index range			Grasses	Trees
196: Shortyork.								
Tyson-----	1R	Brewer oak-----	---	---	Severe---	Moderate---	Moderate---	Severe.
Witherell.								
205, 206: Tyson-----	1R	Brewer oak-----	---	---	Severe---	Moderate---	Moderate---	Severe.
Updegraff-----	6R	Douglas fir-----	101	---	Moderate	Severe-----	Slight-----	Moderate.
207: Updegraff-----	6R	Douglas fir-----	101	---	Moderate	Severe-----	Slight-----	Moderate.
Sanhedrin-----	10R	Ponderosa pine--- Douglas fir-----	121 125	13 10	Slight---	Moderate---	Slight-----	Moderate.
208, 209: Updegraff-----	6R	Douglas fir-----	101	---	Moderate	Severe-----	Slight-----	Moderate.
Speaker-----	8R	Ponderosa pine--- Douglas fir-----	106 107	25 15	Moderate	Moderate---	Slight-----	Moderate.
Neuns-----	8R	Ponderosa pine--- Douglas fir-----	106 113	15 ---	Moderate	Moderate---	Severe-----	Severe.
211: Witherell.								
Hopland-----	1R	Black oak----- Oregon white oak Blue oak-----	44 --- ---	5 --- ---	Moderate	Moderate---	Slight-----	Moderate.
Squawrock.								
212: Wohly-----	8R	Douglas fir-----	118	10	Moderate	Moderate---	Slight-----	Moderate.
Casabonne-----	11R	Douglas fir-----	153	5	Slight---	Severe-----	Slight-----	Slight.
213: Wohly-----	8R	Douglas fir-----	118	10	Moderate	Moderate---	Slight-----	Moderate.
Casabonne-----	10R	Douglas fir-----	144	---	Slight---	Severe-----	Slight-----	Slight.
Pardaloe-----	8R	Douglas fir-----	122	4	Severe---	Slight-----	Moderate---	Severe.
215: Xerochrepts-----	7-12 A,F	Ponderosa pine--- Douglas fir-----	101-134 85-141	--- ---	Moderate	Severe-----	Slight-----	Moderate.
Haploxeralfs----	7-12 A,C,F	Ponderosa pine--- Douglas fir-----	101-134 85-141	--- ---	Moderate	Severe-----	Slight-----	Moderate.
Argixerolls-----	7-12 A,W	Ponderosa pine--- Douglas fir-----	98-133 97-131	--- ---	Moderate	Severe-----	Slight-----	Moderate.

See footnote at end of table.

TABLE 7.--WOODLAND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Potential productivity			Seedling mortality	Plant competition	Limitation for revegetating exposed subsoil with--	
		Commonly grown trees	Site index*	Site index range			Grasses	Trees
216: Xerochrepts-----	7-12 A,F,R	Ponderosa pine----- Douglas fir-----	101-134 85-141	--- ---	Moderate	Severe-----	Slight-----	Moderate.
Haploxerafls-----	7-12 A,C,F,R	Ponderosa pine----- Douglas fir-----	101-134 85-141	--- ---	Moderate	Severe-----	Slight-----	Moderate.
Argixerolls-----	7-12 A,W,R	Ponderosa pine----- Douglas fir-----	98-133 97-131	--- ---	Moderate	Moderate---	Slight-----	Moderate.
219: Yellowhound-----	12R	Redwood----- Douglas fir-----	135 143	17 14	Moderate	Severe-----	Slight-----	Moderate.
Kibesillah-----	7R	Douglas fir----- Redwood-----	109 109	--- ---	Moderate	Moderate---	Moderate---	Severe.
Ornbaun-----	15R	Redwood----- Douglas fir-----	152 155	13 6	Slight---	Severe-----	Slight-----	Slight.
220: Yellowhound-----	12R	Redwood----- Douglas fir-----	135 143	17 14	Moderate	Severe-----	Moderate---	Moderate.
Kibesillah-----	7R	Douglas fir----- Redwood-----	109 109	--- ---	Moderate	Moderate---	Moderate---	Severe.
225: Yorktree-----	1R	Black oak----- Oregon white oak Blue oak-----	30 --- ---	--- --- ---	Moderate	Severe-----	Slight-----	Moderate.
Hopland-----	1R	Black oak----- Oregon white oak Blue oak-----	44 --- ---	5 --- ---	Moderate	Moderate---	Slight-----	Moderate.
Woodin-----	1R	Oregon white oak Blue oak-----	--- ---	--- ---	Severe---	Slight-----	Severe-----	Severe.
226: Yorktree-----	1R	Black oak----- Oregon white oak Blue oak-----	30 --- ---	--- --- ---	Moderate	Severe-----	Slight-----	Moderate.
Hopland-----	1R	Black oak----- Oregon white oak Blue oak-----	44 --- ---	5 --- ---	Moderate	Moderate---	Slight-----	Moderate.
Woodin-----	1R	Oregon white oak Blue oak-----	--- ---	--- ---	Severe---	Slight-----	Severe-----	Severe.
227, 228: Yorktree-----	1C	Oregon white oak Blue oak-----	--- ---	--- ---	Moderate	Severe-----	Slight-----	Moderate.
Yorkville.								

See footnote at end of table.

TABLE 7.--WOODLAND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Potential productivity			Seedling mortality	Plant competition	Limitation for revegetating exposed subsoil with--	
		Commonly grown trees	Site index*	Site index range			Grasses	Trees
231: Yorkville.								
Hopland-----	1R	Black oak----- Oregon white oak Blue oak-----	44 --- ---	5 --- ---	Moderate	Moderate---	Slight-----	Moderate.
234: Yorkville.								
Yorktree-----	1C	Blue oak----- Oregon white oak Interior live oak	--- --- ---	--- --- ---	Moderate	Severe-----	Slight-----	Moderate.
Squawrock.								
235: Yorkville.								
Yorktree-----	1R	Blue oak----- Oregon white oak Interior live oak	--- --- ---	--- --- ---	Moderate	Severe-----	Slight-----	Moderate.
Squawrock.								

* See text for explanation of site curves used.

TABLE 8.--WOODLAND OPERABILITY

(See text for definitions of "slight," "moderate," and "severe." Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that data were not available)

Soil name and map symbol	Equipment limitations	Hazard of soil damage from--		Hazard of sheet and rill erosion--		
		Fire	Compaction	On bare soil surface	When yarded by--	
					Tractor	Skyline systems
101: Asabeau-----	Slight-----	Slight--	Slight-----	Moderate-----	Slight----	Slight.
Sanhedrin-----	Slight-----	Slight--	Slight-----	Moderate-----	Slight----	Slight.
102: Asabeau-----	Moderate-----	Slight--	Slight-----	Moderate-----	Moderate	Slight.
Sanhedrin-----	Moderate-----	Slight--	Slight-----	Moderate-----	Moderate	Slight.
Speaker-----	Moderate-----	Slight--	Moderate-----	Severe-----	Moderate	Slight.
103: Asabeau-----	Severe-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
Speaker-----	Severe-----	Slight--	Moderate-----	Severe-----	Severe----	Slight.
Neuns-----	Severe-----	Slight--	Slight-----	Severe-----	Moderate	Slight.
106: Bluenose-----	Slight-----	Moderate	Slight-----	Moderate-----	Slight----	Slight.
Neuns-----	Slight-----	Slight--	Slight-----	Moderate-----	Slight----	Slight.
Gudgrey-----	Slight-----	Slight--	Slight-----	Moderate-----	Slight----	Slight.
107: Bluenose-----	Moderate-----	Moderate	Slight-----	Severe-----	Slight----	Slight.
Neuns-----	Moderate-----	Slight--	Slight-----	Severe-----	Slight----	Slight.
Gudgrey-----	Moderate-----	Slight--	Slight-----	Severe-----	Slight----	Slight.
108: Bluenose-----	Severe-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
Neuns-----	Severe-----	Slight--	Slight-----	Severe-----	Moderate	Slight.
Gudgrey-----	Severe-----	Slight--	Slight-----	Severe-----	Moderate	Slight.
109: Casabonne-----	Slight-----	Slight--	Moderate-----	Moderate-----	Slight----	Slight.
Wohly-----	Slight-----	Slight--	Moderate-----	Moderate-----	Slight----	Slight.
110: Casabonne-----	Moderate-----	Slight--	Moderate-----	Severe-----	Moderate	Slight.
Wohly-----	Moderate-----	Slight--	Moderate-----	Severe-----	Moderate	Slight.
111: Casabonne-----	Severe-----	Slight--	Moderate-----	Severe-----	Moderate	Slight.
Wohly-----	Severe-----	Slight--	Moderate-----	Severe-----	Severe----	Moderate.
Pardaloe-----	Severe-----	Slight--	Slight-----	Severe-----	Moderate	Slight.

TABLE 8.--WOODLAND OPERABILITY--Continued

Soil name and map symbol	Equipment limitations	Hazard of soil damage from--		Hazard of sheet and rill erosion--		
		Fire	Compaction	On bare soil surface	When yarded by--	
					Tractor	Skyline systems
116----- Cumminskey	Severe-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
129: Gschwend-----	Slight-----	Slight----	Moderate-----	Slight-----	Slight----	Slight.
Frenchman-----	Slight-----	Slight----	Slight-----	Slight-----	Slight----	Slight.
130: Gudgrey-----	Slight-----	Slight----	Slight-----	Moderate-----	Slight----	Slight.
Bluenose-----	Slight-----	Moderate	Slight-----	Moderate-----	Slight----	Slight.
Neuns-----	Slight-----	Slight----	Slight-----	Moderate-----	Slight----	Slight.
131: Gudgrey-----	Moderate-----	Slight----	Slight-----	Severe-----	Slight----	Slight.
Bluenose-----	Moderate-----	Moderate	Slight-----	Severe-----	Slight----	Slight.
Neuns-----	Moderate-----	Slight----	Slight-----	Severe-----	Slight----	Slight.
132: Gudgrey-----	Severe-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Bluenose-----	Severe-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
Neuns-----	Severe-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
134: Haploxeralfs----	Slight-Moderate	Slight----	Moderate-Severe	Slight-----	Slight----	Slight.
Argixerolls----	Slight-----	Slight----	Moderate-Severe	Slight-----	Slight----	Slight.
135: Haploxeralfs, wet-----	Moderate-Severe	Slight----	Moderate-Severe	Slight-----	Slight----	Slight.
Argixerolls----	Slight-----	Slight----	Moderate-Severe	Slight-----	Slight----	Slight.
138: Holohan-----	Slight-----	Slight----	Slight-----	Moderate-----	Slight----	Slight.
Hollowtree-----	Slight-----	Moderate	Slight-----	Moderate-----	Slight----	Slight.
Casabonne-----	Slight-----	Slight----	Moderate-----	Moderate-----	Slight----	Slight.
139: Holohan-----	Moderate-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Hollowtree-----	Moderate-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
Casabonne-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
140: Holohan-----	Severe-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Hollowtree-----	Severe-----	Moderate	Slight-----	Severe-----	Moderate	Slight.

TABLE 8.--WOODLAND OPERABILITY--Continued

Soil name and map symbol	Equipment limitations	Hazard of soil damage from--		Hazard of sheet and rill erosion--		
		Fire	Compaction	On bare soil surface	When yarded by--	
					Tractor	Skyline systems
141:----- Hopland	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
142:----- Hopland	Severe-----	Slight----	Moderate-----	Severe-----	Severe-----	Moderate.
145: Hopland-----	Slight-----	Slight----	Moderate-----	Moderate-----	Slight----	Slight.
Sanhedrin-----	Slight-----	Slight----	Slight-----	Moderate-----	Slight----	Slight.
Kekawaka-----	Slight-----	Slight----	Moderate-----	Moderate-----	Slight----	Slight.
146: Hopland-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
Sanhedrin-----	Moderate-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Kekawaka-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
147: Hopland-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe-----	Moderate.
Sanhedrin-----	Severe-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Kekawaka-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe-----	Slight.
148: Hopland-----	Slight-----	Slight----	Moderate-----	Moderate-----	Slight----	Slight.
Witherell.						
Squawrock.						
149: Hopland-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
Witherell.						
Squawrock.						
150: Hopland-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
Wohly-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
151: Hopland-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe-----	Moderate.
Wohly-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe-----	Moderate.
152: Hopland-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
Woodin-----	Moderate-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
153: Hopland-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe-----	Moderate.

TABLE 8.--WOODLAND OPERABILITY--Continued

Soil name and map symbol	Equipment limitations	Hazard of soil damage from--		Hazard of sheet and rill erosion--		
		Fire	Compaction	On bare soil surface	When yarded by--	
					Tractor	Skyline systems
153: Woodin-----	Severe-----	Moderate	Slight-----	Severe-----	Severe-----	Slight.
154: Kekawaka-----	Slight-----	Slight	Moderate-----	Moderate-----	Slight-----	Slight.
Casabonne-----	Slight-----	Slight	Moderate-----	Moderate-----	Slight-----	Slight.
Wohly-----	Slight-----	Slight	Moderate-----	Moderate-----	Slight-----	Slight.
155: Kekawaka-----	Moderate-----	Slight	Moderate-----	Severe-----	Moderate	Slight.
Casabonne-----	Moderate-----	Slight	Moderate-----	Severe-----	Moderate	Slight.
Wohly-----	Moderate-----	Slight	Moderate-----	Severe-----	Moderate	Slight.
157: Mayacama-----	Severe-----	Moderate	Slight-----	Severe-----	Severe-----	Slight.
Hopland-----	Severe-----	Slight	Moderate-----	Severe-----	Severe-----	Moderate.
Etsel.						
158: Maymen.						
Etsel.						
Hopland-----	Slight-----	Slight	Moderate-----	Severe-----	Slight-----	Slight.
163: Nashmead-----	Moderate-----	Slight	Slight-----	Moderate-----	Slight-----	Slight.
Updegraff-----	Severe-----	Slight	Moderate-----	Severe-----	Moderate	Slight.
Woodin-----	Moderate-----	Moderate	Slight-----	Moderate-----	Moderate	Slight.
164: Nashmead-----	Severe-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
Updegraff-----	Severe-----	Slight	Moderate-----	Severe-----	Severe-----	Slight.
Woodin-----	Severe-----	Moderate	Slight-----	Severe-----	Severe-----	Slight.
165: Nashmead-----	Moderate-----	Slight	Slight-----	Moderate-----	Slight-----	Slight.
Woodin-----	Moderate-----	Moderate	Slight-----	Moderate-----	Moderate	Slight.
166: Nashmead-----	Severe-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
Woodin-----	Severe-----	Moderate	Slight-----	Severe-----	Severe-----	Slight.
167: Neuns-----	Moderate-----	Slight	Slight-----	Severe-----	Slight-----	Slight.

TABLE 8.--WOODLAND OPERABILITY--Continued

Soil name and map symbol	Equipment limitations	Hazard of soil damage from--		Hazard of sheet and rill erosion--		
		Fire	Compaction	On bare soil surface	When yarded by--	
					Tractor	Skyline systems
167:						
Bluenose-----	Moderate-----	Moderate	Slight-----	Severe-----	Slight----	Slight.
Tyson-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
168:						
Neuns-----	Severe-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Bluenose-----	Severe-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
Tyson-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe----	Slight.
169:						
Ornbaun-----	Slight-----	Slight----	Moderate-----	Moderate-----	Slight----	Slight.
Zeni-----	Slight-----	Slight----	Moderate-----	Moderate-----	Slight----	Slight.
170:						
Ornbaun-----	Moderate-----	Slight----	Moderate-----	Severe-----	Slight----	Slight.
Zeni-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
171:						
Ornbaun-----	Severe-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
Zeni-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe----	Moderate.
172:						
Pardaloe-----	Severe-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Kekawaka-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe----	Slight.
Casabonne-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe----	Slight.
173:						
Pardaloe-----	Moderate-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Woodin-----	Moderate-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
Casabonne-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
174:						
Pardaloe-----	Severe-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Woodin-----	Severe-----	Moderate	Slight-----	Severe-----	Severe----	Slight.
191:						
Sanhedrin-----	Moderate-----	Slight----	Slight-----	Moderate-----	Moderate	Slight.
Asabean-----	Moderate-----	Slight----	Slight-----	Moderate-----	Moderate	Slight.
Speaker-----	Moderate-----	Slight----	Moderate-----	Severe-----	Moderate	Slight.
192:						
Sanhedrin-----	Severe-----	Slight----	Slight-----	Severe-----	Moderate	Slight.
Asabean-----	Severe-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
Speaker-----	Severe-----	Slight----	Moderate-----	Severe-----	Severe----	Slight.

TABLE 8.--WOODLAND OPERABILITY--Continued

Soil name and map symbol	Equipment limitations	Hazard of soil damage from--		Hazard of sheet and rill erosion--		
		Fire	Compaction	On bare soil surface	When yarded by--	
					Tractor	Skyline systems
193:						
Sanhedrin-----	Slight-----	Slight-----	Slight-----	Moderate-----	Slight-----	Slight.
Kekawaka-----	Slight-----	Slight-----	Moderate-----	Moderate-----	Slight-----	Slight.
Speaker-----	Slight-----	Slight-----	Moderate-----	Moderate-----	Slight-----	Slight.
194:						
Sanhedrin-----	Moderate-----	Slight-----	Slight-----	Severe-----	Moderate	Slight.
Kekawaka-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Speaker-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
195:						
Sanhedrin-----	Severe-----	Slight-----	Slight-----	Severe-----	Moderate	Slight.
Kekawaka-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Slight.
Speaker-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Slight.
196:						
Shortyork.						
Tyson-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Witherell.						
205:						
Tyson-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Updegraff-----	Severe-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
206:						
Tyson-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Slight.
Updegraff-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Slight.
207:						
Updegraff-----	Severe-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Sanhedrin-----	Moderate-----	Slight-----	Slight-----	Severe-----	Moderate	Slight.
208:						
Updegraff-----	Severe-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Speaker-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Neuns-----	Moderate-----	Slight-----	Slight-----	Severe-----	Slight-----	Slight.
209:						
Updegraff-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Moderate
Speaker-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Slight.
Neuns-----	Severe-----	Slight-----	Slight-----	Severe-----	Moderate	Slight.

TABLE 8.--WOODLAND OPERABILITY--Continued

Soil name and map symbol	Equipment limitations	Hazard of soil damage from--		Hazard of sheet and rill erosion--		
		Fire	Compaction	On bare soil surface	When yarded by--	
					Tractor	Skyline systems
211: Witherell.						
Hopland-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Moderate.
Squawrock.						
212: Wohly-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Casabonne-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
213: Wohly-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Moderate.
Casabonne-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Slight.
Pardaloe-----	Severe-----	Slight-----	Slight-----	Severe-----	Moderate	Slight.
215: Xerochrepts----	Slight-Moderate	Moderate	Moderate-----	Moderate-Severe	Slight- Moderate.	Slight.
Haploxeralfs----	Slight-Moderate	Slight-----	Moderate-Severe	Moderate-----	Slight-----	Slight.
Argixerolls----	Slight-----	Slight-----	Moderate-Severe	Moderate-----	Slight-----	Slight.
216: Xerochrepts----	Moderate-----	Moderate	Moderate-----	Severe-----	Moderate	Slight.
Haploxeralfs----	Moderate-----	Slight- Moderate.	Moderate-Severe	Severe-----	Moderate	Slight.
Argixerolls----	Moderate-----	Moderate	Moderate-Severe	Severe-----	Moderate	Slight.
219: Yellowhound----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Kibesillah----	Moderate-----	Slight-----	Slight-----	Severe-----	Slight-----	Slight.
Ornbaun-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Slight-----	Slight.
220: Yellowhound----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Slight.
Kibesillah----	Severe-----	Slight-----	Slight-----	Severe-----	Moderate	Slight.
225: Yorktree-----	Severe-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Hopland-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
Woodin-----	Moderate-----	Moderate	Slight-----	Severe-----	Moderate	Slight.
226: Yorktree-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Moderate.
Hopland-----	Severe-----	Slight-----	Moderate-----	Severe-----	Severe-----	Moderate.

TABLE 8.--WOODLAND OPERABILITY--Continued

Soil name and map symbol	Equipment limitations	Hazard of soil damage from--		Hazard of sheet and rill erosion--		
		Fire	Compaction	On bare soil surface	When yarded by--	
					Tractor	Skyline systems
226: Woodin-----	Severe-----	Moderate	Slight-----	Severe-----	Severe-----	Slight.
227: Yorktree----- Yorkville.	Moderate-----	Slight-----	Moderate-----	Moderate-----	Slight-----	Slight.
228: Yorktree----- Yorkville.	Severe-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
231: Yorkville. Hopland-----	Moderate-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.
234: Yorkville. Yorktree----- Squawrock.	Moderate-----	Slight-----	Moderate-----	Moderate-----	Slight-----	Slight.
235: Yorkville. Yorktree----- Squawrock.	Severe-----	Slight-----	Moderate-----	Severe-----	Moderate	Slight.

TABLE 9.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
101: Asabeau-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, dusty.	Severe: slope.
102: Asabeau-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Speaker-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
103: Asabeau-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Speaker-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Neuns-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
104: Bearwallow-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Hellman-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
105: Bearwallow-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hellman-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
106: Bluenose-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Moderate: slope.	Severe: small stones, slope.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
106: Neuns-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Moderate: slope, dusty.	Severe: small stones, slope.
Gudgrey-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
107, 108: Bluenose-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
Neuns-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
Gudgrey-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
109: Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
110: Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
111: Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pardaloe-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
112----- Clear Lake	Moderate: wetness, too clayey.	Moderate: wetness, too clayey.	Moderate: too clayey, wetness.	Moderate: wetness, too clayey.	Severe: too clayey.
113----- Cole	Moderate: dusty.	Moderate: dusty.	Slight-----	Severe: erodes easily.	Slight.
114----- Cole	Moderate: dusty.	Moderate: dusty.	Moderate: slope.	Severe: erodes easily.	Slight.
115----- Cole	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
116----- Cummiskey	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
117: Dingman-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Beaughton-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: slope, depth to rock, too clayey.
118: Dunsmuir-----	Moderate: slope, dusty.	Moderate: slope, dusty.	Severe: slope.	Moderate: dusty.	Moderate: slope.
Maymen Variant-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight-----	Severe: depth to rock.
119, 120: Dunsmuir-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Maymen Variant-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
121: Etsel-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: droughty, slope.
Rock outcrop. Neuns-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
122: Etsel-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: droughty, slope.
Woodin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Rock outcrop. 123----- Feliz	Moderate: dusty.	Moderate: dusty.	Moderate: small stones, dusty.	Moderate: dusty.	Slight.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
124----- Feliz	Moderate: dusty.	Moderate: dusty.	Moderate: slope, small stones, dusty.	Moderate: dusty.	Slight.
125----- Feliz	Slight-----	Slight-----	Moderate: small stones.	Slight-----	Slight.
126----- Feliz	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
127. Fluvaquents					
128----- Gielow	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Moderate: wetness.	Moderate: wetness.
129: Gschwend-----	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
Frenchman-----	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight-----	Moderate: small stones.
130: Gudgrey-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Bluenose-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Moderate: slope.	Severe: small stones, slope.
Neuns-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Moderate: slope, dusty.	Severe: small stones, slope.
131, 132: Gudgrey-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Bluenose-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
Neuns-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
133. Haplaquepts					
134, 135: Haploxeralfs.					
Argixerolls.					

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
136, 137: Henneke-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Montara-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
138: Holohan-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones.	Severe: small stones, droughty, slope.
Hollowtree-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, dusty.	Severe: slope.
139: Holohan-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, droughty, slope.
Hollowtree-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
140: Holohan-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, droughty, slope.
Hollowtree-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
141, 142----- Hopland	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
143, 144: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Maymen-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
143, 144: Etsel-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: droughty, slope.
145: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, dusty.	Severe: slope.
Kekawaka-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
146, 147: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Kekawaka-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
148: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: slope, depth to rock.
Squawrock-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
149: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Squawrock-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
150, 151: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
152, 153: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Woodin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
154: Kekawaka-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
155: Kekawaka-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
156----- Maxwell	Moderate: percs slowly, too clayey.	Moderate: too clayey, percs slowly.	Moderate: slope, too clayey, percs slowly.	Moderate: too clayey.	Severe: too clayey.
157: Mayacama-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Etsel-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: droughty, slope.
158: Maymen-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Etsel-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: droughty, slope.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
159: Maymen-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Etsel-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: droughty, slope.
Mayacama-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
160: Maymen-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Etsel-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: droughty, slope.
Snook-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
161, 162: Maymen-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Woodin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Etsel-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: droughty, slope.
163, 164: Nashmead-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Updegraff-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Woodin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
165, 166: Nashmead-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
165, 166: Woodin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
167, 168: Neuns-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
Bluenose-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
Tyson-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
169: Ornbaun-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Zeni-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
170, 171: Ornbaun-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Zeni-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
172: Pardaloe-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Kekawaka-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
173: Pardaloe-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Woodin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
174: Pardaloe-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
174: Woodin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
175----- Pinnobie	Slight-----	Slight-----	Moderate: small stones.	Slight-----	Slight.
176----- Pinnobie	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
177, 178----- Pinole	Moderate: small stones, dusty.	Moderate: small stones, dusty.	Severe: small stones.	Moderate: dusty.	Moderate: small stones.
179----- Pinole	Moderate: slope, small stones, dusty.	Moderate: slope, small stones, dusty.	Severe: slope, small stones.	Moderate: dusty.	Moderate: small stones, slope.
180----- Pinole	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, dusty.	Severe: slope.
181----- Pinole	Severe: small stones.	Severe: small stones.	Severe: small stones.	Moderate: dusty.	Severe: small stones.
182----- Pinole	Severe: small stones.	Severe: small stones.	Severe: slope, small stones.	Moderate: dusty.	Severe: small stones.
183. Pits and Dumps					
184----- Redvine	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
185----- Redvine	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
186----- Redvine	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
187. Rock outcrop					
188----- Russian	Moderate: dusty.	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.	Slight.
189----- Russian	Severe: flooding.	Moderate: dusty.	Moderate: flooding, dusty.	Severe: erodes easily.	Moderate: flooding.
190----- Russian	Moderate: dusty.	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.	Slight.
191, 192: Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
191, 192: Asabeau-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Speaker-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
193: Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, dusty.	Severe: slope.
Kekawaka-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Speaker-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, dusty.	Severe: slope.
194, 195: Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Kekawaka-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Speaker-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
196: Shortyork-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Tyson-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
197: Shortyork-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Updegraff-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
198: Shortyork-----	Moderate: slope, small stones, dusty.	Moderate: slope, small stones, dusty.	Severe: slope, small stones.	Moderate: dusty.	Moderate: small stones, droughty, slope.
Yorkville-----	Moderate: slope, percs slowly, dusty.	Moderate: slope, percs slowly, dusty.	Severe: slope.	Moderate: dusty.	Moderate: slope.
Witherell-----	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight-----	Severe: depth to rock.
199: Shortyork-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope, dusty.	Severe: slope.
Yorkville-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: slope, depth to rock.
200: Shortyork-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Yorkville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
201, 202: Squawrock-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
203----- Talmage	Severe: flooding.	Moderate: small stones.	Severe: small stones.	Slight-----	Severe: droughty.
204----- Talmage	Severe: flooding, small stones.	Severe: small stones.	Severe: small stones.	Severe: small stones.	Severe: small stones, droughty.
205, 206: Tyson-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
Updegraff-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
207: Updegraff-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
208, 209: Updegraff-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Speaker-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Neuns-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
210. Urban land					
211: Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Squawrock-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
212: Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
213: Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Pardaloe-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
214. Xerochrepts					
215, 216: Xerochrepts. Haploxera1fs.					

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
215, 216: Argixerolls.					
217. Xerofluents					
218: Xerofluents. Riverwash.					
219: Yellowhound-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
Kibesillah-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Ornbaun-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
220: Yellowhound-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
Kibesillah-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
221----- Yokayo	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight-----	Moderate: large stones, droughty.
222----- Yokayo	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight-----	Moderate: large stones, droughty, slope.
223----- Yokayo	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
224: Yokayo-----	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight-----	Moderate: large stones, droughty.
Pinole-----	Moderate: small stones, dusty.	Moderate: small stones, dusty.	Severe: slope, small stones.	Moderate: dusty.	Moderate: small stones.
Pinnobie-----	Slight-----	Slight-----	Severe: slope.	Slight-----	Slight.
225, 226: Yorktree-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
225, 226: Woodin-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
227: Yorktree-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Yorkville-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
228: Yorktree-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Yorkville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
229----- Yorkville	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
230----- Yorkville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
231: Yorkville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
232: Yorkville-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Squawrock-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: slope, depth to rock.
233: Yorkville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Squawrock-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Witherell-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
234: Yorkville-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Yorktree-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, dusty.	Severe: slope.
Squawrock-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
235: Yorkville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Yorktree-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Squawrock-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.

TABLE 10.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
101: Asabeau-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
102: Asabeau-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Speaker-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
103: Asabeau-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Speaker-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Neuns-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
104: Bearwallow-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hellman-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
105: Bearwallow-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hellman-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
Witherell-----	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: slope, depth to rock.
106, 107, 108: Bluenose-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
106, 107, 108: Neuns-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Gudgrey-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
109, 110: Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
111: Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pardaloe-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
112----- Clear Lake	Severe: cutbanks cave, wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.
113, 114----- Cole	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
115----- Cole	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
116----- Cummiskey	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
117: Dingman-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
Beaughton-----	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: slope, depth to rock, too clayey.
118: Dunsmuir-----	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
Maymen Variant---	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, shrink-swell, slope.	Severe: depth to rock.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
130, 131, 132: Bluenose-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Neuns-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
133. Haplaquepts						
134, 135: Haploxeralfs. Argixerolls.						
136, 137: Henneke-----	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: slope, depth to rock.
Montara-----	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: slope, depth to rock.
138, 139: Holohan-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, droughty, slope.
Hollowtree-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
140: Holohan-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, droughty, slope.
Hollowtree-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
141, 142----- Hopland	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
143, 144: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Maymen-----	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: slope, depth to rock.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
143, 144: Etsel-----	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: droughty, slope.
145, 146, 147: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Sanhedrin-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Kekawaka-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
148, 149: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Witherell-----	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: slope, depth to rock.
Squawrock-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
150, 151: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
152, 153: Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Woodin-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
154, 155: Kekawaka-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
156----- Maxwell	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Severe: too clayey.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
157: Mayacama-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Etsel-----	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: droughty, slope.
158: Maymen-----	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: slope, depth to rock.
Etsel-----	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: droughty, slope.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
159: Maymen-----	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: slope, depth to rock.
Etsel-----	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: droughty, slope.
Mayacama-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
160: Maymen-----	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: slope, depth to rock.
Etsel-----	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: droughty, slope.
Snook-----	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: slope, depth to rock.
161, 162: Maymen-----	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: slope, depth to rock.
Woodin-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
173: Woodin-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
174: Pardaloe-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Woodin-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
175----- Pinnobie	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Slight.
176----- Pinnobie	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell.	Slight.
177----- Pinole	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: small stones.
178----- Pinole	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell.	Moderate: small stones.
179----- Pinole	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: slope, shrink-swell.	Moderate: small stones, slope.
180----- Pinole	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
181----- Pincle	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: small stones.
182----- Pinole	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: slope, shrink-swell.	Severe: small stones.
183. Pits and Dumps						
184----- Redvine	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
185----- Redvine	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Moderate: slope.
186----- Redvine	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
208, 209: Updegraff-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Speaker-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Neuns-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
210. Urban land						
211: Witherell-----	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: slope, depth to rock.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Squawrock-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
212: Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
213: Wohly-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pardaloe-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
214. Xerochrepts						
215, 216: Xerochrepts.						
Haploxerafs.						
Argixerolls.						
217. Xerofluents						
218: Xerofluents.						
Riverwash.						

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
219: Yellowhound-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Kibesillah-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Ornbaun-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
220: Yellowhound-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Kibesillah-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
221----- Yokayo	Moderate: too clayey.	Severe: shrink-swell.	Moderate: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: large stones, droughty.
222----- Yokayo	Moderate: too clayey, slope.	Severe: shrink-swell.	Moderate: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Moderate: large stones, droughty, slope.
223----- Yokayo	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
224: Yokayo-----	Moderate: too clayey.	Severe: shrink-swell.	Moderate: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: large stones, droughty.
Pinole-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell.	Moderate: small stones.
Pinnobie-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell.	Slight.
225, 226: Yorktree-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Woodin-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
227, 228: Yorktree-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
Yorkville-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
229, 230----- Yorkville	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
231: Yorkville-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
Hopland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
232, 233: Yorkville-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
Squawrock-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Witherell-----	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: slope, depth to rock.
234, 235: Yorkville-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
Yorktree-----	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
Squawrock-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.

TABLE 11.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
101: Asabeam-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
Sanhedrin-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
102: Asabeam-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
Sanhedrin-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Speaker-----	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, slope.
103: Asabeam-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
Speaker-----	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, slope.
Neuns-----	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.
104: Bearwallow-----	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, slope.
Hellman-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
105: Bearwallow-----	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, slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
105: Hellman-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Witherell-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
106, 107, 108: Bluenose-----	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: small stones, slope.
Neuns-----	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.
Gudgrey-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
109, 110: Casabonne-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Wohly-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
111: Casabonne-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Wohly-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Pardaloe-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
112----- Clear Lake	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
113----- Cole	Severe: percs slowly.	Slight-----	Severe: too clayey.	Slight-----	Poor: too clayey.
114----- Cole	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----	Poor: too clayey.
115----- Cole	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
116----- Cumiskey	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
117: Dingman-----	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
Beaughton-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, small stones.
118: Dunsmuir-----	Severe: percs slowly.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
Maymen Variant-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
119, 120: Dunsmuir-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Maymen Variant-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
121: Etsel-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Rock outcrop.					
Neuns-----	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.
122: Etsel-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Woodin-----	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.
Rock outcrop.					
123----- Feliz	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight-----	Fair: too clayey.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
124----- Feliz	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----	Fair: too clayey.
125----- Feliz	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight-----	Fair: too clayey.
126----- Feliz	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----	Fair: too clayey.
127. Fluvaquents					
128----- Gielow	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
129: Gschwend-----	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: small stones.
Frenchman-----	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy, small stones.
130, 131, 132: Gudgrey-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
Bluenose-----	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: small stones, slope.
Neuns-----	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.
133. Haplaquepts					
134, 135: Haploxeralfs. Argixerolls.					
136, 137: Henneke-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, small stones.
Montara-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
138, 139: Holohan-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
Hollowtree-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
140: Holohan-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
Hollowtree-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
141, 142----- Hopland	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, slope.
143, 144: Hopland-----	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, slope.
Maymen-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Etsel-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
145, 146, 147: Hopland-----	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, slope.
Sanhedrin-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Kekawaka-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
148, 149: Hopland-----	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, slope.
Witherell-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Squawrock-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, large stones, slope.
150, 151: Hopland-----	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, slope.
Wohly-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
152, 153: Hopland-----	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, slope.
Woodin-----	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.
154, 155: Kekawaka-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Wohly-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
156----- Maxwell	Severe: wetness, percs slowly.	Moderate: slope, wetness.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
157: Mayacama-----	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

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
157: Hopland-----	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, slope.
Etsel-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
158: Maymen-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Etsel-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Hopland-----	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, slope.
159: Maymen-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Etsel-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Mayacama-----	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.
160: Maymen-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Etsel-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Snook-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
161, 162: Maymen-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Woodin-----	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.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
161, 162: Etsel-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
163, 164: Nashmead-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
Updegraff-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
Woodin-----	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.
165, 166: Nashmead-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
Woodin-----	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.
167, 168: Neuns-----	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.
Bluenose-----	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage, slope.	Poor: small stones, slope.
Tyson-----	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.
169, 170, 171: Ornbaun-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Zeni-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
172: Pardaloe-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
172:: Kekawaka-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
173: Pardaloe-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
Woodin-----	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.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
174: Pardaloe-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
Woodin-----	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.
175----- Pinnobie	Moderate: percs slowly.	Moderate: seepage.	Slight-----	Slight-----	Good.
176----- Pinnobie	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
177----- Pinole	Severe: percs slowly.	Slight-----	Moderate: too clayey.	Slight-----	Fair: too clayey, small stones.
178----- Pinole	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, small stones.
179----- Pinole	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, small stones, slope.
180----- Pinole	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
181----- Pinole	Severe: percs slowly.	Slight-----	Moderate: too clayey.	Slight-----	Fair: too clayey, small stones.
182----- Pinole	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, small stones, slope.
183. Pits and Dumps					
184----- Redvine	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----	Poor: too clayey, hard to pack.
185----- Redvine	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
186----- Redvine	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
187. Rock outcrop					
188----- Russian	Moderate: percs slowly.	Moderate: seepage.	Slight-----	Slight-----	Good.
189----- Russian	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Good.
190----- Russian	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy.
191, 192: Sanhedrin-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Asabean-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
Speaker-----	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, slope.
193, 194, 195: Sanhedrin-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Kekawaka-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
193, 194, 195: Speaker-----	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, slope.
196: Shortyork-----	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.
Tyson-----	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.
Witherell-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
197: Shortyork-----	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.
Witherell-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Updegraff-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
198: Shortyork-----	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
Yorkville-----	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Witherell-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
199, 220: Shortyork-----	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.
Yorkville-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
199, 200: Witherell-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
201, 202: Squawrock-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, large stones, slope.
Witherell-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
203, 204----- Talmage	Severe: poor filter.	Severe: seepage, flooding.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy, small stones.
205, 206: Tyson-----	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.
Updegraff-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
207: Updegraff-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
Sanhedrin-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
208, 209: Updegraff-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
Speaker-----	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, slope.
Neuns-----	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.
210. Urban land					
211: Witherell-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
211: Hopland-----	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, slope.
Squawrock-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, large stones, slope.
212: Wohly-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
213: Wohly-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Casabonne-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Pardaloe-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
214. Xerochrepts					
215, 216: Xerochrepts.					
Haploxeralfs.					
Argixerolls.					
217. Xerofluvents					
218: Xerofluvents.					
Riverwash.					
219: Yellowhound-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
Kibesillah-----	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

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
219: Ornbaun-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
220: Yellowhound-----	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
Kibesillah-----	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.
221----- Yokayo	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight-----	Fair: too clayey.
222----- Yokayo	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
223----- Yokayo	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
224: Yokayo-----	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Slight-----	Fair: too clayey.
Pinole-----	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Slight-----	Fair: too clayey, small stones.
Pinnobie-----	Moderate: percs slowly.	Severe: slope.	Slight-----	Slight-----	Good.
225, 226: Yorktree-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Hopland-----	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, slope.
Woodin-----	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.
227, 228: Yorktree-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
227, 228: Yorkville-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
229, 230----- Yorkville	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
231: Yorkville-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Hopland-----	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, slope.
232, 233: Yorkville-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Squawrock-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, large stones, slope.
Witherell-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
234, 235: Yorkville-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Yorktree-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Squawrock-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, large stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
101: Asabeen-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Sanhedrin-----	Fair: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
102: Asabeen-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Sanhedrin-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Speaker-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
103: Asabeen-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Speaker-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Neuns-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
104: Bearwallow-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Hellman-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
105: Bearwallow-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Hellman-----	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
105: Witherell-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
106: Bluenose-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Neuns-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Gudgrey-----	Fair: slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
107, 108: Bluenose-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Neuns-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Gudgrey-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
109: Casabonne-----	Fair: depth to rock, shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Wohly-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
110: Casabonne-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Wohly-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
111: Casabonne-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
111: Wohly-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Pardaloe-----	Poor: slope.	Improbable: small stones.	Improbable: thin layer.	Poor: small stones, area reclaim, slope.
112----- Clear Lake	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
113, 114, 115----- Cole	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
116----- Cummiskey	Poor: slope.	Improbable: excess fines.	Probable-----	Poor: small stones, area reclaim, slope.
117: Dingman-----	Poor: depth to rock, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Beaughton-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too clayey, small stones.
118: Dunsmuir-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Maymen Variant-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
119, 120: Dunsmuir-----	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, slope.
Maymen Variant-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
121: Etsel-----	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

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
121: Neuns-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
122: Etsel-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Woodin----- Rock outcrop.	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
123, 124----- Feliz	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
125, 126----- Feliz	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
127. Fluvaquents				
128----- Gielow	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
129: Gschwend-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Frenchman-----	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
130: Gudgrey-----	Fair: slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Bluenose-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Neuns-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
131, 132: Gudgrey-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
131, 132: Bluenose-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Neuns-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
133. Haplaquepts				
134, 135: Haploxeralfs. Argixerolls.				
136, 137: Henneke-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too clayey, small stones.
Montara-----	Poor: depth to rock, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
138: Holohan-----	Fair: large stones, slope.	Probable-----	Probable-----	Poor: small stones, area reclaim, slope.
Hollowtree-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Casabonne-----	Fair: depth to rock, shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
139: Holohan-----	Poor: slope.	Probable-----	Probable-----	Poor: small stones, area reclaim, slope.
Hollowtree-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Casabonne-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
140: Holohan-----	Poor: slope.	Probable-----	Probable-----	Poor: small stones, area reclaim, slope.
Hollowtree-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
141, 142----- Hopland	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
143, 144: Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Maymen-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
Etsel-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
145: Hopland-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Sanhedrin-----	Fair: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Kekawaka-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
146, 147: Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Sanhedrin-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Kekawaka-----	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
148: Hopland-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Witherell-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
148: Squawrock-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
149: Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Witherell-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Squawrock-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
150, 151: Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Wohly-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
152, 153: Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Woodin-----	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
154: Kekawaka-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Casabonne-----	Fair: depth to rock, shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Wohly-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
155: Kekawaka-----	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Casabonne-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
155: Wohly-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
156----- Maxwell	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
157: Mayacama-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Etsel-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
158: Maymen-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
Etsel-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
159: Maymen-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
Etsel-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Mayacama-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
160: Maymen-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
Etsel-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
160: Snook-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
161, 162: Maymen-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
Woodin-----	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
Etsel-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
163, 164: Nashmead-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Updegraff-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Woodin-----	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
165, 166: Nashmead-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Woodin-----	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
167, 168: Neuns-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Bluenose-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Tyson-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
169: Ornbaun-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
169: Zeni-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
170, 171: Ornbaun-----	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Zeni-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
172: Pardaloe-----	Poor: slope.	Improbable: small stones.	Improbable: thin layer.	Poor: small stones, area reclaim, slope.
Kekawaka-----	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Casabonne-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
173: Pardaloe-----	Poor: slope.	Improbable: small stones.	Improbable: thin layer.	Poor: small stones, area reclaim, slope.
Woodin-----	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
Casabonne-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
174: Pardaloe-----	Poor: slope.	Improbable: small stones.	Improbable: thin layer.	Poor: small stones, area reclaim, slope.
Woodin-----	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
175, 176----- Pinnobie	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
177, 178, 179----- Pinole	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
180----- Pinole	Fair: slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
181, 182----- Pinole	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
183. Pits and Dumps				
184, 185----- Redvine	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
186----- Redvine	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
187. Rock outcrop				
188, 189----- Russian	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
190----- Russian	Good-----	Probable-----	Probable-----	Fair: small stones, area reclaim, thin layer.
191, 192: Sanhedrin-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Asabean-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Speaker-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
193: Sanhedrin-----	Fair: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Kekawaka-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Speaker-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
194, 195: Sanhedrin-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
194, 195: Kekawaka-----	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Speaker-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
196: Shortyork-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Tyson-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Witherell-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
197: Shortyork-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Witherell-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Updegraff-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
198: Shortyork-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Yorkville-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Witherell-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
199: Shortyork-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Yorkville-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
199: Witherell-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
200: Shortyork-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Yorkville-----	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Witherell-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
201, 202: Squawrock-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Witherell-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
203, 204 Talmage-----	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
205, 206: Tyson-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Updegraff-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
207: Updegraff-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Sanhedrin-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
208, 209: Updegraff-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Speaker-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
208, 209: Neuns-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
210. Urban land				
211: Witherell-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Squawrock-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
212: Wohly-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Casabonne-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
213: Wohly-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Casabonne-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Pardaloe-----	Poor: slope.	Improbable: small stones.	Improbable: thin layer.	Poor: small stones, area reclaim, slope.
214. Xerochrepts				
215, 216: Xerochrepts. Haploxeralfs. Argixerolls.				
217. Xerofluvents				
218: Xerofluvents.				

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
218: Riverwash.				
219: Yellowhound-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Kibesillah-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Ornbaun-----	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
220: Yellowhound-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Kibesillah-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
221, 222----- Yokayo	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
223----- Yokayo	Fair: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
224: Yokayo-----	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Pinole-----	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Pinnobie-----	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
225, 226: Yorktree-----	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
225, 226: Woodin-----	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
227: Yorktree-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Yorkville-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
228: Yorktree-----	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Yorkville-----	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
229----- Yorkville	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
230----- Yorkville	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
231: Yorkville-----	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Hopland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
232: Yorkville-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Squawrock-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Witherell-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
233: Yorkville-----	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Squawrock-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Witherell-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
234: Yorkville-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Yorktree-----	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Squawrock-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
235: Yorkville-----	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Yorktree-----	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Squawrock-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

TABLE 13.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
101: Asabean-----	Severe: slope.	Slight-----	Deep to water	Droughty, slope.	Slope, large stones.	Slope, droughty.
Sanhedrin-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
102: Asabean-----	Severe: slope.	Slight-----	Deep to water	Droughty, slope.	Slope, large stones.	Slope, droughty.
Sanhedrin-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Speaker-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
103: Asabean-----	Severe: slope.	Slight-----	Deep to water	Droughty, slope.	Slope, large stones.	Slope, droughty.
Speaker-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Neuns-----	Severe: slope.	Severe: seepage.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
104: Bearwallow-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Hellman-----	Severe: slope.	Moderate: thin layer.	Deep to water	Percs slowly, slope, too acid.	Slope, percs slowly.	Slope, percs slowly.
105: Bearwallow-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Hellman-----	Severe: slope.	Moderate: thin layer.	Deep to water	Percs slowly, slope, too acid.	Slope, percs slowly.	Slope, percs slowly.
Witherell-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
106, 107, 108: Bluenose-----	Severe: slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.	Large stones, slope, droughty.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
106, 107, 108: Neuns-----	Severe: slope.	Severe: seepage.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Gudgrey-----	Severe: slope.	Slight-----	Deep to water	Slope-----	Slope, large stones.	Slope.
109, 110: Casabonne-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Wohly-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
111: Casabonne-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Wohly-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Pardaloe-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.	Slope, droughty.
112----- Clear Lake	Slight-----	Moderate: hard to pack, wetness.	Percs slowly---	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Percs slowly.
113----- Cole	Slight-----	Slight-----	Deep to water	Percs slowly, erodes easily.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
114----- Cole	Moderate: slope.	Slight-----	Deep to water	Percs slowly, slope, erodes easily.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
115----- Cole	Slight-----	Severe: wetness.	Percs slowly---	Wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
116----- Cummiskey	Severe: slope.	Moderate: seepage, piping.	Deep to water	Droughty, percs slowly, slope.	Slope-----	Slope, droughty.
117: Dingman-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, percs slowly, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
Beaughton-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
118, 119, 120: Dunsmuir-----	Severe: slope.	Severe: hard to pack.	Deep to water	Slope-----	Slope-----	Slope.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
118, 119, 120: Maymen Variant---	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock, slope.	Slope, depth to rock, percs slowly.	Slope, depth to rock, percs slowly.
121: Etsel-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Rock outcrop.						
Neuns-----	Severe: slope.	Severe: seepage.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
122: Etsel-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Woodin-----	Severe: slope.	Severe: thin layer, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Rock outcrop.						
123----- Feliz	Moderate: seepage.	Moderate: piping.	Deep to water	Favorable-----	Favorable-----	Favorable.
124----- Feliz	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Slope-----	Favorable-----	Favorable.
125----- Feliz	Moderate: seepage.	Moderate: piping.	Deep to water	Favorable-----	Favorable-----	Favorable.
126----- Feliz	Moderate: seepage, slope.	Moderate: piping.	Deep to water	Slope-----	Favorable-----	Favorable.
127. Fluvaquents						
128----- Gielow	Moderate: seepage.	Severe: wetness.	Favorable-----	Wetness-----	Erodes easily, wetness.	Erodes easily.
129: Gschwend-----	Severe: seepage.	Severe: seepage.	Deep to water	Slope-----	Too sandy-----	Favorable.
Frenchman-----	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, slope.	Large stones, too sandy.	Large stones, droughty.
130, 131, 132: Gudgrey-----	Severe: slope.	Slight-----	Deep to water	Slope-----	Slope, large stones.	Slope.
Bluenose-----	Severe: slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.	Large stones, slope, droughty.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
130, 131, 132: Neuns-----	Severe: slope.	Severe: seepage.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
133. Haplaquepts						
134, 135: Haploxeralfs. Argixerolls.						
136, 137: Henneke-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Montara-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
138, 139: Holohan-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, droughty, slope.	Slope, large stones, too sandy.	Large stones, slope, droughty.
Hollowtree-----	Severe: seepage, slope.	Severe: thin layer, seepage.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Casabonne-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
140: Holohan-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Large stones, droughty, slope.	Slope, large stones, too sandy.	Large stones, slope, droughty.
Hollowtree-----	Severe: seepage, slope.	Severe: thin layer, seepage.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
141, 142----- Hopland	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
143, 144: Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Maymen-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Etsel-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
145, 146, 147: Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Sanhedrin-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Kekawaka-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
148, 149: Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Witherell-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Squawrock-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
150, 151: Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Wohly-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
152, 153: Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Woodin-----	Severe: slope.	Severe: thin layer, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
154, 155: Kekawaka-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Casabonne-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Wohly-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
156----- Maxwell	Moderate: slope.	Moderate: hard to pack, wetness.	Deep to water	Slow intake, percs slowly, slope.	Percs slowly---	Percs slowly.
157: Mayacama-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
157: Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Etsel-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
158: Maymen-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Etsel-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
159: Maymen-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Etsel-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Mayacama-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
160: Maymen-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Etsel-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Snook-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
161, 162: Maymen-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Woodin-----	Severe: slope.	Severe: thin layer, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Etsel-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
163, 164: Nashmead-----	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.	Large stones, slope, droughty.
Updegraff-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Woodin-----	Severe: slope.	Severe: thin layer, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
165, 166: Nashmead-----	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.	Large stones, slope, droughty.
Woodin-----	Severe: slope.	Severe: thin layer, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
167, 168: Neuns-----	Severe: slope.	Severe: seepage.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Bluenose-----	Severe: slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.	Large stones, slope, droughty.
Tyson-----	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
169, 170, 171: Ornbaun-----	Severe: slope.	Moderate: thin layer.	Deep to water	Slope-----	Slope-----	Slope.
Zeni-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
172: Pardaloe-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.	Slope, droughty.
Kekawaka-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Casabonne-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
173: Pardaloe-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.	Slope, droughty.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
173: Woodin-----	Severe: slope.	Severe: thin layer, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Casabonne-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
174: Pardaloe-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.	Slope, droughty.
Woodin-----	Severe: slope.	Severe: thin layer, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
175----- Pinnobie	Moderate: seepage.	Severe: piping.	Deep to water	Favorable-----	Favorable-----	Favorable.
176----- Pinnobie	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Favorable-----	Favorable.
177----- Pinole	Slight-----	Slight-----	Deep to water	Favorable-----	Favorable-----	Favorable.
178----- Pinole	Moderate: slope.	Slight-----	Deep to water	Slope-----	Favorable-----	Favorable.
179, 180----- Pinole	Severe: slope.	Slight-----	Deep to water	Slope-----	Slope-----	Slope.
181----- Pinole	Slight-----	Slight-----	Deep to water	Droughty-----	Favorable-----	Droughty.
182----- Pinole	Severe: slope.	Slight-----	Deep to water	Droughty, slope.	Slope-----	Slope, droughty.
183. Pits and Dumps						
184----- Redvine	Moderate: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly---	Percs slowly.
185, 186----- Redvine	Severe: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
187. Rock outcrop						
188----- Russian	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily	Erodes easily	Erodes easily.
189----- Russian	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily, flooding.	Erodes easily	Erodes easily.
190----- Russian	Severe: seepage.	Severe: seepage.	Deep to water	Erodes easily	Erodes easily, too sandy.	Erodes easily.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
191, 192: Sanhedrin-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Asabeen-----	Severe: slope.	Slight-----	Deep to water	Droughty, slope.	Slope, large stones.	Slope, droughty.
Speaker-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
193, 194, 195: Sanhedrin-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Kekawaka-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Speaker-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
196: Shortyork-----	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Tyson-----	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Witherell-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
197: Shortyork-----	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Witherell-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Updegraff-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
198, 199, 200: Shortyork-----	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Yorkville-----	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Witherell-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
201, 202: Squawrock-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Witherell-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
203, 204----- Talmage	Severe: seepage.	Severe: seepage.	Deep to water	Droughty-----	Too sandy-----	Droughty.
205, 206: Tyson-----	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Updegraff-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
207: Updegraff-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Sanhedrin-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
208, 209: Updegraff-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Speaker-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Neuns-----	Severe: slope.	Severe: seepage.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
210. Urban land						
211: Witherell-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Squawrock-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
212: Wohly-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
212: Casabonne-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
213: Wohly-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Casabonne-----	Severe: slope.	Moderate: thin layer, piping.	Deep to water	Slope-----	Slope-----	Slope.
Pardaloe-----	Severe: seepage, slope.	Severe: seepage.	Deep to water	Droughty, slope.	Slope, large stones.	Slope, droughty.
214. Xerochrepts						
215, 216: Xerochrepts.						
Haploxeralfs.						
Argixerolls.						
217. Xerofluvents						
218: Xerofluvents.						
Riverwash.						
219: Yellowhound-----	Severe: slope.	Moderate: thin layer.	Deep to water	Droughty, slope.	Slope-----	Slope, droughty.
Kibesillah-----	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
Ornbaun-----	Severe: slope.	Moderate: thin layer.	Deep to water	Slope-----	Slope-----	Slope.
220: Yellowhound-----	Severe: slope.	Moderate: thin layer.	Deep to water	Droughty, slope.	Slope-----	Slope, droughty.
Kibesillah-----	Severe: slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
221----- Yokayo	Moderate: slope.	Moderate: piping.	Deep to water	Droughty, percs slowly, slope.	Erodes easily	Erodes easily, droughty.
222, 223----- Yokayo	Severe: slope.	Moderate: piping.	Deep to water	Droughty, percs slowly, slope.	Slope, erodes easily.	Slope, erodes easily, droughty.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
224: Yokayo-----	Moderate: slope.	Moderate: piping.	Deep to water	Droughty, percs slowly, slope.	Erodes easily	Erodes easily, droughty.
Pinole-----	Moderate: slope.	Slight-----	Deep to water	Slope-----	Favorable-----	Favorable.
Pinnobie-----	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Favorable-----	Favorable.
225, 226: Yorktree-----	Severe: slope.	Moderate: thin layer, hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
Woodin-----	Severe: slope.	Severe: thin layer, large stones.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
227, 228: Yorktree-----	Severe: slope.	Moderate: thin layer, hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Yorkville-----	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
229, 230----- Yorkville	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
231: Yorkville-----	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Hopland-----	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
232, 233: Yorkville-----	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Squawrock-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Witherell-----	Severe: depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
234, 235: Yorkville-----	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Yorktree-----	Severe: slope.	Moderate: thin layer, hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
234, 235: Squawrock-----	Severe: slope.	Severe: thin layer.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.

TABLE 14.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
101: Asabean-----	0-9	Gravelly loam----	SM, SM-SC, GM, GM-GC	A-4	0-5	55-80	50-75	45-65	35-50	25-35	5-10
	9-37	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly loam.	GC	A-2	0-15	35-55	30-50	25-45	20-35	30-40	10-20
	37-64	Very gravelly sandy clay loam, very gravelly sandy loam.	GC, GM-GC	A-2	5-25	40-60	35-50	30-45	25-35	25-35	5-15
Sanhedrin-----	0-13	Gravelly loam----	GM-GC, GM, SM-SC, SM	A-4	0	55-80	50-75	45-65	35-50	25-35	5-10
	13-43	Gravelly loam, gravelly clay loam.	GC, CL	A-6	0-10	60-80	55-75	50-70	40-55	30-40	10-20
	43	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
102: Asabean-----	0-9	Gravelly loam----	SM, SM-SC, GM, GM-GC	A-4	0-5	55-80	50-75	45-65	35-50	25-35	5-10
	9-37	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly loam.	GC	A-2	0-15	35-55	30-50	25-45	20-35	30-40	10-20
	37-64	Very gravelly sandy clay loam, very gravelly sandy loam.	GC, GM-GC	A-2	5-25	40-60	35-50	30-45	25-35	25-35	5-15
Sanhedrin-----	0-13	Gravelly loam----	GM-GC, GM, SM-SC, SM	A-4	0	55-80	50-75	45-65	35-50	25-35	5-10
	13-43	Gravelly loam, gravelly clay loam.	GC, CL	A-6	0-10	60-80	55-75	50-70	40-55	30-40	10-20
	43	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Speaker-----	0-6	Gravelly loam----	SM, GM	A-4	0-5	60-90	55-75	45-70	35-50	25-30	NP-5
	6-24	Gravelly clay loam, clay loam.	CL, SC, GC	A-6	0-5	60-100	55-100	45-90	35-70	30-40	10-20
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
103: Asabean-----	0-9	Gravelly loam----	SM, SM-SC, GM, GM-GC	A-4	0-5	55-80	50-75	45-65	35-50	25-35	5-10
	9-37	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly loam.	GC	A-2	0-15	35-55	30-50	25-45	20-35	30-40	10-20
	37-64	Very gravelly sandy clay loam, very gravelly sandy loam.	GC, GM-GC	A-2	5-25	40-60	35-50	30-45	25-35	25-35	5-15

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
103: Speaker-----	0-6	Gravelly loam----	SM, GM	A-4	0-5	60-90	55-75	45-70	35-50	25-30	NP-5
	6-24	Gravelly clay loam, clay loam.	CL, SC, GC	A-6	0-5	60-100	55-100	45-90	35-70	30-40	10-20
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Neuns-----	0-5	Very gravelly loam.	GM	A-1, A-2	0-5	40-55	35-50	25-45	15-35	15-25	NP-5
	5-29	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-10	30-55	25-50	20-45	10-35	15-25	NP-5
	29	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
104: Bearwallow-----	0-8	Loam-----	CL-ML, ML	A-4	0	85-100	75-100	70-90	50-70	25-35	5-10
	8-35	Loam, clay loam	CL	A-6	0	85-100	75-100	70-95	55-75	30-40	10-15
	35	Weathered bedrock	---	---	---	---	---	---	---	---	---
Hellman-----	0-7	Loam-----	CL-ML, ML	A-4	0	80-100	75-100	60-85	50-75	25-35	5-10
	7-14	Loam-----	CL-ML, CL	A-4, A-6	0	80-100	75-100	60-95	50-75	25-40	5-15
	14-51	Gravelly clay loam, clay loam.	CL	A-7	0	75-100	70-100	65-90	55-85	40-50	15-25
	51-72	Clay, gravelly clay.	CL, CH	A-7	0	75-100	70-100	65-95	60-90	45-60	20-35
	72	Weathered bedrock	---	---	---	---	---	---	---	---	---
105: Bearwallow-----	0-8	Loam-----	CL-ML, ML	A-4	0	85-100	75-100	70-90	50-70	25-35	5-10
	8-35	Loam, clay loam	CL	A-6	0	85-100	75-100	70-95	55-75	30-40	10-15
	35	Weathered bedrock	---	---	---	---	---	---	---	---	---
Hellman-----	0-7	Loam-----	CL-ML, ML	A-4	0	80-100	75-100	60-85	50-75	25-35	5-10
	7-14	Loam-----	CL-ML, CL	A-4, A-6	0	80-100	75-100	60-95	50-75	25-40	5-15
	14-51	Gravelly clay loam, clay loam.	CL	A-7	0	75-100	70-100	65-90	55-85	40-50	15-25
	51-72	Clay, gravelly clay.	CL, CH	A-7	0	75-100	70-100	65-95	60-90	45-60	20-35
	72	Weathered bedrock	---	---	---	---	---	---	---	---	---
Witherell-----	0-7	Sandy loam-----	SM	A-4	0	80-100	75-95	50-65	35-50	20-30	NP-5
	7-12	Loam, gravelly loam, sandy loam.	CL-ML, ML, GM-GC, GM	A-4, A-2	0	65-100	60-95	50-85	30-70	25-35	5-10
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
106, 107, 108: Bluenose-----	0-15	Very gravelly sandy loam.	GM	A-1	5-10	30-55	25-50	20-40	10-25	20-30	NP-5
	15-36	Very gravelly loam, very gravelly sandy loam, very gravelly sandy clay loam.	GM, GM-GC	A-1, A-2	15-25	35-60	30-50	20-40	10-30	25-35	5-10
	36-62	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	15-25	35-60	30-50	20-40	10-30	20-30	NP-5

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
106, 107, 108: Neuns-----	0-5	Very gravelly loam.	GM	A-1, A-2	0-5	40-55	35-50	25-45	15-35	15-25	NP-5
	5-29	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-10	30-55	25-50	20-45	10-35	15-25	NP-5
	29	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gudgrey-----	0-28	Gravelly sandy clay loam.	GC, SC	A-6	0-5	55-80	50-75	45-65	35-50	25-35	10-20
	28-58	Gravelly clay loam, cobbly clay loam.	SC, GC	A-6	5-30	60-85	55-80	45-65	35-50	30-40	10-20
	58-70	Gravelly sandy clay loam.	GC, SC	A-6	0-5	60-80	50-75	45-65	35-50	30-40	10-15
109, 110: Casabonne-----	0-15	Loam-----	ML	A-4	0	80-100	75-95	65-85	50-65	25-35	NP-10
	15-43	Clay loam, sandy clay loam.	CL	A-6	0	80-100	75-95	70-90	50-75	30-40	10-20
	43-58	Gravelly clay loam, gravelly sandy clay loam.	CL, SC, GC	A-6, A-7	0	65-80	60-75	55-70	40-60	30-45	10-25
	58	Weathered bedrock	---	---	---	---	---	---	---	---	---
Wohly-----	0-11	Loam-----	CL-ML, ML	A-4	0	80-100	75-100	65-90	50-65	25-35	5-10
	11-24	Gravelly clay loam, clay loam.	GC, CL, SC	A-6	0-5	55-95	50-90	45-85	40-70	30-40	10-20
	24	Weathered bedrock	---	---	---	---	---	---	---	---	---
111: Casabonne-----	0-15	Gravelly loam----	GM, SM	A-4	0	65-80	60-75	50-65	40-50	25-35	NP-10
	15-43	Clay loam, sandy clay loam.	CL	A-6	0	80-100	75-95	70-90	50-75	30-40	10-20
	43-58	Gravelly clay loam, gravelly sandy clay loam.	CL, SC, GC	A-6, A-7	0	65-80	60-75	55-70	40-60	30-45	10-25
	58	Weathered bedrock	---	---	---	---	---	---	---	---	---
Wohly-----	0-11	Loam-----	CL-ML, ML	A-4	0	80-100	75-100	65-90	50-65	25-35	5-10
	11-24	Gravelly clay loam, clay loam.	GC, CL, SC	A-6	0-5	55-95	50-90	45-85	40-70	30-40	10-20
	24	Weathered bedrock	---	---	---	---	---	---	---	---	---
Pardaloe-----	0-10	Gravelly loam----	SM, SM-SC, GM, GM-GC	A-1, A-2	0-10	55-80	50-75	35-60	20-35	20-30	NP-10
	10-27	Very gravelly sandy loam.	GM	A-1	0-10	35-60	30-55	25-30	10-20	20-30	NP-5
	27-58	Very gravelly loam, very gravelly sandy clay loam.	GM, GM-GC	A-2	0-30	35-55	30-50	25-45	10-35	25-35	5-10
	58	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
112----- Clear Lake	0-25	Clay-----	CH, CL	A-7	0	100	100	95-100	85-95	40-70	20-40
	25-49	Clay, silty clay	CH, CL	A-7	0	100	100	95-100	85-95	40-70	20-40
	49-65	Clay loam-----	CL	A-7	0	100	100	95-100	75-90	40-50	15-25

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
121: Neuns-----	0-5	Very gravelly loam.	GM	A-1, A-2	0-5	40-55	35-50	25-45	15-35	15-25	NP-5
	5-29	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-10	30-55	25-50	20-45	10-35	15-25	NP-5
	29	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
122: Etsel-----	0-3	Gravelly loam----	SM-SC, GM-GC	A-2, A-4	0-5	55-80	50-75	40-70	25-50	20-30	5-10
	3-7	Very gravelly loam, very gravelly sandy loam.	GM-GC	A-1, A-2	0-5	35-55	30-50	20-45	15-35	20-30	5-10
	7	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Woodin-----	0-7	Gravelly sandy loam.	SM, SM-SC, GM, GM-GC	A-1, A-2	0-15	55-75	50-70	35-55	20-35	20-30	NP-10
	7-15	Very gravelly loam, very gravelly sandy clay loam.	GM, GM-GC	A-2	0-15	35-55	30-50	20-45	10-35	25-35	5-10
	15-23	Very cobbly loam, very cobbly sandy loam, very cobbly sandy clay loam.	SM, SM-SC	A-4	50-65	70-85	65-80	50-70	35-50	25-35	5-10
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
123, 124----- Feliz	0-7	Loam-----	CL-ML, ML	A-4	0	90-100	80-100	70-90	55-70	25-35	5-10
	7-26	Loam, clay loam	CL-ML, CL	A-4, A-6	0	90-100	80-100	75-95	60-75	25-40	5-20
	26-62	Loam, clay loam	CL	A-6	0	90-100	80-100	75-95	60-75	30-40	10-20
125, 126----- Feliz	0-46	Clay loam-----	CL	A-6	0	90-100	80-100	70-95	55-75	30-40	10-20
	46-63	Very gravelly loam, very gravelly clay loam, very gravelly sandy clay loam.	GC	A-2, A-6	0	40-55	35-50	30-50	25-40	30-40	10-20
127. Fluvaquents											
128----- Gielow	0-4	Sandy loam-----	SM, SM-SC	A-4	0	95-100	95-100	70-85	35-50	20-30	NP-10
	4-11	Loam-----	CL-ML, ML	A-4	0	90-100	80-100	70-90	50-70	25-35	5-10
	11-60	Stratified sandy loam to sandy clay loam.	SM-SC, SC	A-6, A-4	0	95-100	90-100	60-90	35-50	25-35	5-15

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
136, 137: Henneke-----	0-4	Gravelly loam----	GM-GC, SM-SC, GC, SC	A-4, A-6	0-5	55-75	50-70	45-65	35-50	20-40	5-20
	4-19	Very gravelly clay loam, very gravelly clay.	GC	A-2, A-7	5-30	50-60	30-50	25-50	20-40	40-60	15-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Montara-----	0-13	Loam, clay loam	CL	A-6, A-7	0-5	90-100	75-95	75-90	70-80	30-45	10-20
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
138, 139: Holohan-----	0-6	Very gravelly sandy loam.	GM	A-1	0-10	35-60	30-55	25-45	15-25	20-30	NP-5
	6-15	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	30-55	45-75	40-70	35-65	30-50	25-35	5-10
	15-61	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-30	15-55	10-50	10-40	5-25	20-30	NP-5
Hollowtree-----	0-4	Gravelly sandy loam.	GM, SM	A-2	0-5	55-80	50-75	40-65	25-35	20-30	NP-5
	4-9	Gravelly sandy loam, gravelly loam.	GM, SM	A-2, A-4	0-5	55-80	50-75	40-65	25-40	20-35	NP-10
	9-24	Very gravelly sandy loam, very gravelly loam, very gravelly sandy clay loam.	GC, GM-GC	A-2	0-10	35-55	30-50	20-35	10-25	25-35	5-15
	24-35	Extremely cobbly sandy loam, extremely gravelly sandy loam.	GP-GM	A-1, A-2	10-55	20-40	15-35	10-20	5-10	20-30	NP-10
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Casabonne-----	0-15	Gravelly loam----	GM, SM	A-4	0	65-80	60-75	50-65	40-50	25-35	NP-10
	15-43	Clay loam, sandy clay loam.	CL	A-6	0	80-100	75-95	70-90	50-75	30-40	10-20
	43-58	Gravelly clay loam, gravelly sandy clay loam.	CL, SC, GC	A-6, A-7	0	65-80	60-75	55-70	40-60	30-45	10-25
	58	Weathered bedrock	---	---	---	---	---	---	---	---	---
140: Holohan-----	0-6	Very gravelly sandy loam.	GM	A-1	0-10	35-60	30-55	25-45	15-25	20-30	NP-5
	6-15	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	30-55	45-75	40-70	35-65	30-50	25-35	5-10
	15-61	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-30	15-55	10-50	10-40	5-25	20-30	NP-5

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
196: Shortyork-----	0-7	Gravelly loam----	GM, GM-GC, SM, SM-SC	A-4	0-5	55-80	50-75	45-60	35-50	25-35	5-10
	7-28	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-10	35-55	30-50	25-45	20-40	30-45	10-20
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tyson-----	0-7	Very gravelly loam.	GM	A-1, A-2	0-5	35-55	30-50	25-40	20-30	25-35	NP-10
	7-24	Very gravelly loam, very gravelly clay loam.	GM-GC, GC	A-2	0-5	35-55	30-50	25-45	20-35	25-40	5-15
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Witherell-----	0-7	Sandy loam-----	SM	A-4	0	80-100	75-95	50-65	35-50	20-30	NP-5
	7-12	Loam, gravelly loam, sandy loam.	CL-ML, ML, GM-GC, GM	A-4, A-2	0	65-100	60-95	50-85	30-70	25-35	5-10
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
197: Shortyork-----	0-7	Gravelly loam----	GM, GM-GC, SM, SM-SC	A-4	0-5	55-80	50-75	45-60	35-50	25-35	5-10
	7-28	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-10	35-55	30-50	25-45	20-40	30-45	10-20
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Witherell-----	0-7	Sandy loam-----	SM	A-4	0	80-100	75-95	50-65	35-50	20-30	NP-5
	7-12	Loam, gravelly loam, sandy loam.	CL-ML, ML, GM-GC, GM	A-4, A-2	0	65-100	60-95	50-85	30-70	25-35	5-10
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Updegraff-----	0-12	Loam-----	CL-ML, ML	A-4	0-10	80-100	75-95	65-80	50-60	25-35	5-10
	12-22	Clay loam, sandy clay loam.	CL, SC	A-6	0-5	80-100	75-95	70-90	45-75	30-40	10-20
	22-36	Gravelly clay loam, clay loam.	CL, GC	A-6	0-5	55-90	50-85	45-70	40-60	30-40	10-20
	36-45	Clay loam-----	CL	A-6, A-7	0-5	80-100	75-95	70-90	55-75	30-45	10-20
	45	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
198, 199, 200: Shortyork-----	0-7	Gravelly loam----	GM, GM-GC, SM, SM-SC	A-4	0-5	55-80	50-75	45-60	35-50	25-35	5-10
	7-28	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-10	35-55	30-50	25-45	20-40	30-45	10-20
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Yorkville-----	0-15	Loam-----	ML	A-4	0	100	95-100	85-95	60-75	30-40	5-10
	15-41	Clay loam, clay	MH, CH	A-7	0	100	100	90-100	75-95	50-60	20-30
	41-60	Gravelly clay loam, gravelly clay, clay loam.	MH, CH	A-7	0	70-90	60-80	55-75	50-70	50-60	20-30

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
225, 226: Woodin-----	0-7	Gravelly sandy loam.	SM, SM-SC, GM, GM-GC	A-1, A-2	0-15	55-75	50-70	35-55	20-35	20-30	NP-10
	7-15	Very gravelly loam, very gravelly sandy loam, very gravelly sandy clay loam.	GM, GM-GC	A-2	0-15	35-55	30-50	20-45	10-35	25-35	5-10
	15-23	Very cobbly loam, very cobbly sandy loam, very cobbly sandy clay loam.	SM, SM-SC	A-4	50-65	70-85	65-80	50-70	35-50	25-35	5-10
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
227, 228: Yorktree-----	0-12	Loam-----	CL-ML, ML	A-4	0	90-100	85-95	70-90	50-65	25-35	5-10
	12-24	Gravelly loam, gravelly clay loam.	SC, GC	A-6	5-15	60-80	55-75	50-70	35-50	30-40	10-20
	24-42	Clay loam, clay	CL, CH	A-7	0	80-100	75-90	70-90	55-85	40-55	20-30
	42-51	Gravelly clay loam, gravelly clay.	GC, CL, CH	A-7	0	55-80	50-75	45-70	40-65	40-55	20-30
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Yorkville-----	0-15	Loam-----	ML	A-4	0	100	95-100	85-95	60-75	30-40	5-10
	15-41	Clay loam, clay	MH, CH	A-7	0	100	100	90-100	75-95	50-60	20-30
	41-60	Gravelly clay loam, gravelly clay, clay loam.	MH, CH	A-7	0	70-90	60-80	55-75	50-70	50-60	20-30
229, 230----- Yorkville	0-15	Loam-----	ML	A-4	0	100	95-100	85-95	60-75	30-40	5-10
	15-41	Clay loam, clay	MH, CH	A-7	0	100	100	90-100	75-95	50-60	20-30
	41-60	Gravelly clay loam, gravelly clay, clay loam.	MH, CH	A-7	0	70-90	60-80	55-75	50-70	50-60	20-30
231: Yorkville-----	0-15	Loam-----	ML	A-4	0	100	95-100	85-95	60-75	30-40	5-10
	15-41	Clay loam, clay	MH, CH	A-7	0	100	100	90-100	75-95	50-60	20-30
	41-60	Gravelly clay loam, gravelly clay, clay loam.	MH, CH	A-7	0	70-90	60-80	55-75	50-70	50-60	20-30
Hopland-----	0-12	Loam-----	CL-ML, ML	A-4	0	85-100	80-100	65-90	50-70	25-35	5-10
	12-31	Clay loam, loam	CL	A-6	0	80-95	75-90	65-85	50-65	30-40	10-20
	31	Weathered bedrock	---	---	---	---	---	---	---	---	---
232, 233: Yorkville-----	0-15	Loam-----	ML	A-4	0	100	95-100	85-95	60-75	30-40	5-10
	15-41	Clay loam, clay	MH, CH	A-7	0	100	100	90-100	75-95	50-60	20-30
	41-60	Gravelly clay loam, gravelly clay, clay loam.	MH, CH	A-7	0	70-90	60-80	55-75	50-70	50-60	20-30

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth <u>In</u>	Clay <u>Pct</u>	Permeability <u>In/hr</u>	Available water capacity <u>In/in</u>	Soil reaction <u>pH</u>	Shrink-swell potential	Erosion factors		Organic matter <u>Pct</u>
							K	T	
101: Asabeam-----	0-9 9-37 37-64	15-25 20-35 18-30	0.6-2.0 0.2-0.6 0.2-0.6	0.11-0.14 0.08-0.11 0.09-0.12	6.1-7.3 5.1-6.0 5.1-6.0	Low----- Low----- Low-----	0.20 0.10 0.10	5	1-3
Sanhedrin-----	0-13 13-43 43	18-25 25-35 ---	0.6-2.0 0.2-0.6 ---	0.11-0.14 0.10-0.13 ---	5.6-6.5 5.1-6.5 ---	Low----- Moderate----- ---	0.20 0.15 ---	3	1-2
102: Asabeam-----	0-9 9-37 37-64	15-25 20-35 18-30	0.6-2.0 0.2-0.6 0.2-0.6	0.11-0.14 0.08-0.11 0.09-0.12	6.1-7.3 5.1-6.0 5.1-6.0	Low----- Low----- Low-----	0.20 0.10 0.10	5	1-3
Sanhedrin-----	0-13 13-43 43	18-25 25-35 ---	0.6-2.0 0.2-0.6 ---	0.11-0.14 0.10-0.13 ---	5.6-6.5 5.1-6.5 ---	Low----- Moderate----- ---	0.20 0.15 ---	3	1-2
Speaker-----	0-6 6-24 24	18-25 27-35 ---	0.6-2.0 0.2-0.6 ---	0.11-0.16 0.12-0.20 ---	5.1-6.5 4.5-6.0 ---	Low----- Moderate----- ---	0.20 0.32 ---	2	2-5
103: Asabeam-----	0-9 9-37 37-64	15-25 20-35 18-30	0.6-2.0 0.2-0.6 0.2-0.6	0.11-0.14 0.08-0.11 0.09-0.12	6.1-7.3 5.1-6.0 5.1-6.0	Low----- Low----- Low-----	0.20 0.10 0.10	5	1-3
Speaker-----	0-6 6-24 24	18-25 27-35 ---	0.6-2.0 0.2-0.6 ---	0.11-0.16 0.12-0.20 ---	5.1-6.5 4.5-6.0 ---	Low----- Moderate----- ---	0.20 0.32 ---	2	2-5
Neuns-----	0-5 5-29 29	6-17 8-18 ---	0.6-2.0 0.6-2.0 ---	0.05-0.08 0.05-0.08 ---	5.1-6.5 5.1-6.5 ---	Low----- Low----- ---	0.10 0.10 ---	2	<1
104: Bearwallow-----	0-8 8-35 35	15-25 20-30 ---	0.6-2.0 0.2-0.6 ---	0.14-0.17 0.15-0.18 ---	5.6-7.3 5.6-6.5 ---	Low----- Moderate----- ---	0.32 0.28 ---	2	1-2
Hellman-----	0-7 7-14 14-51 51-72 72	20-25 20-25 35-40 40-55 ---	0.6-2.0 0.2-0.6 0.06-0.2 0.06-0.2 ---	0.13-0.16 0.13-0.16 0.15-0.18 0.12-0.15 ---	5.6-6.5 5.6-6.5 5.6-6.5 <5.1 ---	Low----- Moderate----- High----- High----- ---	0.32 0.32 0.28 0.24 ---	5	1-3
105: Bearwallow-----	0-8 8-35 35	15-25 20-30 ---	0.6-2.0 0.2-0.6 ---	0.14-0.17 0.15-0.18 ---	5.6-7.3 5.6-6.5 ---	Low----- Moderate----- ---	0.32 0.28 ---	2	1-2
Hellman-----	0-7 7-14 14-51 51-72 72	20-25 20-25 35-40 40-55 ---	0.6-2.0 0.2-0.6 0.06-0.2 0.06-0.2 ---	0.13-0.16 0.13-0.16 0.15-0.18 0.12-0.15 ---	5.6-6.5 5.6-6.5 5.6-6.5 <5.1 ---	Low----- Moderate----- High----- High----- ---	0.32 0.32 0.28 0.24 ---	5	1-3

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH			Pct	
105: Witherell-----	0-7	12-20	0.6-2.0	0.11-0.13	6.1-7.3	Low-----	0.32	1	<2
	7-12	12-27	0.6-2.0	0.10-0.16	5.1-6.5	Low-----	0.24		
	12	---	---	---	---	---	---		
106, 107, 108: Bluenose-----	0-15	10-20	2.0-6.0	0.05-0.09	6.1-7.3	Low-----	0.05	5	1-3
	15-36	15-27	0.6-2.0	0.06-0.11	5.1-6.5	Low-----	0.10		
	36-62	10-20	0.6-2.0	0.07-0.10	5.1-6.5	Low-----	0.10		
Neuns-----	0-5	6-17	0.6-2.0	0.05-0.08	5.1-6.5	Low-----	0.10	2	<1
	5-29	8-18	0.6-2.0	0.05-0.08	5.1-6.5	Low-----	0.10		
	29	---	---	---	---	---	---		
Gudgrey-----	0-28	20-30	0.6-2.0	0.11-0.15	5.1-6.0	Low-----	0.15	5	1-5
	28-58	25-35	0.6-2.0	0.11-0.15	5.6-6.5	Moderate-----	0.17		
	58-70	20-30	0.6-2.0	0.11-0.15	5.6-6.5	Moderate-----	0.15		
109, 110: Casabonne-----	0-15	15-27	0.6-2.0	0.13-0.16	5.6-6.5	Low-----	0.32	3	2-6
	15-43	27-35	0.6-2.0	0.15-0.18	5.1-6.5	Moderate-----	0.32		
	43-58	27-40	0.6-2.0	0.12-0.15	5.1-6.5	Moderate-----	0.32		
	58	---	---	---	---	---	---		
Wohly-----	0-11	15-25	0.6-2.0	0.14-0.17	5.6-7.3	Low-----	0.32	2	1-2
	11-24	25-35	0.6-2.0	0.12-0.19	5.6-7.3	Moderate-----	0.17		
	24	---	---	---	---	---	---		
111: Casabonne-----	0-15	15-27	0.6-2.0	0.11-0.14	5.6-6.5	Low-----	0.20	3	2-6
	15-43	27-35	0.6-2.0	0.15-0.18	5.1-6.5	Moderate-----	0.32		
	43-58	27-40	0.6-2.0	0.12-0.15	5.1-6.5	Moderate-----	0.32		
	58	---	---	---	---	---	---		
Wohly-----	0-11	15-25	0.6-2.0	0.14-0.17	5.6-7.3	Low-----	0.32	2	1-2
	11-24	25-35	0.6-2.0	0.12-0.19	5.6-7.3	Moderate-----	0.17		
	24	---	---	---	---	---	---		
Pardaloe-----	0-10	15-25	2.0-6.0	0.09-0.12	5.6-6.5	Low-----	0.20	3	<2
	10-27	15-20	2.0-6.0	0.05-0.08	5.6-6.5	Low-----	0.05		
	27-58	15-27	0.6-2.0	0.06-0.08	5.6-6.5	Low-----	0.05		
	58	---	---	---	---	---	---		
112-----	0-25	40-60	0.06-0.2	0.14-0.16	6.6-7.8	High-----	0.24	5	1-4
Clear Lake	25-49	40-60	0.06-0.2	0.14-0.16	7.4-8.4	High-----	0.24		
	49-65	35-40	0.2-0.6	0.16-0.18	7.4-8.4	High-----	0.28		
113, 114-----	0-15	18-27	0.6-2.0	0.15-0.18	6.1-7.3	Low-----	0.37	5	1-4
Cole	15-60	35-45	0.06-0.2	0.12-0.17	6.6-8.4	High-----	0.32		
115-----	0-8	27-35	0.2-0.6	0.15-0.18	6.1-7.3	Moderate-----	0.32	5	1-4
Cole	8-41	35-45	0.06-0.2	0.12-0.17	6.6-8.4	High-----	0.32		
	41-60	27-45	0.06-0.2	0.12-0.17	7.4-8.4	High-----	0.32		
116-----	0-19	18-27	0.6-2.0	0.09-0.15	5.6-7.3	Low-----	0.20	3	1-2
Cumiskey	19-48	27-35	0.2-0.6	0.09-0.16	5.6-6.5	Moderate-----	0.10		
	48-64	40-45	0.06-0.2	0.07-0.12	5.6-6.5	High-----	0.10		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
117: Dingman-----	0-5 5-26 26	27-35 35-50 ---	0.2-0.6 0.06-0.2 ---	0.14-0.16 0.10-0.14 ---	6.6-7.8 6.6-7.8 ---	Moderate----- High----- -----	0.15 0.15 ---	2 2 ---	2-3 2-3 ---
Beaughton-----	0-4 4-16 16	20-27 35-50 ---	0.2-2.0 0.2-0.6 ---	0.10-0.15 0.08-0.11 ---	6.6-7.8 7.4-8.4 ---	Low----- Moderate----- -----	0.20 0.10 ---	1 1 ---	1-3 1-3 ---
118, 119, 120: Dunsmuir-----	0-5 5-11 11-21 21-45 45	20-27 30-35 30-40 30-45 ---	0.6-2.0 0.2-0.6 0.2-0.6 0.2-0.6 ---	0.13-0.16 0.14-0.18 0.12-0.15 0.12-0.15 ---	6.1-7.3 6.1-7.3 6.1-7.3 6.1-7.3 ---	Low----- Moderate----- Moderate----- Moderate----- -----	0.32 0.28 0.17 0.17 ---	3 3 3 3 ---	1-2 1-2 1-2 1-2 ---
Maymen Variant--	0-2 2-6 6-13 13	27-35 35-60 35-40 ---	0.2-0.6 0.06-0.2 0.06-0.2 ---	0.13-0.17 0.12-0.15 0.13-0.16 ---	5.1-6.5 4.5-5.5 4.5-5.5 ---	Moderate----- High----- Moderate----- -----	0.28 0.24 0.24 ---	1 1 1 ---	1-2 1-2 1-2 ---
121: Etsel-----	0-3 3-7 7	12-18 12-18 ---	0.6-2.0 0.6-2.0 ---	0.06-0.13 0.04-0.10 ---	5.6-6.5 5.6-6.5 ---	Low----- Low----- -----	0.20 0.10 ---	1 1 ---	1-2 1-2 ---
Rock outcrop.									
Neuns-----	0-5 5-29 29	6-17 8-18 ---	0.6-2.0 0.6-2.0 ---	0.05-0.08 0.05-0.08 ---	5.1-6.5 5.1-6.5 ---	Low----- Low----- -----	0.10 0.10 ---	2 2 ---	<1 <1 ---
122: Etsel-----	0-3 3-7 7	12-18 12-18 ---	0.6-2.0 0.6-2.0 ---	0.06-0.13 0.04-0.10 ---	5.6-6.5 5.6-6.5 ---	Low----- Low----- -----	0.20 0.10 ---	1 1 ---	1-2 1-2 ---
Woodin-----	0-7 7-15 15-23 23	15-25 15-25 15-25 ---	2.0-6.0 0.6-2.0 0.6-2.0 ---	0.08-0.11 0.05-0.08 0.04-0.07 ---	5.1-7.3 5.1-7.3 5.1-6.5 ---	Low----- Low----- Low----- -----	0.20 0.10 0.10 ---	2 2 2 ---	2-4 2-4 2-4 ---
Rock outcrop.									
123, 124----- Feliz	0-7 7-26 26-62	18-27 20-30 20-30	0.6-2.0 0.6-2.0 0.6-2.0	0.15-0.18 0.16-0.19 0.16-0.19	6.1-7.8 6.6-7.8 6.6-7.8	Low----- Moderate----- Moderate-----	0.32 0.32 0.32	5 5 5	1-6 1-6 1-6
125, 126----- Feliz	0-46 46-63	27-30 25-30	0.6-2.0 0.6-2.0	0.17-0.19 0.09-0.11	6.1-7.3 6.6-7.8	Moderate----- Low-----	0.32 0.10	5 5	1-3 1-3
127. Fluvaquents									
128----- Gielow	0-4 4-11 11-60	17-20 18-27 15-27	2.0-6.0 0.6-2.0 0.6-2.0	0.11-0.13 0.15-0.18 0.12-0.17	5.6-6.5 5.6-7.3 5.6-7.3	Low----- Low----- Low-----	0.28 0.32 0.37	5 5 5	1-2 1-2 1-2

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Fct
129: Gschwend-----	0-7	10-20	0.6-2.0	0.14-0.17	5.6-7.3	Low-----	0.24	5	1-4
	7-39	10-27	0.6-2.0	0.14-0.17	5.1-7.3	Low-----	0.32		
	39-61	5-27	2.0-6.0	0.04-0.09	4.5-7.3	Low-----	0.05		
Frenchman-----	0-10	10-20	0.6-2.0	0.10-0.13	5.6-7.3	Low-----	0.20	5	1-3
	10-30	10-25	0.6-2.0	0.05-0.10	5.6-7.3	Low-----	0.10		
	30-64	5-15	6.0-20	0.02-0.05	5.1-7.3	Low-----	0.05		
130, 131, 132: Gudgrey-----	0-28	20-30	0.6-2.0	0.11-0.15	5.1-6.0	Low-----	0.15	5	1-5
	28-58	25-35	0.6-2.0	0.11-0.15	5.6-6.5	Moderate-----	0.17		
	58-70	20-30	0.6-2.0	0.11-0.15	5.6-6.5	Moderate-----	0.15		
Bluenose-----	0-15	10-20	2.0-6.0	0.05-0.09	6.1-7.3	Low-----	0.05	5	1-3
	15-36	15-27	0.6-2.0	0.06-0.11	5.1-6.5	Low-----	0.10		
	36-62	10-20	0.6-2.0	0.07-0.10	5.1-6.5	Low-----	0.10		
Neuns-----	0-5	6-17	0.6-2.0	0.05-0.08	5.1-6.5	Low-----	0.10	2	<1
	5-29	8-18	0.6-2.0	0.05-0.08	5.1-6.5	Low-----	0.10		
	29	---	---	---	---	---	---		
133. Haplaquepts									
134, 135: Haploxeralfs. Argixerolls.									
136, 137: Henneke-----	0-4	20-27	0.6-2.0	0.08-0.12	6.6-7.8	Moderate-----	0.20	1	2-7
	4-19	35-55	0.2-0.6	0.06-0.09	6.6-8.4	Moderate-----	0.15		
	19	---	---	---	---	---	---		
Montara-----	0-13	20-30	0.2-0.6	0.14-0.19	6.6-8.4	Moderate-----	0.32	1	1-3
	13	---	---	---	---	---	---		
138, 139: Holohan-----	0-6	10-20	2.0-6.0	0.05-0.08	5.6-6.5	Low-----	0.20	5	1-2
	6-15	18-27	0.6-2.0	0.05-0.10	4.5-6.0	Low-----	0.10		
	15-61	5-15	6.0-20	0.02-0.06	4.5-6.0	Low-----	0.05		
Hollowtree-----	0-4	10-20	2.0-6.0	0.09-0.12	5.6-6.5	Low-----	0.10	2	1-2
	4-9	10-20	0.6-2.0	0.09-0.15	5.1-6.5	Low-----	0.15		
	9-24	15-27	0.6-2.0	0.07-0.10	5.1-6.0	Low-----	0.10		
	24-35	5-20	2.0-6.0	0.04-0.06	5.1-6.0	Low-----	0.05		
	35	---	---	---	---	---	---		
Casabonne-----	0-15	15-27	0.6-2.0	0.11-0.14	5.6-6.5	Low-----	0.20	3	2-6
	15-43	27-35	0.6-2.0	0.15-0.18	5.1-6.5	Moderate-----	0.32		
	43-58	27-40	0.6-2.0	0.12-0.15	5.1-6.5	Moderate-----	0.32		
	58	---	---	---	---	---	---		
140: Holohan-----	0-6	10-20	2.0-6.0	0.05-0.08	5.6-6.5	Low-----	0.20	5	1-2
	6-15	18-30	0.6-2.0	0.05-0.10	4.5-6.0	Low-----	0.10		
	15-61	5-15	6.0-20	0.02-0.06	4.5-6.0	Low-----	0.05		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
140: Hollowtree-----	0-4 4-9 9-24 24-35 35	10-20 10-20 15-27 5-20 ---	2.0-6.0 0.6-2.0 0.6-2.0 2.0-6.0 ---	0.09-0.12 0.09-0.15 0.07-0.10 0.04-0.06 ---	5.6-6.5 5.1-6.5 5.1-6.0 5.1-6.0 ---	Low----- Low----- Low----- Low----- -----	0.10 0.15 0.10 0.05 -----	2 ----- ----- ----- -----	1-2 ----- ----- ----- -----
141, 142----- Hopland	0-12 12-31 31	15-25 20-35 ---	0.6-2.0 0.2-0.6 ---	0.14-0.16 0.15-0.18 ---	5.6-7.3 5.6-6.5 ---	Low----- Moderate----- -----	0.32 0.28 -----	2 ----- -----	1-5 ----- -----
143, 144: Hopland-----	0-12 12-31 31	15-25 20-35 ---	0.6-2.0 0.2-0.6 ---	0.14-0.16 0.15-0.18 ---	5.6-7.3 5.6-6.5 ---	Low----- Moderate----- -----	0.32 0.28 -----	2 ----- -----	1-5 ----- -----
Maymen----- 11	0-11 11	10-25 ---	0.6-2.0 ---	0.10-0.15 ---	5.6-6.5 ---	Low----- -----	0.32 -----	1 -----	<1 -----
Etsel----- 7	0-3 3-7 7	12-18 12-18 ---	0.6-2.0 0.6-2.0 ---	0.06-0.13 0.04-0.10 ---	5.6-6.5 5.6-6.5 ---	Low----- Low----- -----	0.20 0.10 -----	1 ----- -----	1-2 ----- -----
145, 146, 147: Hopland-----	0-12 12-31 31	15-25 20-35 ---	0.6-2.0 0.2-0.6 ---	0.14-0.16 0.15-0.18 ---	5.6-7.3 5.6-6.5 ---	Low----- Moderate----- -----	0.32 0.28 -----	2 ----- -----	1-5 ----- -----
Sanhedrin----- 43	0-13 13-43 43	18-25 25-35 ---	0.6-2.0 0.2-0.6 ---	0.11-0.14 0.10-0.13 ---	5.6-6.5 5.1-6.5 ---	Low----- Moderate----- -----	0.20 0.15 -----	3 ----- -----	1-2 ----- -----
Kekawaka----- 35-61	0-4 4-35 35-61	20-27 35-40 40-55	0.6-2.0 0.2-0.6 0.2-0.6	0.14-0.17 0.15-0.19 0.14-0.16	5.6-6.5 5.1-6.5 5.1-6.5	Low----- Moderate----- Moderate-----	0.32 0.28 0.24	5 ----- -----	1-2 ----- -----
148, 149: Hopland-----	0-12 12-31 31	15-25 20-35 ---	0.6-2.0 0.2-0.6 ---	0.14-0.16 0.15-0.18 ---	5.6-7.3 5.6-6.5 ---	Low----- Moderate----- -----	0.32 0.28 -----	2 ----- -----	1-5 ----- -----
Witherell----- 12	0-7 7-12 12	12-20 12-27 ---	0.6-2.0 0.6-2.0 ---	0.11-0.13 0.10-0.16 ---	6.1-7.3 5.1-6.5 ---	Low----- Low----- -----	0.32 0.24 -----	1 ----- -----	<2 ----- -----
Squawrock----- 21	0-7 7-16 16-21 21	12-25 20-35 20-35 ---	0.6-2.0 0.6-2.0 0.6-2.0 ---	0.07-0.11 0.07-0.11 0.07-0.11 ---	5.6-7.3 5.6-6.5 5.6-6.5 ---	Low----- Moderate----- Moderate----- -----	0.20 0.10 0.10 -----	2 ----- ----- -----	1-2 ----- ----- -----
150, 151: Hopland-----	0-12 12-31 31	15-25 20-35 ---	0.6-2.0 0.2-0.6 ---	0.14-0.16 0.15-0.18 ---	5.6-7.3 5.6-6.5 ---	Low----- Moderate----- -----	0.32 0.28 -----	2 ----- -----	1-5 ----- -----
Wohly----- 24	0-11 11-24 24	15-25 25-35 ---	0.6-2.0 0.6-2.0 ---	0.14-0.17 0.12-0.19 ---	5.6-7.3 5.6-7.3 ---	Low----- Moderate----- -----	0.32 0.17 -----	2 ----- -----	1-2 ----- -----

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH			Pct	
152, 153: Hopland-----	0-12	15-25	0.6-2.0	0.14-0.16	5.6-7.3	Low-----	0.32	2	1-5
	12-31	20-35	0.2-0.6	0.15-0.18	5.6-6.5	Moderate-----	0.28		
	31	---	---	---	---	-----	-----		
Woodin-----	0-7	15-25	2.0-6.0	0.08-0.11	5.1-7.3	Low-----	0.20	2	2-4
	7-15	15-25	0.6-2.0	0.05-0.08	5.1-7.3	Low-----	0.10		
	15-23	15-25	0.6-2.0	0.04-0.07	5.1-6.5	Low-----	0.10		
	23	---	---	---	---	-----	-----		
154: Kekawaka-----	0-4	20-27	0.6-2.0	0.14-0.17	5.6-6.5	Low-----	0.32	5	1-2
	4-35	35-40	0.2-0.6	0.15-0.19	5.1-6.5	Moderate-----	0.28		
	35-61	40-55	0.2-0.6	0.14-0.16	5.1-6.5	Moderate-----	0.24		
Casabonne-----	0-15	15-27	0.6-2.0	0.13-0.16	5.6-6.5	Low-----	0.32	3	2-6
	15-43	27-35	0.6-2.0	0.15-0.18	5.1-6.5	Moderate-----	0.32		
	43-58	27-40	0.6-2.0	0.12-0.15	5.1-6.5	Moderate-----	0.32		
	58	---	---	---	---	-----	-----		
Wohly-----	0-11	15-25	0.6-2.0	0.14-0.17	5.6-7.3	Low-----	0.32	2	1-2
	11-24	25-35	0.6-2.0	0.12-0.19	5.6-7.3	Moderate-----	0.17		
	24	---	---	---	---	-----	-----		
155: Kekawaka-----	0-4	20-27	0.6-2.0	0.14-0.17	5.6-6.5	Low-----	0.32	5	1-2
	4-35	35-40	0.2-0.6	0.15-0.19	5.1-6.5	Moderate-----	0.28		
	35-61	40-55	0.2-0.6	0.14-0.16	5.1-6.5	Moderate-----	0.24		
Casabonne-----	0-15	15-27	0.6-2.0	0.11-0.14	5.6-6.5	Low-----	0.20	3	2-6
	15-43	27-35	0.6-2.0	0.15-0.18	5.1-6.5	Moderate-----	0.32		
	43-58	27-40	0.6-2.0	0.12-0.15	5.1-6.5	Moderate-----	0.32		
	58	---	---	---	---	-----	-----		
Wohly-----	0-11	15-25	0.6-2.0	0.14-0.17	5.6-7.3	Low-----	0.32	2	1-2
	11-24	25-35	0.6-2.0	0.12-0.19	5.6-7.3	Moderate-----	0.17		
	24	---	---	---	---	-----	-----		
156-----	0-17	40-55	<0.06	0.14-0.16	6.6-8.4	High-----	0.28	5	1-3
Maxwell	17-37	35-55	<0.06	0.12-0.17	6.6-8.4	High-----	0.28		
	37-62	40-55	<0.06	0.12-0.16	7.9-8.4	High-----	0.28		
157: Mayacama-----	0-4	10-20	2.0-6.0	0.09-0.12	5.6-6.5	Low-----	0.20	2	1-2
	4-24	15-25	0.6-2.0	0.05-0.08	5.6-6.5	Moderate-----	0.15		
	24	---	---	---	---	-----	-----		
Hopland-----	0-12	15-25	0.6-2.0	0.14-0.16	5.6-7.3	Low-----	0.32	2	1-5
	12-31	20-35	0.2-0.6	0.15-0.18	5.6-6.5	Moderate-----	0.28		
	31	---	---	---	---	-----	-----		
Etsel-----	0-3	12-18	0.6-2.0	0.06-0.13	5.6-6.5	Low-----	0.20	1	1-2
	3-7	12-18	0.6-2.0	0.04-0.10	5.6-6.5	Low-----	0.10		
	7	---	---	---	---	-----	-----		
158: Maymen-----	0-11	10-25	0.6-2.0	0.10-0.15	5.6-6.5	Low-----	0.32	1	<1
	11	---	---	---	---	-----	-----		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
158: Etsel-----	0-3 3-7 7	12-18 12-18 ---	0.6-2.0 0.6-2.0 ---	0.06-0.13 0.04-0.10 ---	5.6-6.5 5.6-6.5 ---	Low----- Low----- -----	0.20 0.10 -----	1	1-2
Hopland-----	0-12 12-31 31	15-25 20-35 ---	0.6-2.0 0.2-0.6 ---	0.14-0.16 0.15-0.18 ---	5.6-7.3 5.6-6.5 ---	Low----- Moderate----- -----	0.32 0.28 -----	2	1-5
159: Maymen-----	0-11 11	10-25 ---	0.6-2.0 ---	0.10-0.15 ---	5.6-6.5 ---	Low----- -----	0.32 -----	1	<1
Etsel-----	0-3 3-7 7	12-18 12-18 ---	0.6-2.0 0.6-2.0 ---	0.06-0.13 0.04-0.10 ---	5.6-6.5 5.6-6.5 ---	Low----- Low----- -----	0.20 0.10 -----	1	1-2
Mayacama-----	0-4 4-24 24	10-20 15-25 ---	2.0-6.0 0.6-2.0 ---	0.09-0.12 0.05-0.08 ---	5.6-6.5 5.6-6.5 ---	Low----- Moderate----- -----	0.20 0.15 -----	2	1-2
160: Maymen-----	0-11 11	10-25 ---	0.6-2.0 ---	0.10-0.15 ---	5.6-6.5 ---	Low----- -----	0.32 -----	1	<1
Etsel-----	0-3 3-7 7	12-18 12-18 ---	0.6-2.0 0.6-2.0 ---	0.06-0.13 0.04-0.10 ---	5.6-6.5 5.6-6.5 ---	Low----- Low----- -----	0.20 0.10 -----	1	1-2
Snook-----	0-5 5	10-25 ---	0.6-2.0 ---	0.12-0.14 ---	5.6-6.5 ---	Low----- -----	0.20 -----	1	<2
161, 162: Maymen-----	0-11 11	10-25 ---	0.6-2.0 ---	0.10-0.15 ---	5.6-6.5 ---	Low----- -----	0.32 -----	1	<1
Woodin-----	0-7 7-15 15-23 23	15-25 15-25 15-25 ---	2.0-6.0 0.6-2.0 0.6-2.0 ---	0.08-0.11 0.05-0.08 0.04-0.07 ---	5.1-7.3 5.1-7.3 5.1-6.5 ---	Low----- Low----- Low----- -----	0.20 0.10 0.10 -----	2	2-4
Etsel-----	0-3 3-7 7	12-18 12-18 ---	0.6-2.0 0.6-2.0 ---	0.06-0.13 0.04-0.10 ---	5.6-6.5 5.6-6.5 ---	Low----- Low----- -----	0.20 0.10 -----	1	1-2
163, 164: Nashmead-----	0-11 11-24 24-34 34-51 51	10-20 15-27 20-27 15-25 ---	2.0-6.0 2.0-6.0 0.6-2.0 0.6-2.0 ---	0.08-0.11 0.06-0.10 0.06-0.10 0.06-0.10 ---	6.1-7.3 6.1-7.3 6.1-7.3 6.1-7.3 ---	Low----- Low----- Low----- Low----- -----	0.20 0.10 0.10 0.10 -----	3	1-3
Updegraff-----	0-12 12-22 22-36 36-45 45	15-25 20-35 27-35 27-40 ---	0.6-2.0 0.2-0.6 0.2-0.6 0.2-0.6 ---	0.14-0.16 0.15-0.18 0.13-0.15 0.15-0.18 ---	5.6-7.3 5.6-7.3 5.6-7.3 5.6-7.3 ---	Low----- Moderate----- Moderate----- Moderate----- -----	0.32 0.32 0.20 0.32 -----	3	1-5

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
163, 164: Woodin-----	0-7	15-25	2.0-6.0	0.08-0.11	5.1-7.3	Low-----	0.20	2	2-4
	7-15	15-25	0.6-2.0	0.05-0.08	5.1-7.3	Low-----	0.10		
	15-23	15-25	0.6-2.0	0.04-0.07	5.1-6.5	Low-----	0.10		
	23	---	---	---	---	-----	-----		
165, 166: Nashmead-----	0-11	10-20	2.0-6.0	0.08-0.11	6.1-7.3	Low-----	0.20	3	1-3
	11-24	15-27	2.0-6.0	0.06-0.10	6.1-7.3	Low-----	0.10		
	24-34	20-27	0.6-2.0	0.06-0.10	6.1-7.3	Low-----	0.10		
	34-51	15-25	0.6-2.0	0.06-0.10	6.1-7.3	Low-----	0.10		
	51	---	---	---	---	-----	-----		
Woodin-----	0-7	15-25	2.0-6.0	0.08-0.11	5.1-7.3	Low-----	0.20	2	2-4
	7-15	15-25	0.6-2.0	0.05-0.08	5.1-7.3	Low-----	0.10		
	15-23	15-25	0.6-2.0	0.04-0.07	5.1-6.5	Low-----	0.10		
	23	---	---	---	---	-----	-----		
167, 168: Neuns-----	0-5	6-17	0.6-2.0	0.05-0.08	5.1-6.5	Low-----	0.10	2	<1
	5-29	8-18	0.6-2.0	0.05-0.08	5.1-6.5	Low-----	0.10		
	29	---	---	---	---	-----	-----		
Bluenose-----	0-15	10-20	2.0-6.0	0.05-0.09	6.1-7.3	Low-----	0.05	5	1-3
	15-36	15-27	0.6-2.0	0.06-0.11	5.1-6.5	Low-----	0.10		
	36-62	10-20	0.6-2.0	0.07-0.10	5.1-6.5	Low-----	0.10		
Tyson-----	0-7	18-27	0.6-2.0	0.07-0.12	6.1-7.3	Low-----	0.10	2	2-10
	7-24	20-30	0.6-2.0	0.07-0.12	4.5-6.0	Low-----	0.10		
	24	---	---	---	---	-----	-----		
169, 170, 171: Ornbaun-----	0-9	15-25	0.6-2.0	0.14-0.16	5.1-6.5	Low-----	0.32	3	2-4
	9-42	27-40	0.6-2.0	0.12-0.15	4.5-6.0	Moderate-----	0.28		
	42	---	---	---	---	-----	-----		
Zeni-----	0-7	15-25	0.6-2.0	0.14-0.16	5.1-6.5	Low-----	0.32	2	1-4
	7-15	20-30	0.6-2.0	0.16-0.18	5.1-6.0	Moderate-----	0.32		
	15-23	25-35	0.6-2.0	0.14-0.18	5.1-6.0	Moderate-----	0.28		
	23	---	---	---	---	-----	-----		
172: Pardaloe-----	0-10	15-25	2.0-6.0	0.09-0.12	5.6-6.5	Low-----	0.20	3	<2
	10-27	15-20	2.0-6.0	0.05-0.08	5.6-6.5	Low-----	0.05		
	27-58	15-27	0.6-2.0	0.06-0.08	5.6-6.5	Low-----	0.05		
	58	---	---	---	---	-----	-----		
Kekawaka-----	0-4	20-27	0.6-2.0	0.14-0.17	5.6-6.5	Low-----	0.32	5	1-2
	4-35	35-40	0.2-0.6	0.15-0.19	5.1-6.5	Moderate-----	0.28		
	35-61	40-55	0.2-0.6	0.14-0.16	5.1-6.5	Moderate-----	0.24		
Casabonne-----	0-15	15-27	0.6-2.0	0.11-0.14	5.6-6.5	Low-----	0.20	3	2-6
	15-43	27-35	0.6-2.0	0.15-0.18	5.1-6.5	Moderate-----	0.32		
	43-58	27-40	0.6-2.0	0.12-0.15	5.1-6.5	Moderate-----	0.32		
	58	---	---	---	---	-----	-----		
173: Pardaloe-----	0-10	15-25	2.0-6.0	0.09-0.12	5.6-6.5	Low-----	0.20	3	<2
	10-27	15-20	2.0-6.0	0.05-0.08	5.6-6.5	Low-----	0.05		
	27-58	15-27	0.6-2.0	0.06-0.08	5.6-6.5	Low-----	0.05		
	58	---	---	---	---	-----	-----		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
173:									
Woodin-----	0-7	15-25	2.0-6.0	0.08-0.11	5.1-7.3	Low-----	0.20	2	2-4
	7-15	15-25	0.6-2.0	0.05-0.08	5.1-7.3	Low-----	0.10		
	15-23	15-25	0.6-2.0	0.04-0.07	5.1-6.5	Low-----	0.10		
	23	---	---	---	---	---	---		
Casabonne-----	0-15	15-27	0.6-2.0	0.11-0.14	5.6-6.5	Low-----	0.20	3	2-6
	15-43	27-35	0.6-2.0	0.15-0.18	5.1-6.5	Moderate-----	0.32		
	43-58	27-40	0.6-2.0	0.12-0.15	5.1-6.5	Moderate-----	0.32		
	58	---	---	---	---	---	---		
174:									
Pardaloe-----	0-10	15-25	2.0-6.0	0.09-0.12	5.6-6.5	Low-----	0.20	3	<2
	10-27	15-20	2.0-6.0	0.05-0.08	5.6-6.5	Low-----	0.05		
	27-58	15-27	0.6-2.0	0.06-0.08	5.6-6.5	Low-----	0.05		
	58	---	---	---	---	---	---		
Woodin-----	0-7	15-25	2.0-6.0	0.08-0.11	5.1-7.3	Low-----	0.20	2	2-4
	7-15	15-25	0.6-2.0	0.05-0.08	5.1-7.3	Low-----	0.10		
	15-23	15-25	0.6-2.0	0.04-0.07	5.1-6.5	Low-----	0.10		
	23	---	---	---	---	---	---		
175, 176-----	0-11	18-27	0.6-2.0	0.13-0.17	6.1-7.3	Low-----	0.32	5	1-2
Pinnobie	11-48	18-30	0.6-2.0	0.13-0.17	6.1-7.3	Moderate-----	0.32		
	48-60	18-30	0.6-2.0	0.12-0.18	6.1-7.3	Moderate-----	0.32		
177, 178, 179,									
180-----	0-10	18-25	0.6-2.0	0.11-0.15	6.1-7.3	Low-----	0.20	5	1-3
Pinole	10-37	25-35	0.2-0.6	0.12-0.18	5.6-7.3	Moderate-----	0.24		
	37-61	20-30	0.2-0.6	0.11-0.16	5.6-7.3	Moderate-----	0.20		
181, 182-----	0-10	18-25	0.6-2.0	0.08-0.10	6.1-7.3	Low-----	0.15	5	1-3
Pinole	10-37	25-35	0.2-0.6	0.12-0.18	5.6-7.3	Moderate-----	0.24		
	37-43	20-30	0.2-0.6	0.11-0.16	5.6-7.3	Moderate-----	0.20		
	43-60	20-30	0.2-0.6	0.07-0.12	5.6-7.3	Moderate-----	0.17		
183.									
Pits and Dumps									
184, 185, 186----	0-8	20-30	0.6-2.0	0.14-0.16	5.1-6.5	Low-----	0.28	5	2-5
Redvine	8-14	30-40	0.2-0.6	0.17-0.19	5.1-6.5	Moderate-----	0.32		
	14-60	40-60	0.06-0.2	0.14-0.16	4.5-6.0	High-----	0.24		
187.									
Rock outcrop									
188, 189-----	0-38	12-18	0.6-2.0	0.14-0.17	6.1-7.8	Low-----	0.43	5	1-4
Russian	38-60	10-18	0.6-2.0	0.14-0.17	6.1-7.8	Low-----	0.43		
190-----	0-30	12-18	0.6-2.0	0.14-0.17	6.1-7.8	Low-----	0.43	4	1-4
Russian	30-51	5-10	2.0-6.0	0.02-0.10	6.1-7.8	Low-----	0.20		
	51-60	5-10	6.0-20	0.03-0.09	6.1-7.8	Low-----	0.17		
191, 192:									
Sanhedrin-----	0-13	18-25	0.6-2.0	0.11-0.14	5.6-6.5	Low-----	0.20	3	1-2
	13-43	25-35	0.2-0.6	0.10-0.13	5.1-6.5	Moderate-----	0.15		
	43	---	---	---	---	---	---		
Asabeen-----	0-9	15-25	0.6-2.0	0.11-0.14	6.1-7.3	Low-----	0.20	5	1-3
	9-37	20-35	0.2-0.6	0.08-0.11	5.1-6.0	Low-----	0.10		
	37-64	18-30	0.2-0.6	0.09-0.12	5.1-6.0	Low-----	0.10		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
191, 192: Speaker-----	0-6	18-25	0.6-2.0	0.11-0.16	5.1-6.5	Low-----	0.20	2	2-5
	6-24	25-35	0.2-0.6	0.12-0.20	4.5-6.0	Moderate-----	0.32		
	24	---	---	---	---	---	---		
193, 194, 195: Sanhedrin-----	0-13	18-25	0.6-2.0	0.11-0.14	5.6-6.5	Low-----	0.20	3	1-2
	13-43	25-35	0.2-0.6	0.10-0.13	5.1-6.5	Moderate-----	0.15		
	43	---	---	---	---	---	---		
Kekawaka-----	0-4	20-27	0.6-2.0	0.14-0.17	5.6-6.5	Low-----	0.32	5	1-2
	4-35	35-40	0.2-0.6	0.15-0.19	5.1-6.5	Moderate-----	0.28		
	35-61	40-55	0.2-0.6	0.14-0.16	5.1-6.5	Moderate-----	0.24		
Speaker-----	0-6	18-25	0.6-2.0	0.11-0.16	5.1-6.5	Low-----	0.20	2	2-5
	6-24	27-35	0.2-0.6	0.12-0.20	4.5-6.0	Moderate-----	0.32		
	24	---	---	---	---	---	---		
196: Shortyork-----	0-7	20-27	0.6-2.0	0.11-0.14	5.6-7.3	Low-----	0.20	2	1-3
	7-28	27-35	0.2-0.6	0.08-0.12	5.1-6.5	Moderate-----	0.10		
	28	---	---	---	---	---	---		
Tyson-----	0-7	18-27	0.6-2.0	0.07-0.12	6.1-7.3	Low-----	0.10	2	2-10
	7-24	20-30	0.6-2.0	0.07-0.12	4.5-6.0	Low-----	0.10		
	24	---	---	---	---	---	---		
Witherell-----	0-7	12-20	0.6-2.0	0.11-0.13	6.1-7.3	Low-----	0.32	1	<2
	7-12	12-27	0.6-2.0	0.10-0.16	5.1-6.5	Low-----	0.24		
	12	---	---	---	---	---	---		
197: Shortyork-----	0-7	20-27	0.6-2.0	0.11-0.14	5.6-7.3	Low-----	0.20	2	1-3
	7-28	27-35	0.2-0.6	0.08-0.12	5.1-6.5	Moderate-----	0.10		
	28	---	---	---	---	---	---		
Witherell-----	0-7	12-20	0.6-2.0	0.11-0.13	6.1-7.3	Low-----	0.32	1	<2
	7-12	12-27	0.6-2.0	0.10-0.16	5.1-6.5	Low-----	0.24		
	12	---	---	---	---	---	---		
Updegraff-----	0-12	15-25	0.6-2.0	0.14-0.16	5.6-7.3	Low-----	0.32	3	1-5
	12-22	20-35	0.2-0.6	0.15-0.18	5.6-7.3	Moderate-----	0.32		
	22-36	27-35	0.2-0.6	0.13-0.15	5.6-7.3	Moderate-----	0.20		
	36-45	27-40	0.2-0.6	0.15-0.18	5.6-7.3	Moderate-----	0.32		
	45	---	---	---	---	---	---		
198, 199, 200: Shortyork-----	0-7	20-27	0.6-2.0	0.11-0.14	5.6-7.3	Low-----	0.20	2	1-3
	7-28	27-35	0.2-0.6	0.08-0.12	5.1-6.5	Moderate-----	0.10		
	28	---	---	---	---	---	---		
Yorkville-----	0-15	20-27	0.2-0.6	0.15-0.17	5.6-7.8	Low-----	0.32	5	1-2
	15-41	35-50	<0.06	0.15-0.18	6.6-8.4	High-----	0.24		
	41-60	35-45	<0.06	0.14-0.17	6.6-8.4	High-----	0.20		
Witherell-----	0-7	12-20	0.6-2.0	0.11-0.13	6.1-7.3	Low-----	0.32	1	<2
	7-12	12-27	0.6-2.0	0.10-0.16	5.1-6.5	Low-----	0.24		
	12	---	---	---	---	---	---		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
227, 228: Yorktree-----	0-12	20-27	0.6-2.0	0.15-0.17	5.6-7.3	Low-----	0.32	3	1-5
	12-24	24-35	0.2-0.6	0.12-0.15	5.6-7.3	Moderate-----	0.24		
	24-42	35-50	0.06-0.2	0.12-0.15	5.6-7.3	High-----	0.20		
	42-51	35-50	0.06-0.2	0.10-0.13	5.6-7.3	High-----	0.20		
	51	---	---	---	---	-----	---		
Yorkville-----	0-15	20-27	0.2-0.6	0.15-0.17	5.6-7.8	Low-----	0.32	5	1-2
	15-41	35-50	<0.06	0.15-0.18	6.6-8.4	High-----	0.24		
	41-60	30-45	<0.06	0.14-0.17	6.6-8.4	High-----	0.20		
229, 230-----	0-15	20-27	0.2-0.6	0.15-0.17	5.6-7.8	Low-----	0.32	5	1-2
Yorkville	15-41	35-50	<0.06	0.15-0.18	6.6-8.4	High-----	0.24		
	41-60	30-45	<0.06	0.14-0.17	6.6-8.4	High-----	0.20		
231: Yorkville-----	0-15	20-27	0.2-0.6	0.15-0.17	5.6-7.8	Low-----	0.32	5	1-2
	15-41	35-50	<0.06	0.15-0.18	6.6-8.4	High-----	0.24		
	41-60	30-45	<0.06	0.14-0.17	6.6-8.4	High-----	0.20		
Hopland-----	0-12	15-25	0.6-2.0	0.14-0.16	5.6-7.3	Low-----	0.32	2	1-5
	12-31	20-35	0.2-0.6	0.15-0.18	5.6-6.5	Moderate-----	0.28		
	31	---	---	---	---	-----	---		
232, 233: Yorkville-----	0-15	20-27	0.2-0.6	0.15-0.17	5.6-7.8	Low-----	0.32	5	1-2
	15-41	35-50	<0.06	0.15-0.18	6.6-8.4	High-----	0.24		
	41-60	30-45	<0.06	0.14-0.17	6.6-8.4	High-----	0.20		
Squawrock-----	0-7	12-25	0.6-2.0	0.07-0.11	5.6-7.3	Low-----	0.20	2	1-2
	7-16	20-35	0.6-2.0	0.07-0.11	5.6-6.5	Moderate-----	0.10		
	16-21	20-35	0.6-2.0	0.07-0.11	5.6-6.5	Moderate-----	0.10		
	21	---	---	---	---	-----	---		
Witherell-----	0-7	12-20	0.6-2.0	0.11-0.13	6.1-7.3	Low-----	0.32	1	<2
	7-12	12-27	0.6-2.0	0.10-0.16	5.1-6.5	Low-----	0.24		
	12	---	---	---	---	-----	---		
234, 235: Yorkville-----	0-15	20-27	0.2-0.6	0.15-0.17	5.6-7.8	Low-----	0.32	5	1-2
	15-41	35-50	<0.06	0.15-0.18	6.6-8.4	High-----	0.24		
	41-60	30-45	<0.06	0.14-0.17	6.6-8.4	High-----	0.20		
Yorktree-----	0-12	20-27	0.6-2.0	0.15-0.17	5.6-7.3	Low-----	0.32	3	1-5
	12-24	24-35	0.2-0.6	0.12-0.15	5.6-7.3	Moderate-----	0.24		
	24-42	35-50	0.06-0.2	0.12-0.15	5.6-7.3	High-----	0.20		
	42-51	35-50	0.06-0.2	0.10-0.13	5.6-7.3	High-----	0.20		
	51	---	---	---	---	-----	---		
Squawrock-----	0-7	12-25	0.6-2.0	0.07-0.11	5.6-7.3	Low-----	0.20	2	1-2
	7-16	20-35	0.6-2.0	0.07-0.11	5.6-6.5	Moderate-----	0.10		
	16-21	20-35	0.6-2.0	0.07-0.11	5.6-6.5	Moderate-----	0.10		
	21	---	---	---	---	-----	---		

TABLE 16.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "rare," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Frequency of flooding	High water table			Bedrock		Risk of corrosion	
			Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
			<u>Ft</u>			<u>In</u>			
101: Asabeam-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Sanhedrin-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
102: Asabeam-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Sanhedrin-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Speaker-----	C	None-----	>6.0	---	---	20-40	Hard	High-----	High.
103: Asabeam-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Speaker-----	C	None-----	>6.0	---	---	20-40	Hard	High-----	High.
Neuns-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
104: Bearwallow-----	C	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Hellman-----	C	None-----	>6.0	---	---	>60	---	High-----	High.
105: Bearwallow-----	C	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Hellman-----	C	None-----	>6.0	---	---	>60	---	High-----	High.
Witherell-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	High.
106, 107, 108: Bluenose-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Neuns-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Gudgrey-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
109, 110: Casabonne-----	B	None-----	>6.0	---	---	40-60	Soft	Moderate	Moderate.
Wohly-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
111: Casabonne-----	B	None-----	>6.0	---	---	40-60	Soft	Moderate	Moderate.
Wohly-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Pardaloe-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
112----- Clear Lake	D	None-----	1.5-3.0	Perched	Dec-Mar	>60	---	High-----	Low.
113, 114----- Cole	C	None-----	>6.0	---	---	>60	---	High-----	Moderate.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Frequency of flooding	High water table			Bedrock		Risk of corrosion	
			Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
			<u>Ft</u>			<u>In</u>			
136, 137: Henneke-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	Moderate.
Montara-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	Low.
138, 139: Holohan-----	B	None-----	>6.0	---	---	>60	---	High-----	High.
Hollowtree-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Casabonne-----	B	None-----	>6.0	---	---	40-60	Soft	Moderate	Moderate.
140: Holohan-----	B	None-----	>6.0	---	---	>60	---	High-----	High.
Hollowtree-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
141, 142----- Hopland	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
143, 144: Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Maymen-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	High.
Etsel-----	D	None-----	>6.0	---	---	4-10	Hard	Moderate	Moderate.
145, 146, 147: Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Sanhedrin-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Kekawaka-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
148, 149: Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Witherell-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	High.
Squawrock-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
150, 151: Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Wohly-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
152, 153: Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Woodin-----	C	None-----	>6.0	---	---	20-40	Hard	High-----	High.
154, 155: Kekawaka-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Casabonne-----	B	None-----	>6.0	---	---	40-60	Soft	Moderate	Moderate.
Wohly-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
156----- Maxwell	D	None-----	3.5-6.0	Perched	Dec-Mar	>60	---	High-----	Low.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Frequency of flooding	High water table			Bedrock		Risk of corrosion	
			Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
			<u>Ft</u>			<u>In</u>			
157: Mayacama-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Etsel-----	D	None-----	>6.0	---	---	4-10	Hard	Moderate	Moderate.
158: Maymen-----	D	None-----	>6.0	---	---	10-20	Hard	High----	High.
Etsel-----	D	None-----	>6.0	---	---	4-10	Hard	Moderate	Moderate.
Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
159: Maymen-----	D	None-----	>6.0	---	---	10-20	Hard	High----	High.
Etsel-----	D	None-----	>6.0	---	---	4-10	Hard	Moderate	Moderate.
Mayacama-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
160: Maymen-----	D	None-----	>6.0	---	---	10-20	Hard	High----	High.
Etsel-----	D	None-----	>6.0	---	---	4-10	Hard	Moderate	Moderate.
Snook-----	D	None-----	>6.0	---	---	4-10	Hard	Moderate	Moderate.
161, 162: Maymen-----	D	None-----	>6.0	---	---	10-20	Hard	High----	High.
Woodin-----	C	None-----	>6.0	---	---	20-40	Hard	High----	High.
Etsel-----	D	None-----	>6.0	---	---	4-16	Hard	Moderate	Moderate.
163, 164: Nashmead-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Low.
Updegraff-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Woodin-----	C	None-----	>6.0	---	---	20-40	Hard	High----	High.
165, 166: Nashmead-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Low.
Woodin-----	C	None-----	>6.0	---	---	20-40	Hard	High----	High.
167, 168: Neuns-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Bluenose-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Tyson-----	B	None-----	>6.0	---	---	20-40	Hard	High----	High.
169, 170, 171: Ornbaun-----	B	None-----	>6.0	---	---	40-60	Soft	High----	High.
Zeni-----	C	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
172: Pardaloe-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Frequency of flooding	High water table			Bedrock		Risk of corrosion	
			Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
			<u>Ft</u>			<u>In</u>			
172: Kekawaka-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Casabonne-----	B	None-----	>6.0	---	---	40-60	Soft	Moderate	Moderate.
173: Pardaloe-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Woodin-----	C	None-----	>6.0	---	---	20-40	Hard	High-----	High.
Casabonne-----	B	None-----	>6.0	---	---	40-60	Soft	Moderate	Moderate.
174: Pardaloe-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Woodin-----	C	None-----	>6.0	---	---	20-40	Hard	High-----	High.
175, 176----- Pinnobie	B	None-----	>6.0	---	---	>60	---	Moderate	Low.
177, 178, 179, 180, 181, 182---- Pinole	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
183. Pits and Dumps									
184, 185, 186---- Redvine	C	None-----	>6.0	---	---	>60	---	High-----	High.
187. Rock outcrop									
188----- Russian	B	None-----	>6.0	---	---	>60	---	Moderate	Low.
189----- Russian	B	Occasional-----	>6.0	---	---	>60	---	Moderate	Low.
190----- Russian	B	None-----	>6.0	---	---	>60	---	Moderate	Low.
191, 192: Sanhedrin-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Asabean-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Speaker-----	C	None-----	>6.0	---	---	20-40	Hard	High-----	High.
193, 194, 195: Sanhedrin-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Kekawaka-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Speaker-----	C	None-----	>6.0	---	---	20-40	Hard	High-----	High.
196: Shortyork-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Tyson-----	B	None-----	>6.0	---	---	20-40	Hard	High-----	High.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Frequency of flooding	High water table			Bedrock		Risk of corrosion	
			Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
			<u>Ft</u>			<u>In</u>			
196: Witherell-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	High.
197: Shortyork-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Witherell-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	High.
Updegraff-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
198, 199, 200: Shortyork-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Yorkville-----	D	None-----	>6.0	---	---	>60	---	High-----	Moderate.
Witherell-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	High.
201, 202: Squawrock-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Witherell-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	High.
203, 204----- Talmage	B	Rare-----	>6.0	---	---	>60	---	Moderate	Moderate.
205, 206: Tyson-----	B	None-----	>6.0	---	---	20-40	Hard	High-----	High.
Updegraff-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
207: Updegraff-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Sanhedrin-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
208, 209: Updegraff-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Speaker-----	C	None-----	>6.0	---	---	20-40	Hard	High-----	High.
Neuns-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
210. Urban land									
211: Witherell-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	High.
Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Squawrock-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
212: Wohly-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Casabonne-----	B	None-----	>6.0	---	---	40-60	Soft	Moderate	Moderate.
213: Wohly-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Casabonne-----	B	None-----	>6.0	---	---	40-60	Soft	Moderate	Moderate.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Frequency of flooding	High water table			Bedrock		Risk of corrosion	
			Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
			<u>Ft</u>			<u>In</u>			
213: Pardaloe-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
214. Xerochrepts									
215, 216: Xerochrepts. Haploxeralfs. Argixerolls.									
217. Xerofluvents									
218: Xerofluvents. Riverwash.									
219: Yellowhound-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Kibesillah-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Ornbaun-----	B	None-----	>6.0	---	---	40-60	Soft	High-----	High.
220: Yellowhound-----	B	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Kibesillah-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
221, 222, 223----- Yokayo	D	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
224: Yokayo-----	D	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Pinole-----	B	None-----	>6.0	---	---	>60	---	Moderate	Moderate.
Pinnobie-----	B	None-----	>6.0	---	---	>60	---	Moderate	Low.
225, 226: Yorktree-----	C	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
Woodin-----	C	None-----	>6.0	---	---	20-40	Hard	High-----	High.
227, 228: Yorktree-----	C	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Yorkville-----	D	None-----	>6.0	---	---	>60	---	High-----	Moderate.
229, 230----- Yorkville	D	None-----	>6.0	---	---	>60	---	High-----	Moderate.
231: Yorkville-----	D	None-----	>6.0	---	---	>60	---	High-----	Moderate.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Frequency of flooding	High water table			Bedrock		Risk of corrosion	
			Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
			<u>Ft</u>			<u>In</u>			
231: Hopland-----	B	None-----	>6.0	---	---	20-40	Soft	Moderate	Moderate.
232, 233: Yorkville-----	D	None-----	>6.0	---	---	>60	---	High-----	Moderate.
Squawrock-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.
Witherell-----	D	None-----	>6.0	---	---	10-20	Hard	High-----	High.
234, 235: Yorkville-----	D	None-----	>6.0	---	---	>60	---	High-----	Moderate.
Yorktree-----	C	None-----	>6.0	---	---	40-60	Hard	Moderate	Moderate.
Squawrock-----	C	None-----	>6.0	---	---	20-40	Hard	Moderate	Moderate.

TABLE 17.--CLASSIFICATION OF THE SOILS

(An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series)

Soil name	Family or higher taxonomic class
Asabeam-----	Loamy-skeletal, mixed, mesic Ultic Haploxeralfs
Bearwallow-----	Fine-loamy, mixed, thermic Ultic Haploxeralfs
Beaughton-----	Clayey-skeletal, serpentinitic, mesic Lithic Argixerolls
Bluenose-----	Loamy-skeletal, mixed, mesic Ultic Argixerolls
Casabonne-----	Fine-loamy, mixed, mesic Ultic Haploxeralfs
*Clear Lake-----	Fine, montmorillonitic, thermic Typic Pelloxererts
Cole-----	Fine, mixed, thermic Pachic Argixerolls
Cummiskey-----	Loamy-skeletal, oxidic, mesic Pachic Ultic Argixerolls
Dingman-----	Fine, serpentinitic, mesic Pachic Ultic Argixerolls
Dunsmuir-----	Fine-loamy, oxidic, mesic Ultic Haploxeralfs
Etsel-----	Loamy-skeletal, mixed, nonacid, mesic Lithic Xerorthents
Feliz-----	Fine-loamy, mixed, thermic Cumulic Haploxerolls
Frenchman-----	Loamy-skeletal, mixed, isomesic Ustic Dystropepts
Gielow-----	Fine-loamy, mixed, mesic Cumulic Haplaquolls
Gschwend-----	Fine-loamy, mixed, isomesic Ustic Dystropepts
Gudgrey-----	Fine-loamy, mixed, mesic Pachic Xerumbrepts
Hellman-----	Fine, mixed, thermic Mollic Palexeralfs
Henneke-----	Clayey-skeletal, serpentinitic, thermic Lithic Argixerolls
Hollowtree-----	Loamy-skeletal, mixed, mesic Ultic Haploxeralfs
Holohan-----	Loamy-skeletal, mixed, mesic Ultic Haploxeralfs
Hopland-----	Fine-loamy, mixed, mesic Typic Haploxeralfs
Kekawaka-----	Fine, kaolinitic, mesic Ultic Palexeralfs
Kibesillah-----	Loamy-skeletal, mixed, isomesic Ultic Haplustalfs
Maxwell-----	Fine, montmorillonitic, thermic Typic Pelloxererts
Mayacama-----	Loamy-skeletal, mixed, mesic Dystric Xerochrepts
Maymen-----	Loamy, mixed, mesic Dystric Lithic Xerochrepts
Maymen Variant-----	Clayey, mixed, mesic, shallow Typic Haploxerults
Montara-----	Loamy, serpentinitic, thermic Lithic Haploxerolls
Nashmead-----	Loamy-skeletal, mixed, mesic Ultic Argixerolls
Neuns-----	Loamy-skeletal, mixed, mesic Dystric Xerochrepts
Ornbaun-----	Fine-loamy, mixed, isomesic Ultic Haplustalfs
Pardaloe-----	Loamy-skeletal, mixed, mesic Typic Xerochrepts
Pinnobie-----	Fine-loamy, mixed, thermic Ultic Haploxerolls
Pinole-----	Fine-loamy, mixed, thermic Ultic Argixerolls
Redvine-----	Fine, mixed, thermic Ultic Palexeralfs
Russian-----	Coarse-loamy, mixed, thermic Cumulic Haploxerolls
Sanhedrin-----	Fine-loamy, mixed, mesic Ultic Haploxeralfs
Shortyork-----	Loamy-skeletal, mixed, thermic Ultic Argixerolls
Snook-----	Loamy, mixed, nonacid, thermic Lithic Xerorthents
Speaker-----	Fine-loamy, mixed, mesic Ultic Haploxeralfs
Squawrock-----	Loamy-skeletal, mixed, thermic Mollic Haploxeralfs
Talmage-----	Loamy-skeletal, mixed, thermic Fluventic Haploxerolls
Tyson-----	Loamy-skeletal, mixed, mesic Typic Xerumbrepts
Updegraff-----	Fine-loamy, mixed, mesic Ultic Argixerolls
Witherell-----	Loamy, mixed, thermic Lithic Xerochrepts
Wohly-----	Fine-loamy, mixed, mesic Ultic Haploxeralfs
Woodin-----	Loamy-skeletal, mixed, mesic Dystric Xerochrepts
Yellowhound-----	Loamy-skeletal, mixed, isomesic Ultic Haplustalfs
Yokayo-----	Fine, mixed, thermic Typic Palexeralfs
Yorktree-----	Fine, mixed, mesic Ultic Argixerolls
Yorkville-----	Fine, mixed, thermic Typic Argixerolls
Zeni-----	Fine-loamy, mixed, isomesic Ultic Haplustalfs

